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Report To

The Mississippi Legislature

FY 1990 ACTUARIAL REVIEW OF THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI

December 17, 1991

MISS. CODE ANN. Section 25-11-101 (1972) requires PEER annually to review actuarial and financial aspects of the Mississippi Public Employees' Retirement System. This year's review focuses on adequacy of benefit levels, the impact of new Governmental Accounting Standards Board reporting requirements, and implications of the Tax Reform Act of 1986.

The report summarizes mechanisms for monitoring public retirement systems, including methods currently used by the Mississippi Legislature.

The PEER Committee

PEER: THE MISSISSIPPI LEGISLATURE'S OVERSIGHT AGENCY

The Mississippi Legislature created the Joint Legislative Committee on Performance Evaluation and Expenditure Review (PEER Committee) by statute in 1973. A standing joint committee, the PEER Committee is composed of five members of the House of Representatives appointed by the Speaker and five members of the Senate appointed by the Lieutenant Governor. Appointments are made for four-year terms with one Senator and one Representative appointed from each of the U. S. Congressional Districts. Committee officers are elected by the membership with officers alternating annually between the two houses. All Committee actions by statute require a majority vote of three Representatives and three Senators voting in the affirmative.

An extension of the Mississippi Legislature's constitutional prerogative to conduct examinations and investigations, PEER is authorized by law to review any entity, including contractors supported in whole or in part by public funds, and to address any issues which may require legislative action. PEER has statutory access to all state and local records and has subpoena power to compel testimony or the production of documents.

As an integral part of the Legislature, PEER provides a variety of services, including program evaluations, economy and efficiency reviews, financial audits, limited scope evaluations, fiscal notes, special investigations, briefings to individual legislators, testimony, and other governmental research and assistance. The Committee identifies inefficiency or ineffectiveness or a failure to accomplish legislative objectives, and makes recommendations for redefinition, redirection, redistribution and/or restructuring of Mississippi government. As directed by and subject to the prior approval of the PEER Committee, the Committee's professional staff executes audit and evaluation projects obtaining information and developing options for consideration by the Committee. The PEER Committee releases reports to the Legislature, Governor, Lieutenant Governor, and agency examined.

The Committee assigns top priority to written requests from individual legislators and legislative committees. The Committee also considers PEER staff proposals and written requests from state officials and others.

FY 1990 ACTUARIAL REVIEW OF THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF MISSISSIPPI

December 17, 1991

The PEER Committee

Mississippi Legislature

The Mississippi Legislature
Joint Committee on Performance Evaluation and Expenditure Review
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MEMBERS OF THE MISSISSIPPI STATE LEGISLATURE

According to MISS. CODE ANN. Section 25-11-101 (1972), the PEER Committee is required *"to have performed random actuarial evaluations, as necessary, of the funds and expenses of the Public Employees' Retirement System and to make annual reports to the Legislature on the financial soundness of the system."*

The PEER Committee engaged Bryan, Pendleton, Swats and McAllister, Actuaries and Consultants, to prepare the enclosed actuarial review of PERS for FY 1990. PEER released this report, entitled *FY 1990 Actuarial Review of the Public Employees' Retirement System of Mississippi,* at its December 17, 1991, meeting. The actuary's letter on page xi presents a brief summary of the report's findings and recommendations.

In addition to transmittal of this report, PEER wishes to note that the PERS Board of Trustees should provide for a legal analysis of the 1986 Tax Reform Act's coverage of public retirement systems, which becomes effective in 1993.

Jerry Wilkerson

Representative Jerry Wilkerson, Chairman

This report does not recommend increased funding or additional staff.

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MECHANISMS FOR LEGISLATIVE OVERSIGHT OF PUBLIC EMPLOYEES' RETIREMENT SYSTEMS

Legislatures have a constitutional and traditional role as overseers of all governmental activities. Public retirement systems in the U.S. manage trillions of dollars on behalf of millions of retirees and contributing employees. Legislatures are naturally drawn to supervising public retirement systems. The overriding policy goal is to ensure the security of the pension funds.

In overseeing public pension plans, the legislature's mission is:

- To review the appropriateness of the retirement plan's benefit levels;
- To assess the long-range funding goals of the system and monitor actuarial assumptions;
- To promulgate general investment policies; and
- To ensure that administrative controls are in place.

What is the most effective method for such oversight? Among many methods to choose from, the most commonly used are:

1. Self-evaluation and reporting (with reports to the legislature);
2. The annual legislative budget process;
3. Financial and compliance audits;
4. Sunset reviews and management reviews;
5. Use of certain standing committees of the legislature to handle pension legislation; and
6. Creation of a pension oversight commission or standing legislative oversight committee which reviews pending legislation and monitors system financing.

1. *Self-Reporting*

All retirement systems make periodic reports, including annual financial statements and account summaries for members. Most systems include some actuarial information in their financial statements. Self-reporting, of course, involves self-evaluation.

Mississippi's PERS makes an annual report to the Legislature, called the Consolidated Annual Financial Report (CAFR). In 1983, PEER issued a report criticizing PERS' annual report for misleading information and significant omissions. In recent years, PERS' annual report has greatly improved. It contains expenditures, account balances, membership information, and actuarial data.

2. *Budget Process*

Most state retirement systems receive some form of legislative appropriation to defray their administrative expenses. In Mississippi, PERS makes an annual budget request for administrative expenses. This is a special fund budget, where the appropriation law authorizes the PERS board to divert money from the trust fund into a special administration account.

The Legislative Budget Committee and the standing House and Senate appropriation committees generally use this review to determine the reasonableness of the administrative expenses of PERS, especially employee salaries. The analysis has a one- to two-year perspective, and is seldom, if ever, focused on reasonableness of benefits, the actuarial costs of the system, or the adequacy of PERS' management.

Furthermore, in Mississippi, PERS makes substantial expenditures (which greatly exceed the appropriated amount) which are not included in the legislative budget and receive no legislative scrutiny. These expenditures are for investment managers' fees and related trading costs.

3. *Financial and Compliance Audits*

Financial audits determine whether the system's financial reports truly reflect its financial condition. Compliance audits determine whether management obeys relevant laws. Financial and compliance auditors use statistical samples except in cases where fraud is suspected. Management's internal accounting controls are evaluated, and relied upon where they are reasonable. In several states, financial and compliance audits are conducted by an official appointed by the Legislature. Auditing is not essentially executive in nature, so such arrangements do not violate the principle of separation of powers. In Mississippi, the State Department of Audit conducts an annual financial and compliance audit of PERS. These audits focus on a past fiscal year, usually the fiscal year just ended.

4. Management Reviews

A management review evaluates management's decision-making, and differs from an investigation in that it extends beyond tests of legality and reviews the prudence of management actions.

An excellent example of this kind of review was recently completed in Utah by the Legislative Research Council. Legislative auditors found that the five top managers of Utah's retirement system had given themselves extra retirement credits totalling $500,000. They also discovered that managers had used the PERS maintenance shop to repair their personal cars and boats and had maintenance employees work on their homes. Further, the audit found that PERS salaries were 23% higher than those of the labor market, and that management had been guilty of hiring unqualified family members. Finally, the report evaluated the system's return on investment and found that it was in the lowest quartile of similar systems.

The PEER Committee routinely performs similar reviews, and has performed management reviews of Mississippi's PERS.

5. Use of Standing Committees of the Legislature to Handle Pension Legislation

In Mississippi the House Appropriations Committee and the Senate Finance Committee customarily handle all general bills dealing with retirement. Each of these committees has a retirement subcommittee which makes recommendations on all PERS bills. Typically, the personnel on these committees differs from that of the committees which handle the PERS appropriation.

6. Creation of a Pension Oversight Commission or a Standing Legislative Oversight Committee to Review Pending Legislation and Monitor Pension Financing

Twenty-two states have created pension oversight commissions. In the Southeast, these states include Louisiana, Arkansas, North Carolina, South Carolina and Tennessee. These bodies monitor the financing of PERS, review pending legislation and prepare fiscal notes thereon, and perform independent actuarial reviews. Nearly all pension commissions have legislative members. Some have gubernatorial appointees or local government representatives. A few have "management" or "labor" representatives or members who are experienced in investments.

The common functions of pension commissions are:

- To review benefit levels;
- To draft needed pension legislation;
- To advise the legislature on pending pension legislation;
- To prepare fiscal notes of pending pension legislation;
- To conduct continuing studies of the retirement system;
- To make regular reports to the legislature;
- To stay abreast of relevant developments in federal law; and
- To review investment policies.

Summary

In summary, pension commissions have *general* review authority over a retirement system. Some commissions handle pension legislation as referred bills in the regular legislative process. The benefit of using a pension commission is that the legislature has immediate access to a reliable source of information to guide its decision-making, if the commission is adequately staffed and maintains its independent posture.

In Mississippi, some of the benefits of a pension commission are obtained by the practice of appointing four members of the Legislature to sit on the PERS Board of Trustees as non-voting members. (Prior to 1984, the PERS Board included two legislators as voting members.)

In the past three years, the PEER committee has taken a larger role in monitoring PERS. PEER now conducts an annual actuarial review.

An alternative to creating a pension commission would be to better utilize the retirement subcommittees of House Appropriations and Senate Finance. These subcommittees could work jointly in subject areas that usually fall under the jurisdiction of pension commissions. For example, these subcommittees could meet annually for a comprehensive briefing on benefits and financing issues.

ACTUARIAL REVIEW
OF THE
PUBLIC EMPLOYEES' RETIREMENT SYSTEM
OF MISSISSIPPI

October 30, 1991

Prepared
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October 30, 1991

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Gentlemen:

We are pleased to present our actuarial review of the Public Employees' Retirement System of Mississippi, prepared according to our agreement with you.

A brief summary of our findings and recommendations are as follows:

1. Retirement allowances provided by PERS are certainly adequate and could be categorized as generous. Careful consideration of current benefit levels should precede any future discussion of benefit increases.

   Recommendation. Future increases in PERS benefit levels do not appear to be warranted and should be deferred until such time as they can be justified in light of member needs at retirement.

2. The PERS Board of Trustees should be required to adopt an appropriate actuarial cost method for determining System contributions in consultation with the PERS actuary. The current actuarial cost method used by the System may not be appropriate.

   Recommendation. As a minimum, we recommend the current practice of using the liquidation period of the unfunded accrued liability as the measure of the soundness of the System be replaced with a closed amortization of the unfunded accrued liability.

3. Funding benefit increases through employee contributions can produce large inequities among groups of employees. PERS should carefully analyze such inequities in the future as part of considerations to fund such increases through employee contributions.

   Recommendation. In general, benefit increases should not be funded solely through increased member contributions. Increases in member contributions should be reserved to aid in maintaining the overall soundness of the System.

We appreciate the opportunity of serving the PEER Committee and are available to answer any questions concerning this report.

Sincerely,

Michael E. Brister

Michael E. Brister, F.S.A.

ACTUARIAL AUDIT OF
THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM
OF MISSISSIPPI

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EXAMINATION OF THE ADEQUACY OF RETIREMENT ALLOWANCES UNDER THE MISSISSIPPI PUBLIC EMPLOYEES' RETIREMENT SYSTEM

I. Introduction

A. Environment.

In the 1980's many changes occurred in the environment in which the Mississippi Public Employee Retirement System (PERS) is expected to operate. For example:

1. The federal tax laws have changed several times, with a change to the entire structure in 1986;

2. Changes have occurred in the state tax structure as well, including the placing of a limit on the tax favored treatment of PERS income;

3. Social Security benefits have become partially taxable at the federal level;

4. Social Security benefits payable and "full benefit" ages have been altered by legislative action and by inflation; and

5. PERS itself has been amended as to benefits and member contribution rates.

Given all the changes that have occurred, it is appropriate to examine the adequacy of retirement allowances provided by PERS.

B. Replacement Ratios.

Many factors affect the adequacy of retirement income, including:

- Preretirement income;
- Federal taxes before and after retirement;
- State taxes before and after retirement;
- Age at retirement;
- Years of Service credited under PERS;
- Social Security benefits;
- Family status.

Most of these factors may be viewed as external influences on PERS. In addition, most are dramatically affected by a strong national policy to shift income from a person's working years to his or her retirement years.

Any study of the adequacy of retirement income should consider these factors. Therefore, the appropriate measure is to compare net income before retirement to net income after retirement. Post retirement income should reflect an estimate of Social Security benefits that will be payable since it is a significant part of the State's overall retirement policy as evidenced by the election to participate in the Social Security System.

The classic measure of the adequacy of retirement income is a replacement ratio. Since we are considering net income, the replacement ratios in this study are computed as:

Net Retirement Income

divided by

Net Preretirement Income

Replacement ratios, when examined in a variety of circumstances, will provide a realistic measure of the adequacy of PERS' retirement allowances.

C. Assumptions.

It is necessary to adopt a set of assumptions in order to estimate the effect of the many factors influencing net income. It must be noted, therefore, that none of the results presented here are intended to be applicable to a specific individual. These results are estimates intended to give a general measure of the operation of PERS under the assumptions stated.

Assumptions employed in this Section are as follows:

Years Creditable Service under PERS: 20, 25, 30 or 35

Salary in year of retirement:

$15,000	$40,000
20,000	45,000
25,000	50,000
30,000	55,000
35,000	60,000

Salary Scale: 5%

Social Security Earnings: Always employed, 5% Salary Scale

Age at Retirement: 65, 62 or 60
It is further assumed that PERS income starts immediately and that Social Security income starts at age 62 for retirement at ages 60 or 62.

Social Security levelling option:
For retirement at age 60, it is assumed the retiree makes this election.

Date of Retirement:
January 1, 1991

Date of Birth: January 1, 1926, 1929 or 1931, depending on age at retirement

Social Security law as in effect January 1, 1991.
(Table 1 shows Primary Insurance Amounts used.)

Family Status:

Married: PERS member is married to spouse of same age with no other dependents

Single: PERS member is not married and has no dependents

Income Sources:
PERS member is the sole source of income.
For married members, the spousal Social Security benefit is included.

Federal Income Tax: 1990 law with standard deductions.

		Married	Single
Exemptions	- Pre 65	$ 4,100	$2,050
	- Post 65	4,100	2,050
Deductions	- Pre 65	5,450	3,250
	- Post 65	6,750	3,900

(The applicable tax rates are shown in Table 1.)

State Income Tax: 1990 law with standard deductions.

		Married	Single
Exemptions	- Pre 65	$ 9,500	$6,000
	- Post 65	11,000	6,750
Deductions	- Pre 65	3,400	2,300
	- Post 65	3,400	2,300

The first $6,000 of PERS retirement income is exempt and Social Security income is wholly exempt.

Tax is equal to 3% of the first $5,000 of taxable income plus 4% of the next $5,000 plus 5% of taxable income in excess of $10,000.

Benefit Plan Contributions:

a. Preretirement:

PERS: 7.25% of gross salary
414(h) salary reduction reduces taxable income

Health Insurance: $0 for member; $96 for spouse (under age 65)

b. Post retirement:

Health Insurance:

	Under age 65	$102 for member; $96 for spouse
	Over age 65	$48 per person

FICA Tax:

7.65% of first $51,300

II. Preretirement Income

Table 2 presents the preretirement net income for each of the income categories assumed and for married and unmarried members. It is assumed the member earned the gross income shown in 1990, which is assumed to be the last year worked. This table is used in computing all the replacement ratios in this study.

The column headed "PERS & Health Ins Contrib" reflects the required employee contribution to PERS of 7.25% which was effective July 1, 1991. Since the focus of the study is on the future, we felt it would distort results to use the lower historical rate in our calculations.

This same column also reflects the contribution for spouse's health insurance coverage which would be paid by a married member. This currently amounts to $96 per month or $1,152 annually.

As noted in the Survey section of this report, PERS qualifies for "414(h) Pick up" of employee contributions which has the effect of excluding such contributions from Federal income tax. This is accomplished by a provision in the Internal Revenue Code to the effect that if the public retirement system meets certain qualifications and the system so elects, employee contributions may be treated for tax purposes as a reduction in salary for the employee and as an employer contribution for that employee. This election has been made in Mississippi and has been reflected in the calculation of tax.

Charts 1 and 2 summarize preretirement income results for a married and single member respectively. For a gross income of $35,000, a married person "takes home" about 70% of income, and a single person about 68%. Due to the progressive tax structure, these percentages decrease as income increases.

Charts 3 and 4 present gross and net preretirement incomes in all the income categories for married and single members, respectively.

III. Post Retirement Net Income

A. Determination of Gross Income.

There are two elements of post retirement gross income: PERS Income and Social Security income.

The PERS benefit formula is:

.01875 x (years of service up to 25) x FAE

plus

.02 x (years of service in excess of 25) x FAE

Where:

FAE is the average earnings over the 4 year period of employment that produces the highest average.

For example, consider a member whose salary increases 5% per year and equals $35,000 in his final year of employment. If the member has 30 years of service, then:

$$\begin{aligned} FAE &= 1/4\ (35{,}000 + 33{,}333.33 \\ &\qquad + 31{,}746.03 + 30{,}234.31) \\ &= 32{,}578.42 \end{aligned}$$

$$\begin{aligned} \text{PERS Benefit} &= .01875 \times (25) \times (32{,}578.42) \\ &\quad + .02 \times (30-25) \times (32{,}578.42) \\ &= \$18{,}529 \end{aligned}$$

The second element of post retirement gross income, Social Security, is dependent on a complex set of rules reflecting career earnings and age at retirement. The primary benefit, payable to a single person, is shown in Table 1. It should be noted that this income is reduced if started before age 65 and cannot start before age 62.

B. Determination of Income Tax.

Taxes were determined according to the assumptions noted earlier. Two important points affecting results are:

1. Federal Income Tax reflects the full taxability of PERS income and the partial taxability of Social Security. Social Security is taxed if <u>total</u> income including 1/2 of Social Security benefits exceeds $25,000 ($32,000 if married). In such a case, the amount included in gross income is the lesser of:

   a. 1/2 of the social security benefit

   or

   b. 1/2 of income (including 1/2 of social security) in excess of $25,000 ($32,000 if married)

2. Mississippi State Income tax currently provides that Social Security is fully tax exempt. In addition, the first $6,000 of PERS income is exempt from Mississippi income tax.

C. Married Retiree.

Table 3 presents the details of gross and net income after retirement for a married retiree. Details of the calculation are shown, as well as preretirement gross and net income amounts. Results are presented for the 4 service categories and 10 income categories noted earlier.

1. Retirement at Age 65

Part A of Table 3 presents results for a PERS member retiring at age 65. Chart 5 is a graphic of the post retirement net income calculation for a married member earning $35,000 at retirement and retiring at age 65 with 30 years of service. In this case, gross retirement income is $18,529 from PERS plus $17,298 from Social Security for a total of $35,827. Net income after taxes and health insurance contributions is $33,523 which is 93.6% of gross. Chart 5 may be compared to Chart 1 which showed preretirement take home pay of 70% of gross income for a married member at the $35,000 level. This is a dramatic difference and obviously affects any consideration of the adequacy of retirement income, and emphasizes the need to use net income replacement ratios.

The retention of a larger proportion of income after retirement is reflected in the comparison of net incomes shown in Chart 6. This Chart contrasts preretirement and post retirement net incomes for a married person retiring at age 65. Except in the 20 year service category at higher incomes, post retirement net income exceeds preretirement net income. This will be further demonstrated later in the examination of replacement ratios. This comparison, as noted already, reflects Social Security benefits including the additional benefit paid on behalf of the spouse.

2. Retirement at Age 62

PERS allows a member to retire without a reduction in benefit with 25 years of service or at age 60 or later with 4 years of service. Therefore, it is of interest to examine retirement at age 62.

Several external factors work to oppose the apparent intent of PERS to encourage early retirement. These are:

(a) Social Security benefits are permanently reduced if the worker elects to commence benefits before the normal starting date defined for Social Security benefits (age 65 in this study);

(b) Member health insurance premiums are higher below age 65. After age 65, the worker becomes eligible for Medicare which reduces the benefits (and therefore premiums) required of the State medical program; and

(c) Both State and Federal tax calculations allow additional deductions beginning at age 65.

Detailed results for a married member retiring at age 62 are shown in Part B of Table 3. The preretirement income as well as service categories are unchanged from Part A. The result is a PERS benefit which is the same as for retirement at age 65. (In other words, the PERS benefit does not depend on age at retirement.) The remaining results, however, reflect the changes noted earlier.

Note that as a result of changes in taxation and health insurance premium, net income increases at attained age 65 when an individual retires at age 62. The change in health insurance premium is the more significant of these differences and generates an additional $1,224 annual net income upon attainment at age 65.

Chart 7 presents a summary of net income at attained age 62 for a person retiring at age 62. Preretirement net income is shown for comparison. The decrease in post age 65 income from retirement at age 65 to retirement at age 62 is entirely due to lower Social Security benefits. PERS benefits are identical.

3. Retirement at Age 60

Table 3, part C presents information regarding the post retirement income at age 60. The situation facing such an individual is somewhat complex and this is reflected in the table.

First, Social Security benefits cannot be started before age 62. Therefore, PERS allows a member to elect an optional form of payment that will bridge the gap between the date of retirement and the commencement of Social Security benefits. The "bridge" is provided by increasing the PERS retirement allowance during the gap period and decreasing it thereafter in amounts that result in total income that is actuarially equivalent to the normal PERS benefit. We have assumed the retiree elects this option at age 60 and starts Social Security benefits at age 62.

It will be noticed in Table 3, Part C that the PERS levelling option is applied only to the Social Security Primary Insurance Amount. As a result, married members will receive an additional increase in gross income at age 62 when the Social Security spouse's benefit is paid in addition to the Primary Insurance Amount.

A second major influence on these results is that PERS income is subject to Federal tax whereas Social Security is at least partially exempt. For state taxes, a similar treatment occurs. Therefore, taxes are significantly higher during the "gap" period (attained ages 60 and 61) than thereafter.

In addition to these two factors, the factors noted in the preceding section continue to affect results.

In view of all the foregoing, a PERS member retiring prior to age 65 will go through a series of changes in income that will stabilize only after he (and his spouse) reach age 65. While these changes may be of interest for planning purposes, they are viewed most logically as being a choice made by the member.

Table 4 presents a summary of results for a married member with 30 years of service retiring at various ages. Income is shown for attained ages 60, 62 and 65 after retirement. While net incomes are lower for members retiring before age 65, it must be noted that:

(1) the difference is due to Social Security benefits and tax policy, and

(2) the lower income is received for a longer period of time (assuming equal life expectancy).

D. Unmarried Members.

Table 5, Parts A, B and C present results corresponding to those in Table 3 assuming the retiree is unmarried both before and after retirement. These results will differ from those in Table 3 because:

(1) Social Security benefits for an unmarried member equals the primary benefit only - there is no spouse's benefit payable.

(2) State and Federal tax treatment is different for married and single persons, with singles paying higher taxes.

(3) The foregoing is mitigated somewhat because no spouse's health insurance contribution is required.

Of these factors, the reduced Social Security income generates the most dramatic effect. This causes the net incomes shown in Table 5 to be noticeably lower than in Table 3.

In spite of the lower income amounts, the same general patterns that were noted for married members are present for nonmarried members. For example, Chart 8 illustrates that a nonmarried member retiring at age 65 at a final salary of $35,000 will retain 92% of his post retirement income. This can be contrasted to the 68% retained prior to retirement which was shown in Chart 2.

IV. Replacement Ratios

All of the foregoing considerations are summarized in Tables 6 and 7. Table 6 shows the net replacement ratios for married members for the various service and income categories used in the study. Table 7 presents similar results for members who are not married.

The entries in these tables are net replacement ratios. That is, an entry is the ratio of the estimated net retirement income (including Social Security) in that category to the estimated net preretirement income for the same category.

For example, Table 6 shows for a married member retiring at age 65 with 20 years of service who was earning $15,000 per year when he retired, net retirement income equals 147% of his or her $10,928 take home pay in the year of retirement. Table 7 shows that a single person in the same category has net retirement income equal to 112% of preretirement net income.

As another example, Table 6 shows further that if a married member in otherwise similar circumstances retired at age 60 rather than 65, his net retirement income would initially equal 75% of preretirement net income. This would increase to 104% when the retiree and his spouse reached age 62, and finally achieve a 115% replacement ratio at attained age 65.

The numerous factors of influence discussed on the foregoing pages cause variation in the replacement ratios. These variations follow discernable patterns, however, as can be noted in Table 6 (married). Specifically we can state that:

1. Replacement ratios <u>increase</u> as years of service at retirement increase (cause: PERS' benefit formula).

2. Replacement ratios <u>decrease</u> as salary increases (causes: Social Security benefits; state and federal tax policy).

3. Replacement ratios <u>decrease</u> as age at retirement decreases (causes: Social Security benefits; state and federal tax policy).

In spite of these variations, one generalization can be clearly made:

> The combination of retirement allowances under the Mississippi Public Employees' Retirement System and the Social Security system provides benefits that are adequate, and which frequently exceed net preretirement income by significant margins.

Charts 9 through 11 display the net replacement ratios for a married member at attained age 65 if the member retired at age 65, age 62 and age 60 respectively. For retirement at age 65, all but 2 of the ratios exceeds 100%. There can be little question that these benefits are generous.

As noted earlier, retirement at an age below 65 is a choice made by the member presumably after having been informed of the consequences. It must further be noted that members retiring early (after age 60 or with 25 years' service) receive unreduced PERS benefits. This means they receive the full benefits for a longer period of time than they otherwise would. This may be a significant determinant in the member's choice.

It must also be noted that the entire difference in replacement ratios at attained age 65 for different retirement ages is a result of lower Social Security benefits, which is a matter external to PERS. Adopting a policy to attempt to offset this difference through additional early retirement subsidies may be questionable.

Finally, Charts 12 through 14 display the results for members who are not married. The patterns observed are identical to those for married members. The net replacement ratios for unmarried members are lower than for married members, a result of Social Security and tax policy as has been noted earlier in this report. Net replacement ratios for unmarried members, however, still exceed 100% in many situations.

V. Conclusion

The foregoing has examined the proportion of preretirement net income that can be expected to be replaced after retirement by a member of the Mississippi Public Employees' Retirement System. The net replacement ratios presented in this report indicate that net retirement income for members routinely exceeds 100% of preretirement income and reaches 185% in the extreme. Such results are certainly adequate and could be categorized as generous.

Many factors external to PERS cause variations in net replacement ratios and these have been explored in some detail. Most prominent among these are federal Social Security and tax policies. It must be recognized that the ability of PERS (or any other retirement system) to respond to or negate these external influences is limited.

> <u>Conclusion</u>. This study should sound a note of caution to anyone who would propose a change to PERS benefits. It is obvious that future benefit adjustments should be designed carefully and in a manner that will efficiently produce the intended results. Such changes might increase the variation in replacement ratios and produce excessive retirement benefits in some cases if poorly designed. Clear definition of objectives and careful analysis of proposals will allow such pitfalls to be avoided.

> <u>Recommendation</u>. Future increases in PERS benefit levels do not appear to be warranted and should be deferred until such time as a careful study of replacement ratios indicate a need to increase retirement allowances to meet member needs.

TABLE 1

1990 FEDERAL TAX TABLE

TAXABLE INCOME	JOINT RETURN TAX ON COL1	JOINT RETURN RATE ON EXCESS	SINGLE RETURN TAX ON COL1	SINGLE RETURN RATE ON EXCESS
0	0	0.15	0	0.15
5,450	818	0.15	818	0.15
14,150	2,123	0.15	2,123	0.15
16,225	2,434	0.15	2,434	0.15
19,450	2,918	0.15	2,918	0.28
26,050	3,908	0.15	4,766	0.28
28,320	4,249	0.15	5,402	0.28
32,450	4,869	0.28	6,558	0.28
39,200	6,759	0.28	8,448	0.28
47,050	8,957	0.28	10,646	0.33
67,200	14,599	0.28	17,296	0.33

SOCIAL SECURITY PIA
PAYABLE FOR 1990 SALARY SHOWN
(5% SALARY SCALE) AND RETIREMENT
AT AGE SHOWN, WITH BENEFITS
PAYABLE AT AGE 62 OR 65

SALARY IN 1990	---AGE WORK CEASES--- 60	62	65
15,000	530	530	666
20,000	641	641	807
25,000	706	706	887
30,000	749	749	936
35,000	766	766	961
40,000	782	782	984
45,000	796	796	1,004
50,000	808	808	1,020
55,000	810	810	1,022
60,000	810	810	1,022

TABLE 2

PRERETIREMENT CALCULATIONS
ESTIMATED RESULTS IN YEAR PRECEDING RETIREMENT

PART A: MARRIED TO SPOUSE OF SAME AGE

PRE RET GROSS INCOME	EMPLOYEE' FICA	PERS & HEALTH INS CONTRIB	FIT	STATE INC TAX	TAKE HOME PAY
$15,000	$1,148	$2,239	$ 654	$ 30	$10,928
20,000	1,530	2,602	1,351	176	14,341
25,000	1,913	2,964	2,046	364	17,712
30,000	2,295	3,327	2,742	596	21,040
35,000	2,678	3,689	3,437	828	24,367
40,000	3,060	4,052	4,133	1,060	27,695
45,000	3,443	4,414	4,829	1,292	31,022
50,000	3,825	4,777	6,094	1,524	33,780
55,000	3,924	5,139	7,393	1,756	36,788
60,000	3,924	5,502	8,691	1,988	39,895

PART B: UNMARRIED EMPLOYEE

PRE RET GROSS INCOME	EMPLOYEE' FICA	PERS CONTRIB	FIT	STATE INC TAX	TAKE HOME PAY
$15,000	$1,148	$1,087	$ 1,292	$ 175	$11,298
20,000	1,530	1,450	1,988	363	14,669
25,000	1,913	1,812	2,683	594	17,997
30,000	2,295	2,175	3,779	826	20,925
35,000	2,678	2,537	5,078	1,058	23,649
40,000	3,060	2,900	6,376	1,290	26,374
45,000	3,443	3,262	7,675	1,522	29,099
50,000	3,825	3,625	8,973	1,754	31,823
55,000	3,924	3,987	10,272	1,986	34,831
60,000	3,924	4,350	11,735	2,218	37,773

TABLE 3

POST RETIREMENT CALCULATIONS FOR
MEMBER MARRIED TO SPOUSE OF SAME AGE

PART A: RETIREMENT AT AGE 65

YEARS SERV AT RET	---BEFORE RET--- GROSS INCOME	TAKE HOME	PERS BENEFIT PAYABLE	SOC SEC PAYABLE	MEMBER HEALTH INS PREM	FEDERAL INC TAX	STATE INC TAX	NET INCOME
20	$15,000	$10,928	$5,236	$11,988	$1,152	$ 0	0	$16,072
	20,000	14,341	6,981	14,526	1,152	0	0	20,355
	25,000	17,712	8,726	15,966	1,152	0	0	23,540
	30,000	21,040	10,472	16,848	1,152	0	0	26,168
	35,000	24,367	12,217	17,298	1,152	205	0	28,158
	40,000	27,695	13,962	17,712	1,152	467	0	30,055
	45,000	31,022	15,707	18,072	1,152	729	0	31,899
	50,000	33,780	17,453	18,360	1,152	991	0	33,670
	55,000	36,788	19,198	18,396	1,152	1,253	0	35,189
	60,000	39,895	20,943	18,396	1,152	1,514	16	36,656
25	15,000	10,928	6,545	11,988	1,152	0	0	17,381
	20,000	14,341	8,726	14,526	1,152	0	0	22,100
	25,000	17,712	10,908	15,966	1,152	9	0	25,713
	30,000	21,040	13,090	16,848	1,152	336	0	28,450
	35,000	24,367	15,271	17,298	1,152	663	0	30,754
	40,000	27,695	17,453	17,712	1,152	991	0	33,022
	45,000	31,022	19,634	18,072	1,152	1,318	0	35,236
	50,000	33,780	21,816	18,360	1,152	1,645	42	37,336
	55,000	36,788	23,998	18,396	1,152	2,062	108	39,071
	60,000	39,895	26,179	18,396	1,152	2,553	181	40,689
30	15,000	10,928	7,941	11,988	1,152	0	0	18,777
	20,000	14,341	10,588	14,526	1,152	0	0	23,962
	25,000	17,712	13,235	15,966	1,152	358	0	27,691
	30,000	21,040	15,882	16,848	1,152	755	0	30,823
	35,000	24,367	18,529	17,298	1,152	1,152	0	33,523
	40,000	27,695	21,176	17,712	1,152	1,549	23	36,163
	45,000	31,022	23,823	18,072	1,152	2,011	103	38,629
	50,000	33,780	26,470	18,360	1,152	2,617	193	40,868
	55,000	36,788	29,117	18,396	1,152	3,214	299	42,848
	60,000	39,895	31,764	18,396	1,152	3,810	418	44,780
35	15,000	10,928	9,337	11,988	1,152	0	0	20,173
	20,000	14,341	12,450	14,526	1,152	240	0	25,584
	25,000	17,712	15,562	15,966	1,152	707	0	29,669
	30,000	21,040	18,674	16,848	1,152	1,174	0	33,196
	35,000	24,367	21,787	17,298	1,152	1,641	42	36 250
	40,000	27,695	24,899	17,712	1,152	2,240	135	39,085
	45,000	31,022	28,012	18,072	1,152	2,953	254	41,724
	50,000	33,780	31,124	18,360	1,152	3,664	386	44,281
	55,000	36,788	34,236	18,396	1,152	4,367	542	46,572
	60,000	39,895	37,349	18,396	1,152	5,239	697	48,656

TABLE 3

POST RETIREMENT CALCULATIONS FOR
MEMBER MARRIED TO SPOUSE OF SAME AGE

PART B: RETIREMENT AT AGE 62

YEARS SERV AT RET	--BEFORE RET-- GROSS INCOME	TAKE HOME	PERS BENEFIT PAYABLE	SOC SEC PAYABLE	MEMBER HEALTH INS PREM	FEDERAL INC TAX	STATE INC TAX	NET INCOME	NET INCOME AT 65
20	$15,000	$10,928	$ 5,236	$ 9,341	$2,376	$ 0	$ 0	$12,201	$13,425
	20,000	14,341	6,981	11,298	2,376	0	0	15,903	17,127
	25,000	17,712	8,726	12,443	2,376	0	0	18,794	20,018
	30,000	21,040	10,472	13,201	2,376	138	0	21,159	22,521
	35,000	24,367	12,217	13,501	2,376	400	0	22,942	24,361
	40,000	27,695	13,962	13,783	2,376	662	0	24,707	26,126
	45,000	31,022	15,707	14,030	2,376	924	0	26,437	27,856
	50,000	33,780	17,453	14,241	2,376	1,186	0	28,132	29,551
	55,000	36,788	19,198	14,276	2,376	1,448	9	29,642	31,070
	60,000	39,895	20,943	14,276	2,376	1,709	61	31,073	32,537
25	15,000	10,928	6,545	9,341	2,376	0	0	13,510	14,734
	20,000	14,341	8,726	11,298	2,376	0	0	17,648	18,872
	25,000	17,712	10,908	12,443	2,376	204	0	20,772	22,191
	30,000	21,040	13,090	13,201	2,376	531	0	23,384	24,803
	35,000	24,367	15,271	13,501	2,376	859	0	25,537	26,957
	40,000	27,695	17,453	13,783	2,376	1,186	0	27,674	29,093
	45,000	31,022	19,634	14,030	2,376	1,513	22	29,753	31,194
	50,000	33,780	21,816	14,241	2,376	1,840	87	31,753	33,217
	55,000	36,788	23,998	14,276	2,376	2,168	154	33,576	35,041
	60,000	39,895	26,179	14,276	2,376	2,593	241	35,245	36,724
30	15,000	10,928	7,941	9,341	2,376	0	0	14,906	16,130
	20,000	14,341	10,588	11,298	2,376	156	0	19,354	20,734
	25,000	17,712	13,235	12,443	2,376	553	0	22,749	24,168
	30,000	21,040	15,882	13,201	2,376	950	0	25,757	27,176
	35,000	24,367	18,529	13,501	2,376	1,347	0	28,306	29,725
	40,000	27,695	21,176	13,783	2,376	1,744	68	30,770	32,234
	45,000	31,022	23,823	14,030	2,376	2,141	148	33,187	34,651
	50,000	33,780	26,470	14,241	2,376	2,658	253	35,425	36,904
	55,000	36,788	29,117	14,276	2,376	3,255	361	37,402	38,883
	60,000	39,895	31,764	14,276	2,376	3,850	493	39,321	40,815
35	15,000	10,928	9,337	9,341	2,376	0	0	16,302	17,526
	20,000	14,341	12,450	11,298	2,376	435	0	20,936	22,355
	25,000	17,712	15,562	12,443	2,376	902	0	24,727	26,146
	30,000	21,040	18,674	13,201	2,376	1,369	0	28,130	29,549
	35,000	24,367	21,787	13,501	2,376	1,836	87	30,989	32,453
	40,000	27,695	24,899	13,783	2,376	2,303	190	33,813	35,287
	45,000	31,022	28,012	14,030	2,376	2,997	314	36,354	37,833
	50,000	33,780	31,124	14,241	2,376	3,705	461	38,823	40,317
	55,000	36,788	34,236	14,276	2,376	4,407	617	41,113	42,607
	60,000	39,895	37,349	14,276	2,376	5,315	772	43,162	44,825

TABLE 3

POST RETIREMENT CALCULATIONS FOR
MEMBER MARRIED TO SPOUSE OF SAME AGE

PART C: RETIREMENT AT AGE 60
WITH SS LEVELLING OPTION

	--BEFORE RET--			------ AT AGE 60 ------			---------- AT AGE 62 ----------				NET
YEARS SERV AT RET	GROSS INCOME	TAKE HOME	NORMAL PERS BENEFIT	OPTIONAL PERS BENEFIT	STATE & FEDERAL INC TAX	NET INCOME	OPTIONAL PERS BENEFIT	SOC SEC PAYABLE	STATE & FEDERAL INC TAX	NET INCOME	INCOME AT AGE 65
20	15,000	10,928	5,236	10,758	181	8,201	4,398	9,341	0	11,363	12,587
	20,000	14,341	6,981	13,556	601	10,579	5,864	11,298	0	14,786	16,010
	25,000	17,712	8,726	15,802	938	12,488	7,330	12,443	0	17,397	18,621
	30,000	21,040	10,472	17,784	1,236	14,173	8,796	13,201	0	19,621	20,845
	35,000	24,367	12,217	19,454	1,503	15,575	10,262	13,501	107	21,280	22,611
	40,000	27,695	13,962	21,112	1,801	16,935	11,728	13,783	327	22,808	24,227
	45,000	31,022	15,707	22,746	2,095	18,275	13,194	14,030	547	24,301	25,720
	50,000	33,780	17,453	24,356	2,390	19,591	14,660	14,241	767	25,759	27,178
	55,000	36,788	19,198	25,846	2,673	20,798	16,126	14,276	987	27,040	28,459
	60,000	39,895	20,943	27,312	2,951	21,985	17,592	14,276	1,207	28,286	29,705
25	15,000	10,928	6,545	11,858	346	9,135	5,498	9,341	0	12,463	13,687
	20,000	14,341	8,726	15,022	821	11,825	7,330	11,298	0	16,252	17,476
	25,000	17,712	10,908	17,635	1,213	14,045	9,163	12,443	0	19,230	20,454
	30,000	21,040	13,090	19,983	1,598	16,009	10,995	13,201	217	21,604	23,023
	35,000	24,367	15,271	22,020	1,965	17,679	12,828	13,501	492	23,461	24,880
	40,000	27,695	17,453	24,044	2,330	19,338	14,660	13,783	767	25,301	26,720
	45,000	31,022	19,634	26,045	2,710	20,959	16,493	14,030	1,042	27,104	28,523
	50,000	33,780	21,816	28,021	3,086	22,560	18,325	14,241	1,317	28,874	30,293
	55,000	36,788	23,998	29,878	3,449	24,053	20,158	14,276	1,629	30,429	31,885
	60,000	39,895	26,179	31,710	3,815	25,519	21,990	14,276	1,959	31,931	33,395
30	15,000	10,928	7,941	13,030	522	10,132	6,670	9,341	0	13,636	14,860
	20,000	14,341	10,588	16,586	1,056	13,154	8,894	11,298	0	17,816	19,040
	25,000	17,712	13,235	19,589	1,527	15,686	11,117	12,443	235	20,950	22,369
	30,000	21,040	15,882	22,329	2,020	17,933	13,341	13,201	569	23,597	25,016
	35,000	24,367	18,529	24,756	2,466	19,915	15,564	13,501	903	25,786	27,206
	40,000	27,695	21,176	27,172	2,924	21,871	17,788	13,783	1,236	27,958	29,377
	45,000	31,022	23,823	29,563	3,386	23,802	20,011	14,030	1,603	30,062	31,514
	50,000	33,780	26,470	31,931	3,859	25,696	22,235	14,241	2,003	32,097	33,561
	55,000	36,788	29,117	34,178	4,309	27,494	24,458	14,276	2,409	33,949	35,419
	60,000	39,895	31,764	36,402	4,753	29,272	26,682	14,276	2,968	35,614	37,093
35	15,000	10,928	9,337	14,203	698	11,129	7,843	9,341	0	14,809	16,033
	20,000	14,341	12,450	18,150	1,290	14,483	10,458	11,298	136	19,243	20,603
	25,000	17,712	15,562	21,544	1,879	17,289	13,072	12,443	528	22,611	24,030
	30,000	21,040	18,674	24,675	2,450	19,848	15,687	13,201	921	25,591	27,010
	35,000	24,367	21,787	27,493	2,985	22,132	18,301	13,501	1,313	28,113	29,532
	40,000	27,695	24,899	30,299	3,533	24,390	20,915	13,783	1,766	30,556	32,020
	45,000	31,022	28,012	33,082	4,089	26,616	23,530	14,030	2,236	32,947	34,411
	50,000	33,780	31,124	35,840	4,641	28,823	26,144	14,241	2,824	35,185	36,664
	55,000	36,788	34,236	38,479	5,169	30,933	28,759	14,276	3,518	37,140	38,619
	60,000	39,895	37,349	41,093	5,692	33,025	31,373	14,276	4,236	39,037	40,531

TABLE 4

EFFECT OF EARLY RETIREMENT

MARRIED MEMBER, 30 YEARS OF SERVICE AT RETIREMENT

Preretirement Income		Retirement Age	Retirement Age 62 Net Income at		----Retirement Age 60---- ------Net Income at------		
Gross	Net	65	Age 62	Age 65	Age 60	Age 62	Age 65
$20,000	$14,341	$23,962	$19,354	$20,734	$13,154	$17,816	$19,040
30,000	21,040	30,823	25,757	27,176	17,933	23,597	25,016
40,000	27,695	36,163	30,770	32,234	21,871	27,958	29,377
50,000	33,780	40,868	35,425	36,904	25,696	32,097	33,561
60,000	39,895	44,780	39,321	40,815	29,272	35,614	37,093

TABLE 5

POST RETIREMENT CALCULATIONS FOR
MEMBER NOT MARRIED

PART A: RETIREMENT AT AGE 65

YEARS SERV AT RET	--BEFORE RET-- GROSS INCOME	TAKE HOME	PERS BENEFIT PAYABLE	SOC SEC PAYABLE	MEMBER HEALTH INS PREM	FEDERAL INC TAX	STATE INC TAX	NET INCOME
20	$15,000	$11,298	$ 5,236	$ 7,992	$576	$ 0	$ 0	$12,652
	20,000	14,669	6,981	9,684	576	155	0	15,934
	25,000	17,997	8,726	10,644	576	416	0	18,378
	30,000	20,925	10,472	11,232	576	678	0	20,449
	35,000	23,649	12,217	11,532	576	941	0	22,232
	40,000	26,374	13,962	11,808	576	1,202	0	23,992
	45,000	29,099	15,707	12,048	576	1,464	20	25,696
	50,000	31,823	17,453	12,240	576	1,726	72	27,319
	55,000	34,831	19,198	12,264	576	2,012	124	28,749
	60,000	37,773	20,943	12,264	576	2,405	186	30,040
25	15,000	11,298	6,545	7,992	576	89	0	13,872
	20,000	14,669	8,726	9,684	576	416	0	17,418
	25,000	17,997	10,908	10,644	576	744	0	20,232
	30,000	20,925	13,090	11,232	576	1,071	0	22,674
	35,000	23,649	15,271	11,532	576	1,399	7	24,822
	40,000	26,374	17,453	11,808	576	1,726	72	26,887
	45,000	29,099	19,634	12,048	576	2,103	138	28,866
	50,000	31,823	21,816	12,240	576	2,600	221	30,659
	55,000	34,831	23,998	12,264	576	3,243	308	32,134
	60,000	37,773	26,179	12,264	576	4,160	406	33,301
30	15,000	11,298	7,941	7,992	576	299	0	15,058
	20,000	14,669	10,588	9,684	576	696	0	19,000
	25,000	17,997	13,235	10,644	576	1,093	0	22,210
	30,000	20,925	15,882	11,232	576	1,490	25	25,023
	35,000	23,649	18,529	11,532	576	1,887	104	27,493
	40,000	26,374	21,176	11,808	576	2,440	195	29,773
	45,000	29,099	23,823	12,048	576	3,155	301	31,839
	50,000	31,823	26,470	12,240	576	4,280	421	33,433
	55,000	34,831	29,117	12,264	576	5,394	553	34,858
	60,000	37,773	31,764	12,264	576	6,417	686	36,349
35	15,000	11,298	9,337	7,992	576	508	0	16,245
	20,000	14,669	12,450	9,684	576	975	0	20,582
	25,000	17,997	15,562	10,644	576	1,442	15	24,172
	30,000	20,925	18,674	11,232	576	1,909	109	27,313
	35,000	23,649	21,787	11,532	576	2,567	219	29,956
	40,000	26,374	24,899	11,808	576	3,590	344	32,197
	45,000	29,099	28,012	12,048	576	4,914	498	34,071
	50,000	31,823	31,124	12,240	576	6,235	654	35,900
	55,000	34,831	34,236	12,264	576	7,109	809	38,006
	60,000	37,773	37,349	12,264	576	7,981	965	40,091

TABLE 5

POST RETIREMENT CALCULATIONS FOR
MEMBER NOT MARRIED

PART B: RETIREMENT AT AGE 62

YEARS SERV AT RET	--BEFORE RET-- GROSS INCOME	TAKE HOME	PERS BENEFIT PAYABLE	SOC SEC PAYABLE	MEMBER HEALTH INS PREM	FEDERAL INC TAX	STATE INC TAX	NET INCOME	NET INCOME AT 65
20	$15,000	$11,298	$ 5,236	$6,360	$1,224	$ 0	$ 0	$10,372	$11,020
	20,000	14,669	6,981	7,692	1,224	252	0	13,197	13,942
	25,000	17,997	8,726	8,472	1,224	514	0	15,460	16,206
	30,000	20,925	10,472	8,988	1,224	776	0	17,460	18,205
	35,000	23,649	12,217	9,192	1,224	1,038	0	19,147	19,892
	40,000	26,374	13,962	9,384	1,224	1,300	0	20,822	21,568
	45,000	29,099	15,707	9,552	1,224	1,562	42	22,432	23,200
	50,000	31,823	17,453	9,696	1,224	1,823	95	24,007	24,775
	55,000	34,831	19,198	9,720	1,224	2,085	147	25,462	26,230
	60,000	37,773	20,943	9,720	1,224	2,407	216	26,816	27,592
25	15,000	11,298	6,545	6,360	1,224	187	0	11,494	12,240
	20,000	14,669	8,726	7,692	1,224	514	0	14,680	15,426
	25,000	17,997	10,908	8,472	1,224	842	0	17,314	18,060
	30,000	20,925	13,090	8,988	1,224	1,169	0	19,685	20,430
	35,000	23,649	15,271	9,192	1,224	1,496	29	21,714	22,482
	40,000	26,374	17,453	9,384	1,224	1,823	95	23,695	24,463
	45,000	29,099	19,634	9,552	1,224	2,151	163	25,648	26,420
	50,000	31,823	21,816	9,696	1,224	2,602	251	27,435	28,210
	55,000	34,831	23,998	9,720	1,224	3,247	338	28,908	29,768
	60,000	37,773	26,179	9,720	1,224	4,164	444	30,068	30,935
30	15,000	11,298	7,941	6,360	1,224	396	0	12,681	13,426
	20,000	14,669	10,588	7,692	1,224	793	0	16,263	17,008
	25,000	17,997	13,235	8,472	1,224	1,191	0	19,292	20,038
	30,000	20,925	15,882	8,988	1,224	1,588	47	22,011	22,779
	35,000	23,649	18,529	9,192	1,224	1,985	127	24,385	25,153
	40,000	26,374	21,176	9,384	1,224	2,447	225	26,664	27,439
	45,000	29,099	23,823	9,552	1,224	3,162	331	28,658	29,518
	50,000	31,823	26,470	9,696	1,224	4,284	459	30,199	31,067
	55,000	34,831	29,117	9,720	1,224	5,398	591	31,625	32,492
	60,000	37,773	31,764	9,720	1,224	6,243	723	33,294	34,161
35	15,000	11,298	9,337	6,360	1,224	606	0	13,868	14,613
	20,000	14,669	12,450	7,692	1,224	1,073	0	17,845	18,590
	25,000	17,997	15,562	8,472	1,224	1,540	38	21,232	22,000
	30,000	20,925	18,674	8,988	1,224	2,007	131	24,301	25,069
	35,000	23,649	21,787	9,192	1,224	2,577	249	26,928	27,704
	40,000	26,374	24,899	9,384	1,224	3,603	380	29,077	29,943
	45,000	29,099	28,012	9,552	1,224	4,922	536	30,883	31,750
	50,000	31,823	31,124	9,696	1,224	6,061	691	32,844	33,712
	55,000	34,831	34,236	9,720	1,224	6,935	847	34,951	35,818
	60,000	37,773	37,349	9,720	1,224	7,806	1,002	37,036	37,903

TABLE 5

POST RETIREMENT CALCULATIONS FOR
MEMBER NOT MARRIED

PART C: RETIREMENT AT AGE 60
WITH SS LEVELLING OPTION

	--BEFORE RET--			------ AT AGE 60 ------			---------- AT AGE 62 ----------				NET
YEARS SERV AT RET	GROSS INCOME	TAKE HOME	NORMAL PERS BENEFIT	OPTIONAL PERS BENEFIT	STATE & FEDERAL INC TAX	NET INCOME	OPTIONAL PERS BENEFIT	SOC SEC PAYABLE	STATE & FEDERAL INC TAX	NET INCOME	INCOME AT AGE 65
20	15,000	11,298	5,236	10,758	819	8,715	4,398	6,360	0	9,534	10,182
	20,000	14,669	6,981	13,556	1,239	11,093	5,864	7,692	85	12,247	12,980
	25,000	17,997	8,726	15,802	1,621	12,957	7,330	8,472	305	14,274	15,019
	30,000	20,925	10,472	17,784	1,978	14,583	8,796	8,988	524	16,036	16,781
	35,000	23,649	12,217	19,454	2,280	15,950	10,262	9,192	744	17,486	18,231
	40,000	26,374	13,962	21,112	2,595	17,293	11,728	9,384	965	18,924	19,669
	45,000	29,099	15,707	22,746	2,905	18,617	13,194	9,552	1,185	20,338	21,083
	50,000	31,823	17,453	24,356	3,212	19,921	14,660	9,696	1,415	21,717	22,473
	55,000	34,831	19,198	25,846	3,652	20,970	16,126	9,720	1,679	22,943	23,711
	60,000	37,773	20,943	27,312	4,136	21,952	17,592	9,720	1,943	24,145	24,913
25	15,000	11,298	6,545	11,858	984	9,649	5,498	6,360	30	10,604	11,282
	20,000	14,669	8,726	15,022	1,480	12,318	7,330	7,692	305	13,494	14,239
	25,000	17,997	10,908	17,635	1,951	14,460	9,163	8,472	579	15,831	16,577
	30,000	20,925	13,090	19,983	2,380	16,379	10,995	8,988	855	17,904	18,650
	35,000	23,649	15,271	22,020	2,767	18,029	12,828	9,192	1,130	19,666	20,412
	40,000	26,374	17,453	24,044	3,152	19,669	14,660	9,384	1,415	21,405	22,161
	45,000	29,099	19,634	26,045	3,718	21,103	16,493	9,552	1,745	23,076	23,844
	50,000	31,823	21,816	28,021	4,370	22,427	18,325	9,696	2,075	24,722	25,490
	55,000	34,831	23,998	29,878	4,983	23,671	20,158	9,720	2,415	26,239	27,015
	60,000	37,773	26,179	31,710	5,587	24,899	21,990	9,720	2,900	27,586	28,362
30	15,000	11,298	7,941	13,030	1,160	10,646	6,670	6,360	206	11,601	12,346
	20,000	14,669	10,588	16,586	1,762	13,600	8,894	7,692	539	14,823	15,568
	25,000	17,997	13,235	19,589	2,305	16,060	11,117	8,472	873	17,492	18,238
	30,000	20,925	15,882	22,329	2,826	18,279	13,341	8,988	1,207	19,898	20,644
	35,000	23,649	18,529	24,756	3,293	20,240	15,564	9,192	1,578	21,954	22,722
	40,000	26,374	21,176	27,172	4,090	21,858	17,788	9,384	1,978	23,970	24,738
	45,000	29,099	23,823	29,563	4,879	23,460	20,011	9,552	2,386	25,954	26,729
	50,000	31,823	26,470	31,931	5,660	25,047	22,235	9,696	2,964	27,743	28,518
	55,000	34,831	29,117	34,178	6,402	26,552	24,458	9,720	3,799	29,155	30,017
	60,000	37,773	31,764	36,402	7,136	28,042	26,682	9,720	4,844	30,334	31,201
35	15,000	11,298	9,337	14,203	1,336	11,643	7,843	6,360	381	12,598	13,343
	20,000	14,669	12,450	18,150	2,043	14,882	10,458	7,692	774	16,152	16,898
	25,000	17,997	15,562	21,544	2,677	17,643	13,072	8,472	1,166	19,154	19,899
	30,000	20,925	18,674	24,675	3,275	20,175	15,687	8,988	1,600	21,850	22,618
	35,000	23,649	21,787	27,493	4,196	22,073	18,301	9,192	2,071	24,198	24,966
	40,000	26,374	24,899	30,299	5,122	23,954	20,915	9,384	2,603	26,472	27,248
	45,000	29,099	28,012	33,082	6,040	25,818	23,530	9,552	3,358	28,499	29,331
	50,000	31,823	31,124	35,840	6,951	27,666	26,144	9,696	4,589	30,027	30,894
	55,000	34,831	34,236	38,479	7,821	29,434	28,759	9,720	5,820	31,435	32,302
	60,000	37,773	37,349	41,093	8,684	31,185	31,373	9,720	6,837	33,032	33,899

TABLE 6

SUMMARY OF NET REPLACEMENT RATIOS

MEMBER MARRIED TO SPOUSE OF SAME AGE

YEARS SERV AT RET	--BEFORE RET-- GROSS INCOME	TAKE HOME	NORMAL PERS INCOME	RETIREMENT AT AGE ---65--- ATTAINED AGE 65	-------62-------- ATTAINED AGE 62	ATTAINED AGE 65	-----------60------------ ATTAINED AGE 60	ATTAINED AGE 62	ATTAINED AGE 65
20	$15,000	$10,928	$ 5,236	147%	112%	123%	75%	104%	115%
	20,000	14,341	6,981	142%	111%	119%	74%	103%	112%
	25,000	17,712	8,726	133%	106%	113%	71%	98%	105%
	30,000	21,040	10,472	124%	101%	107%	67%	93%	99%
	35,000	24,367	12,217	116%	94%	100%	64%	87%	93%
	40,000	27,695	13,962	109%	89%	94%	61%	82%	87%
	45,000	31,022	15,707	103%	85%	90%	59%	78%	83%
	50,000	33,780	17,453	100%	83%	87%	58%	76%	80%
	55,000	36,788	19,198	96%	81%	84%	57%	74%	77%
	60,000	39,895	20,943	92%	78%	82%	55%	71%	74%
25	15,000	10,928	6,545	159%	124%	135%	84%	114%	125%
	20,000	14,341	8,726	154%	123%	132%	82%	113%	122%
	25,000	17,712	10,908	145%	117%	125%	79%	109%	115%
	30,000	21,040	13,090	135%	111%	118%	76%	103%	109%
	35,000	24,367	15,271	126%	105%	111%	73%	96%	102%
	40,000	27,695	17,453	119%	100%	105%	70%	91%	96%
	45,000	31,022	19,634	114%	96%	101%	68%	87%	92%
	50,000	33,780	21,816	111%	94%	98%	67%	85%	90%
	55,000	36,788	23,998	106%	91%	95%	65%	83%	87%
	60,000	39,895	26,179	102%	88%	92%	64%	80%	84%
30	15,000	10,928	7,941	172%	136%	148%	93%	125%	136%
	20,000	14,341	10,588	167%	135%	145%	92%	124%	133%
	25,000	17,712	13,235	156%	128%	136%	89%	118%	126%
	30,000	21,040	15,882	146%	122%	129%	85%	112%	119%
	35,000	24,367	18,529	138%	116%	122%	82%	106%	112%
	40,000	27,695	21,176	131%	111%	116%	79%	101%	106%
	45,000	31,022	23,823	125%	107%	112%	77%	97%	102%
	50,000	33,780	26,470	121%	105%	109%	76%	95%	99%
	55,000	36,788	29,117	116%	102%	106%	75%	92%	96%
	60,000	39,895	31,764	112%	99%	102%	73%	89%	93%
35	15,000	10,928	9,337	185%	149%	160%	102%	136%	147%
	20,000	14,341	12,450	178%	146%	156%	101%	134%	144%
	25,000	17,712	15,562	168%	140%	148%	98%	128%	136%
	30,000	21,040	18,674	158%	134%	140%	94%	122%	128%
	35,000	24,367	21,787	149%	127%	133%	91%	115%	121%
	40,000	27,695	24,899	141%	122%	127%	88%	110%	116%
	45,000	31,022	28,012	134%	117%	122%	86%	106%	111%
	50,000	33,780	31,124	131%	115%	119%	85%	104%	109%
	55,000	36,788	34,236	127%	112%	116%	84%	101%	105%
	60,000	39,895	37,349	122%	108%	112%	83%	98%	102%

TABLE 7

SUMMARY OF NET REPLACEMENT RATIOS

MEMBER NOT MARRIED

				RETIREMENT AT AGE					
	--BEFORE RET--			---65---	-------62--------		------------60------------		
YEARS SERV AT RET	GROSS INCOME	TAKE HOME	NORMAL PERS INCOME	ATTAINED AGE 65	ATTAINED AGE 62	ATTAINED AGE 65	ATTAINED AGE 60	ATTAINED AGE 62	ATTAINED AGE 65
20	$15,000	$10,928	$ 5,236	112%	92%	98%	77%	84%	90%
	20,000	14,341	6,981	109%	90%	95%	76%	83%	88%
	25,000	17,712	8,726	102%	86%	90%	72%	79%	83%
	30,000	21,040	10,472	98%	83%	87%	70%	77%	80%
	35,000	24,367	12,217	94%	81%	84%	67%	74%	77%
	40,000	27,695	13,962	91%	79%	82%	66%	72%	75%
	45,000	31,022	15,707	88%	77%	80%	64%	70%	72%
	50,000	33,780	17,453	86%	75%	78%	63%	68%	71%
	55,000	36,788	19,198	83%	73%	75%	60%	66%	68%
	60,000	39,895	20,943	80%	71%	73%	58%	64%	66%
25	15,000	10,928	6,545	123%	102%	108%	85%	94%	100%
	20,000	14,341	8,726	119%	100%	105%	84%	92%	97%
	25,000	17,712	10,908	112%	96%	100%	80%	88%	92%
	30,000	21,040	13,090	108%	94%	98%	78%	86%	89%
	35,000	24,367	15,271	105%	92%	95%	76%	83%	86%
	40,000	27,695	17,453	102%	90%	93%	75%	81%	84%
	45,000	31,022	19,634	99%	88%	91%	73%	79%	82%
	50,000	33,780	21,816	96%	86%	89%	70%	78%	80%
	55,000	36,788	23,998	92%	83%	85%	68%	75%	78%
	60,000	39,895	26,179	88%	80%	82%	66%	73%	75%
30	15,000	10,928	7,941	133%	112%	119%	94%	103%	109%
	20,000	14,341	10,588	130%	111%	116%	93%	101%	106%
	25,000	17,712	13,235	123%	107%	111%	89%	97%	101%
	30,000	21,040	15,882	120%	105%	109%	87%	95%	99%
	35,000	24,367	18,529	116%	103%	106%	86%	93%	96%
	40,000	27,695	21,176	113%	101%	104%	83%	91%	94%
	45,000	31,022	23,823	109%	98%	101%	81%	89%	92%
	50,000	33,780	26,470	105%	95%	98%	79%	87%	90%
	55,000	36,788	29,117	100%	91%	93%	76%	84%	86%
	60,000	39,895	31,764	96%	88%	90%	74%	80%	83%
35	15,000	10,928	9,337	144%	123%	129%	103%	112%	118%
	20,000	14,341	12,450	140%	122%	127%	101%	110%	115%
	25,000	17,712	15,562	134%	118%	122%	98%	106%	111%
	30,000	21,040	18,674	131%	116%	120%	96%	104%	108%
	35,000	24,367	21,787	127%	114%	117%	93%	102%	106%
	40,000	27,695	24,899	122%	110%	114%	91%	100%	103%
	45,000	31,022	28,012	117%	106%	109%	89%	98%	101%
	50,000	33,780	31,124	113%	103%	106%	87%	94%	97%
	55,000	36,788	34,236	109%	100%	103%	85%	90%	93%
	60,000	39,895	37,349	106%	98%	100%	83%	87%	90%

PRERETIREMENT INCOME, MARRIED,
GROSS INCOME $35,000

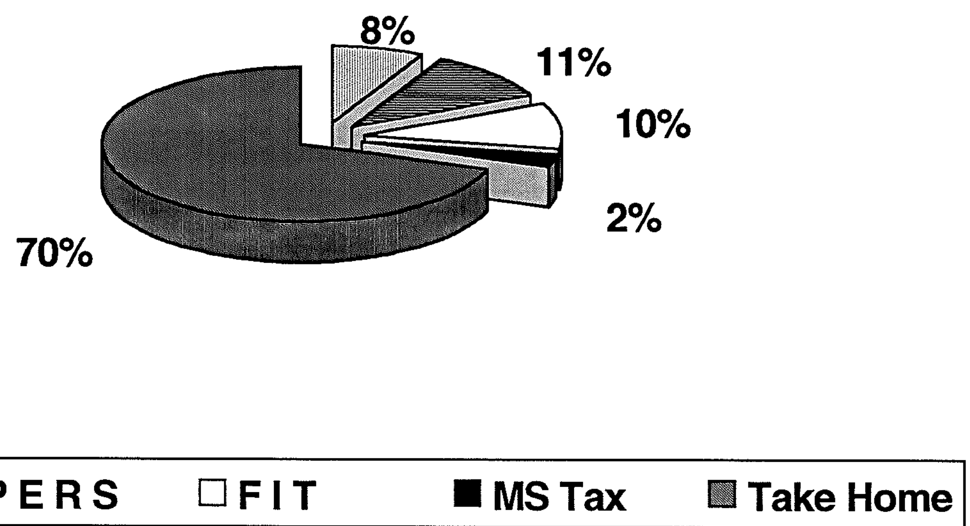


CHART 1

PRERETIREMENT INCOME, SINGLE, GROSS INCOME $35,000

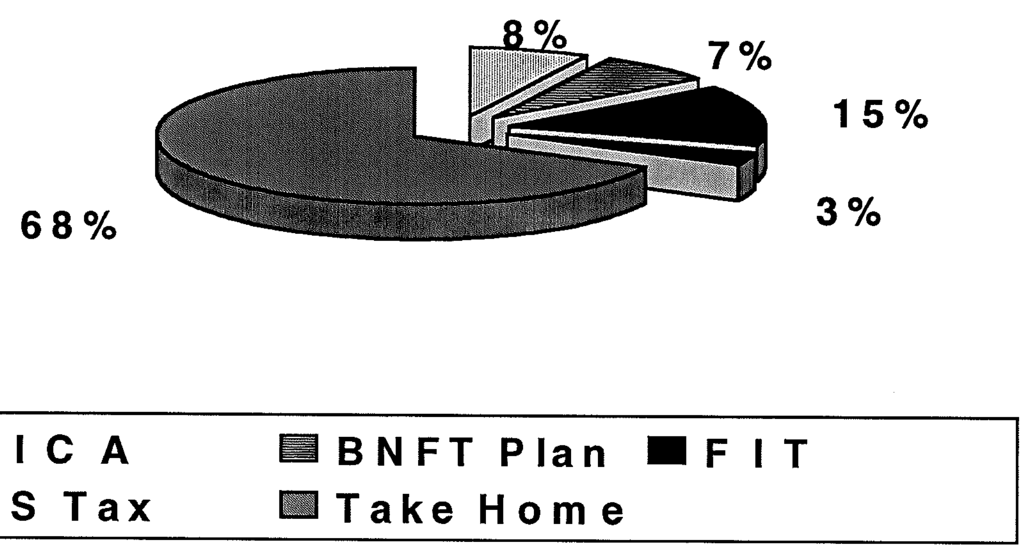


CHART 2

PRERETIREMENT GROSS & NET INCOME, MARRIED

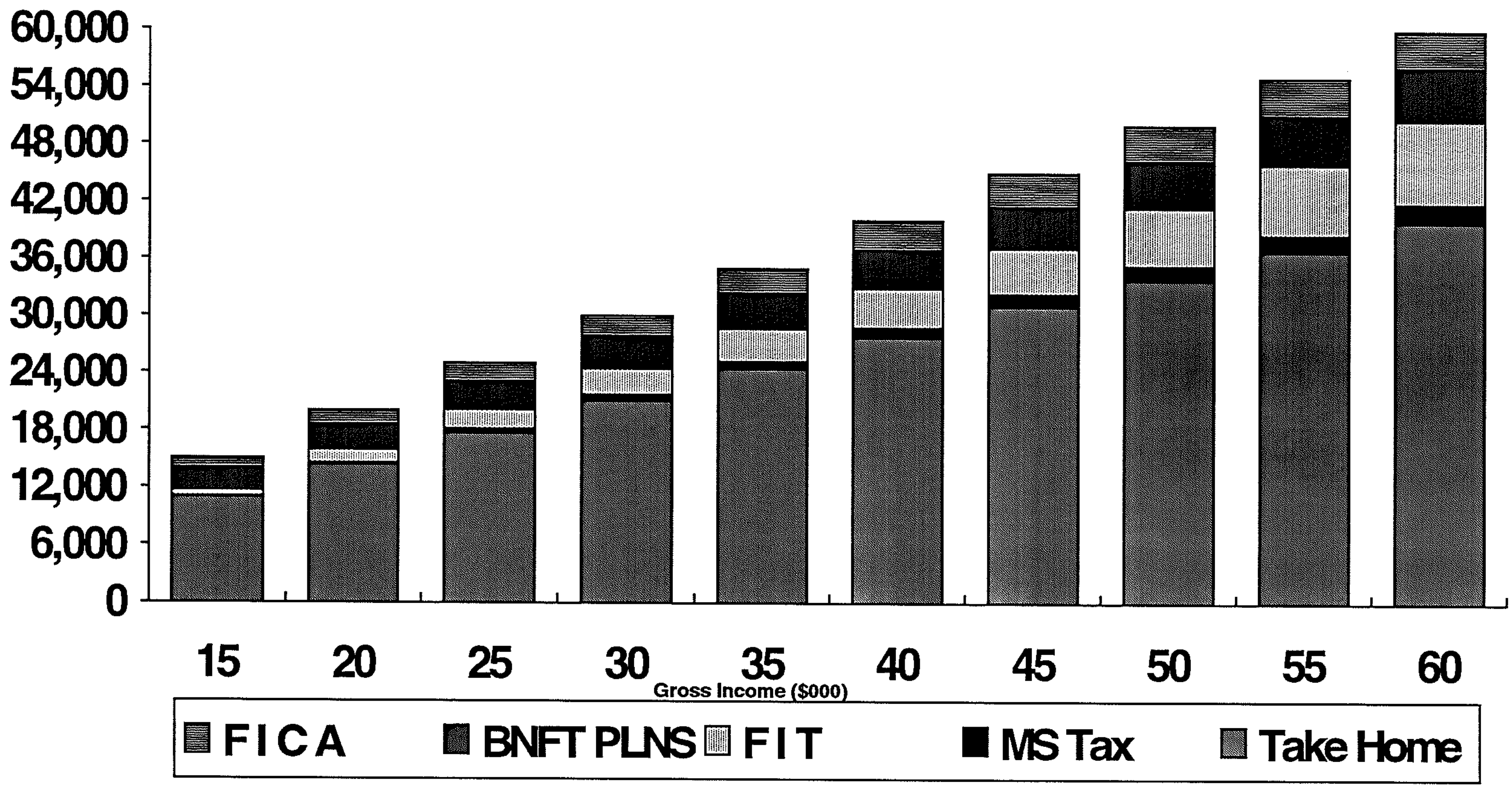


CHART 3

PRERETIREMENT GROSS & NET INCOME, SINGLE

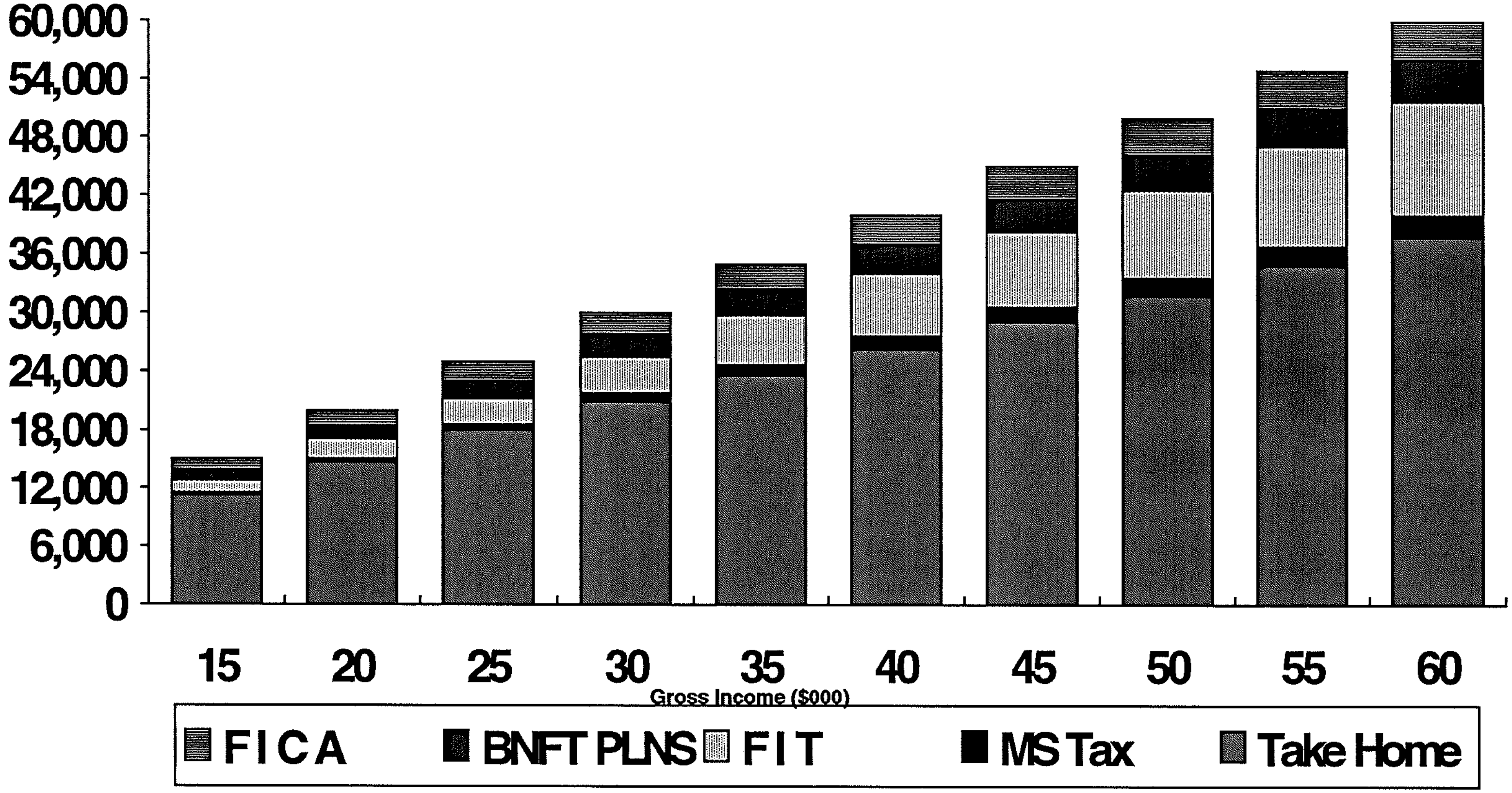
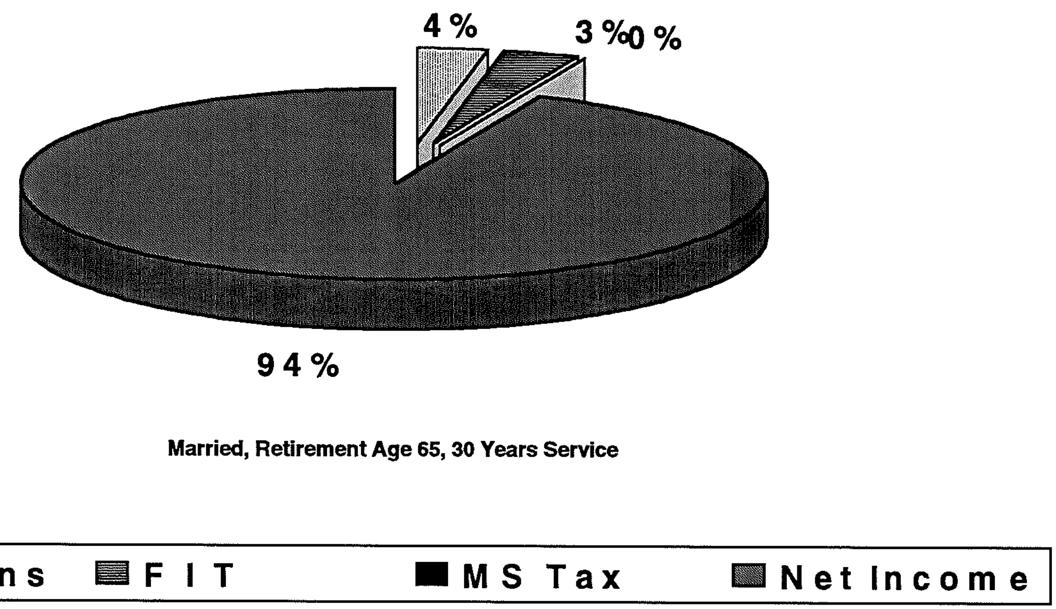


CHART 4

POSTRETIREMENT INCOME CORRESPONDING TO PRERET INC $35,000



Married, Retirement Age 65, 30 Years Service

CHART 5

NET INCOME, MARRIED, RETIRING AT AGE 65

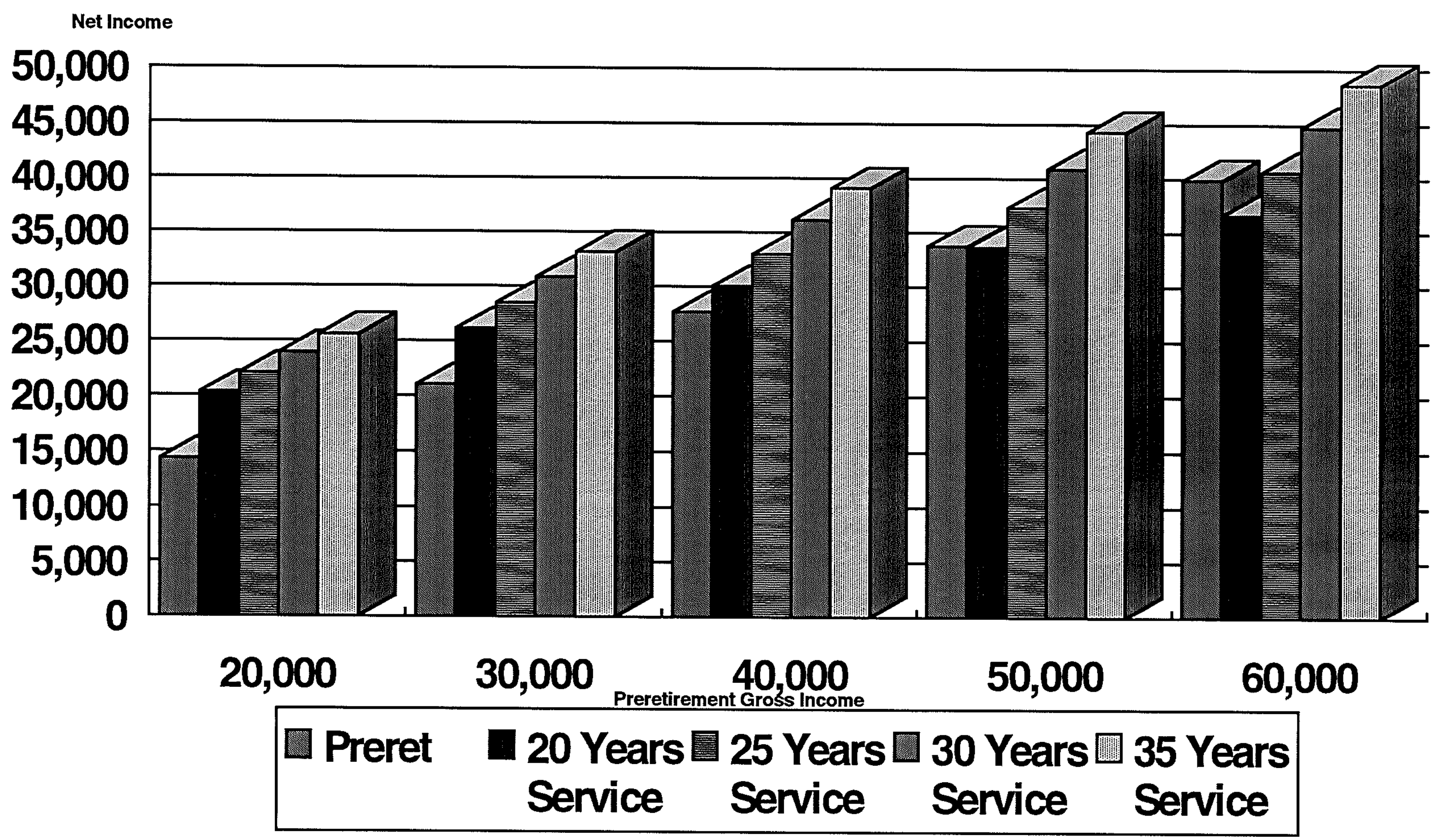


CHART 6

NET INCOME AT AGE 62, MARRIED, RETIRING AT AGE 62

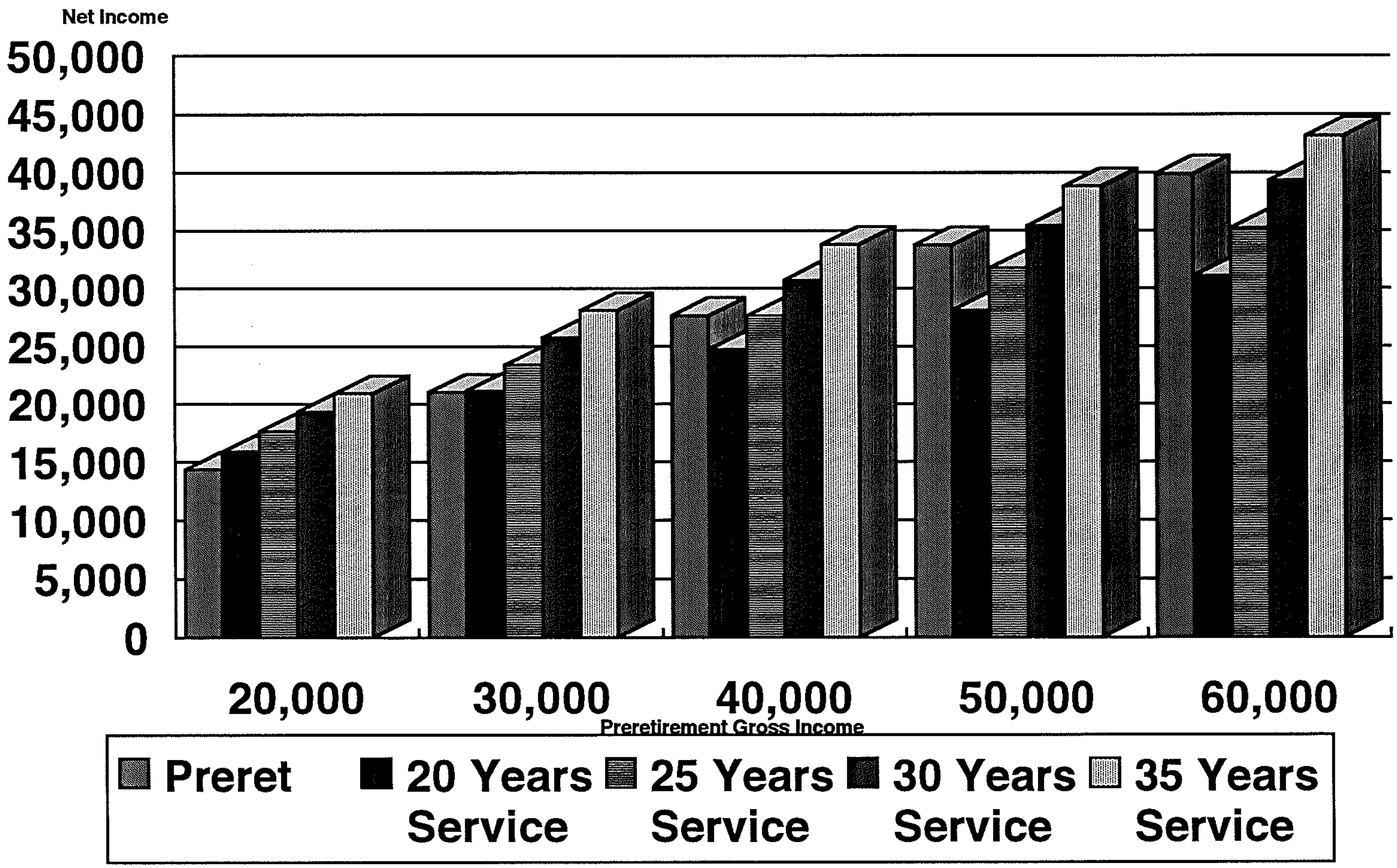
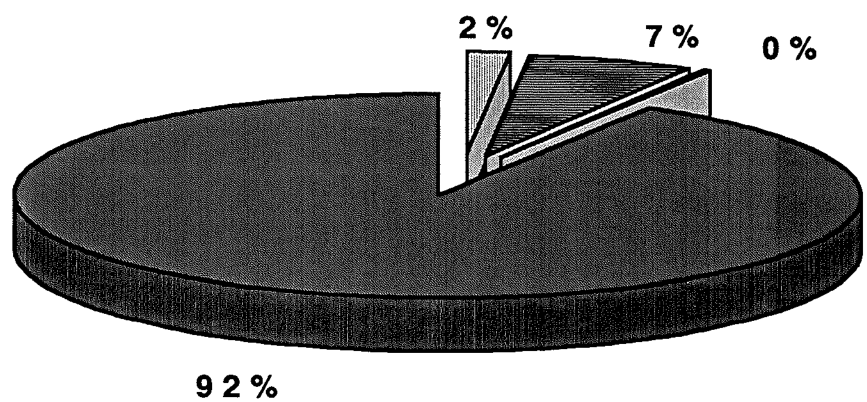


CHART 7

POST RETIREMENT INCOME CORRESPONDING TO PRERET INC $35,000

CHART 8



Single, Retirement Age 65, 30 Years Service

REPLACEMENT RATIOS, MARRIED, RET AGE 65

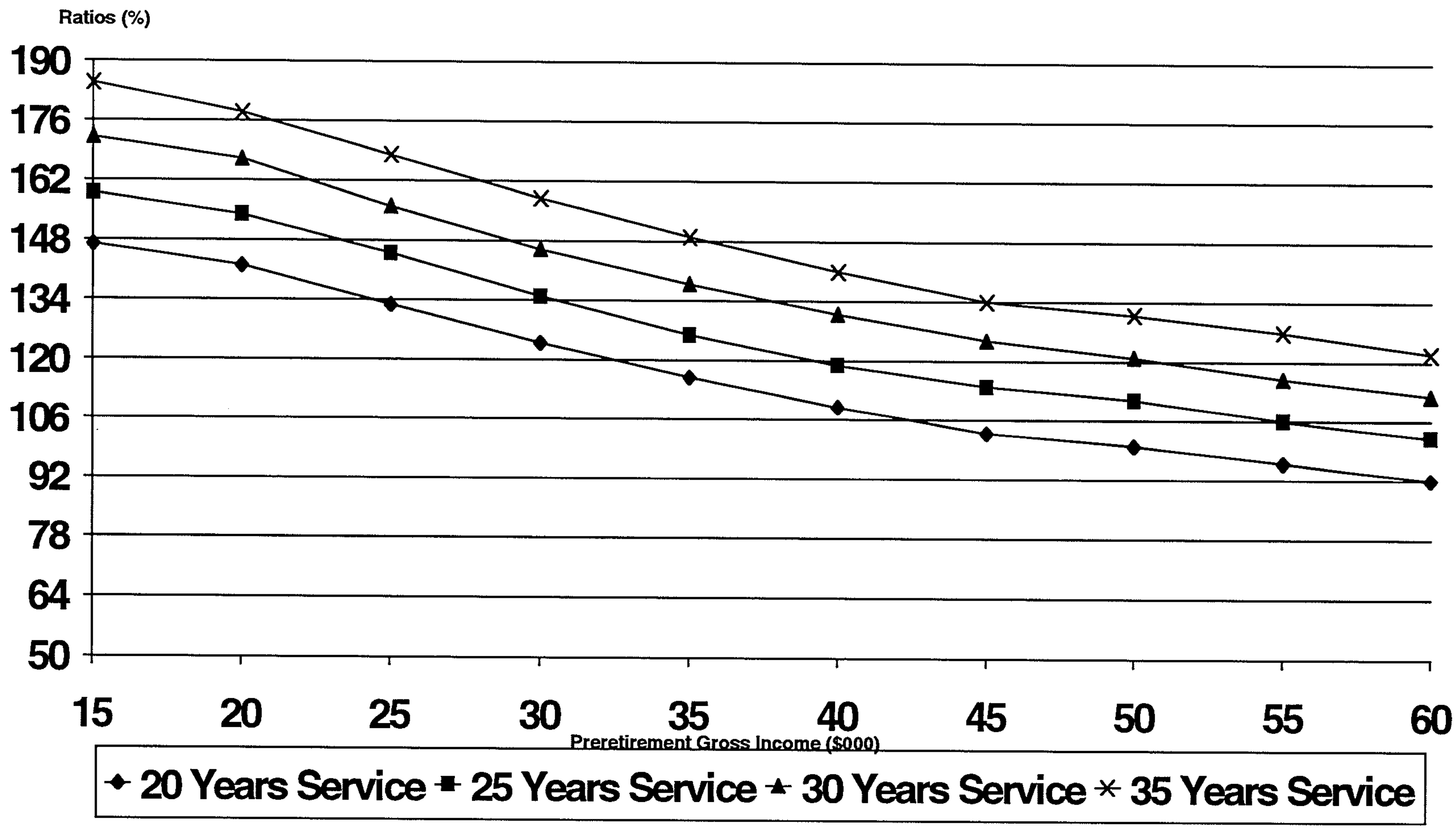


CHART 9

REPLACEMENT RATIOS, MARRIED, RET AGE 62, AT AGE 65

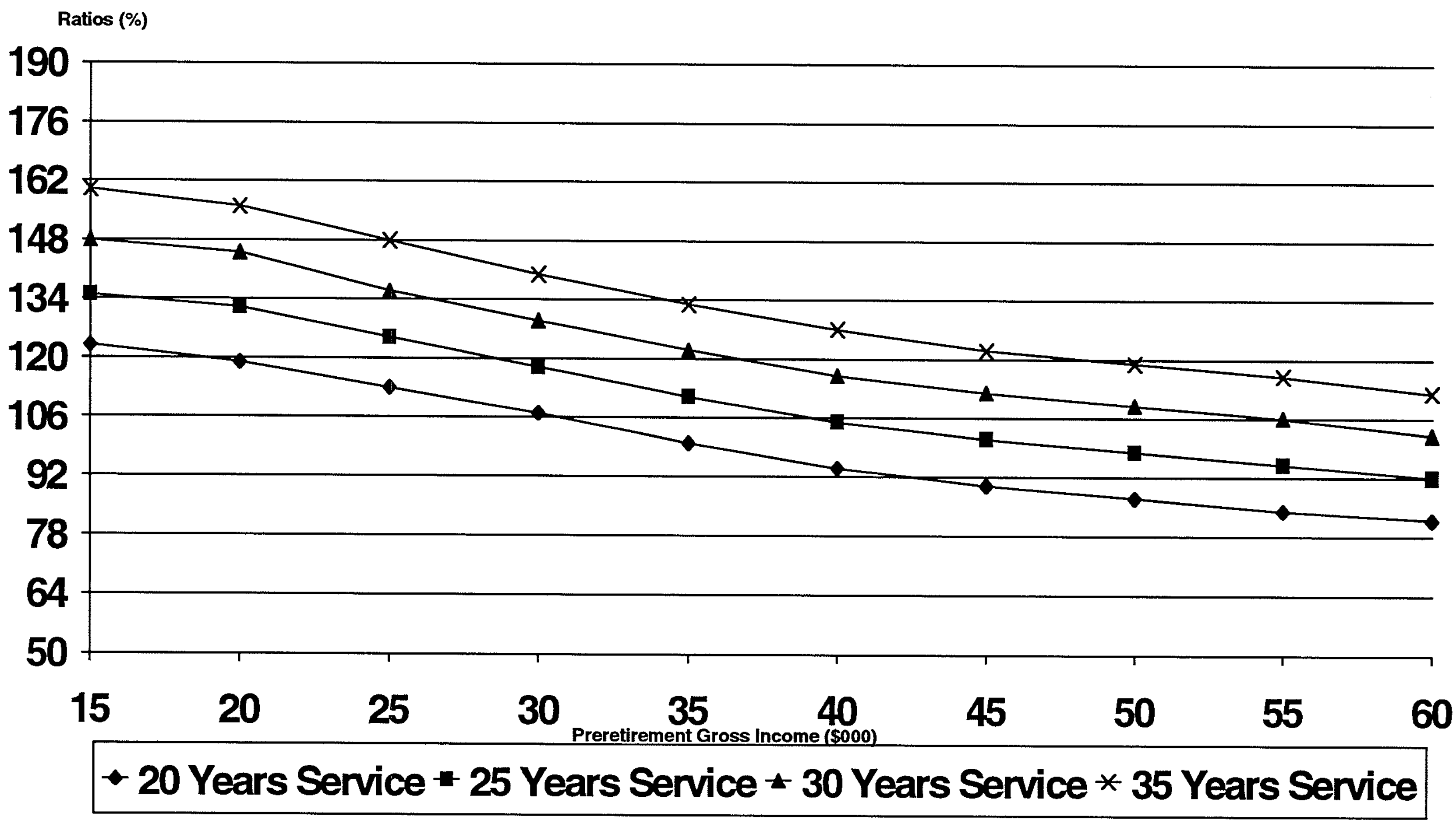


CHART 10

REPLACEMENT RATIOS, MARRIED, RET AGE 60, AT AGE 65

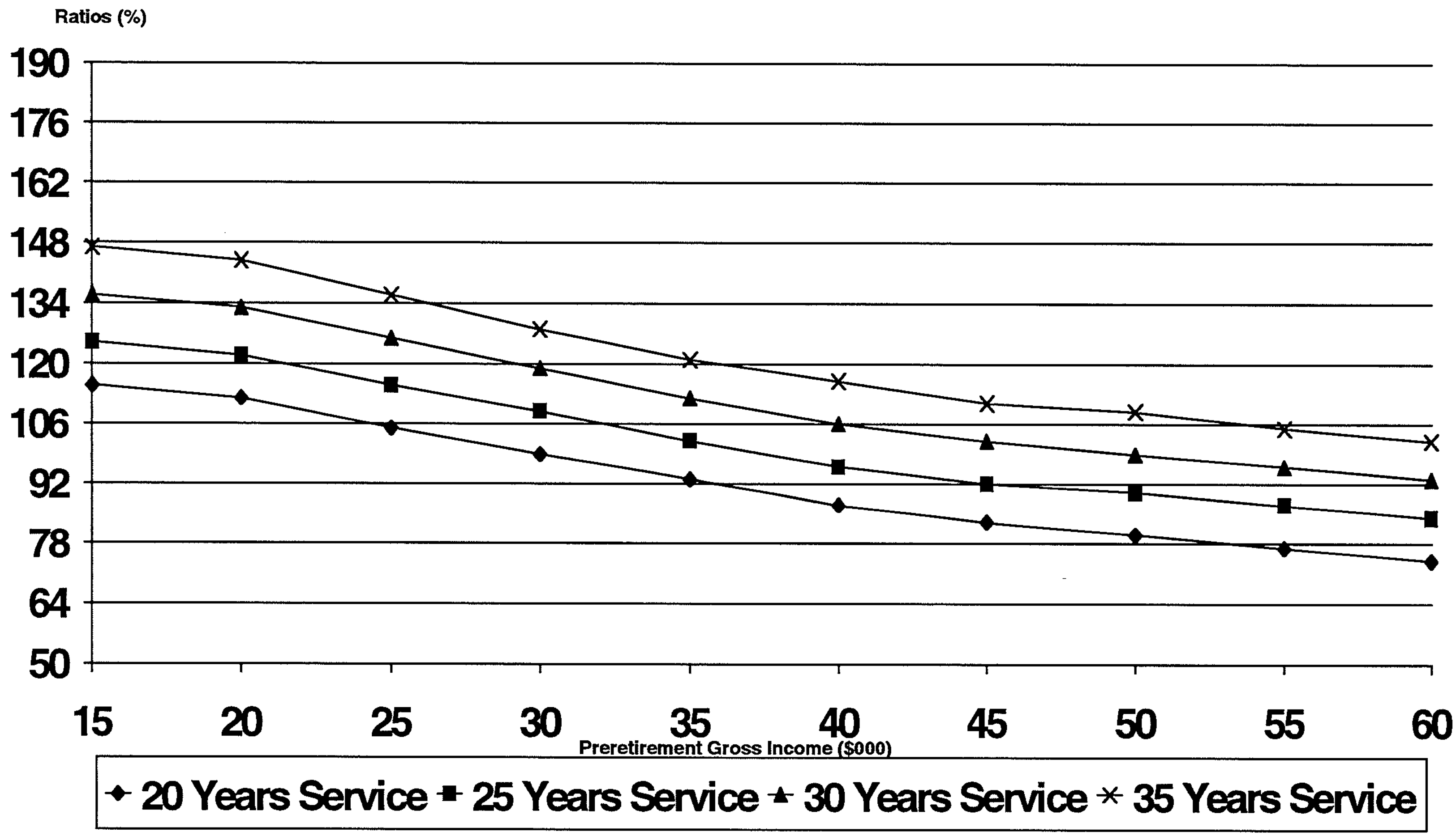


CHART 11

REPLACEMENT RATIOS, SINGLE, RET AGE 65

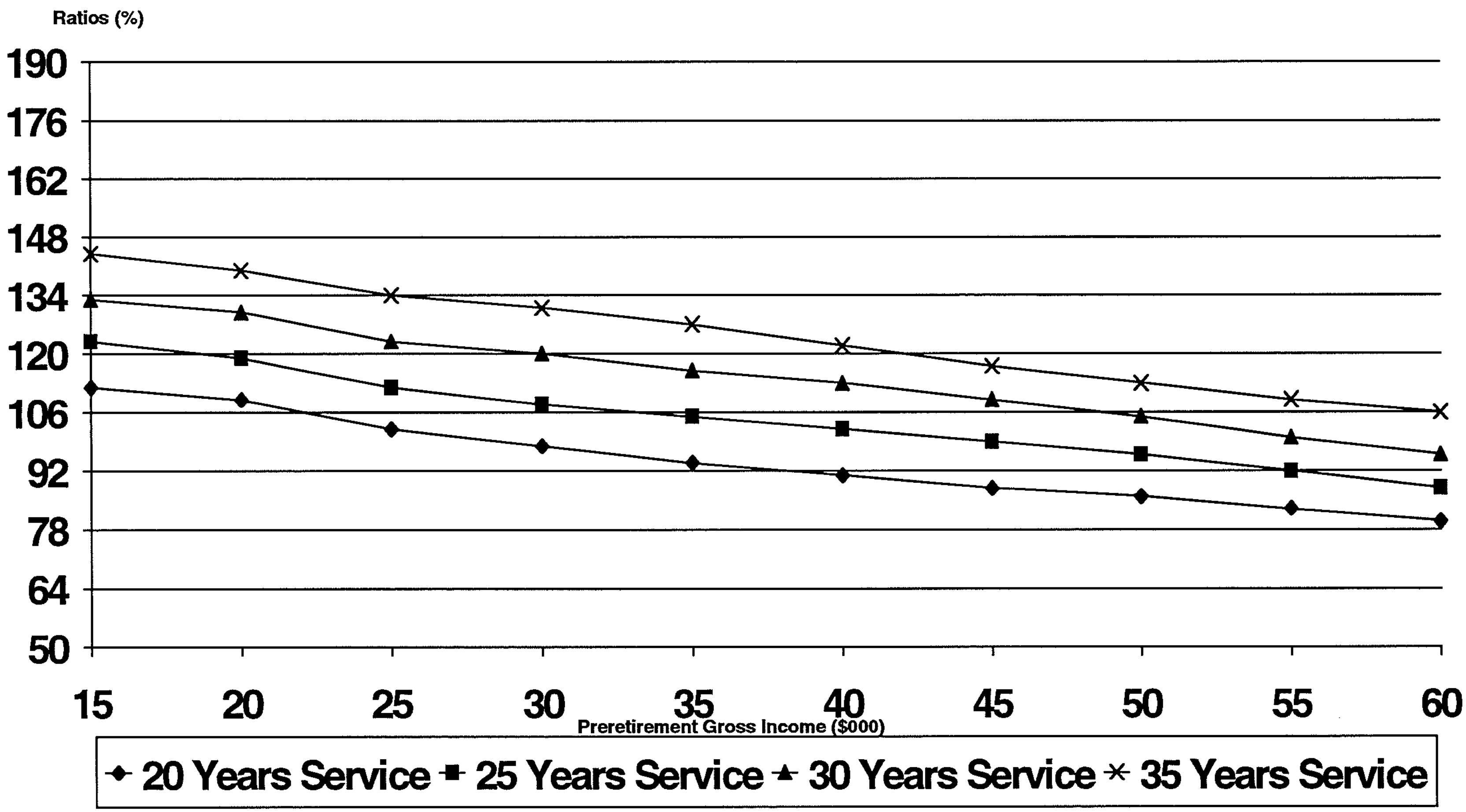
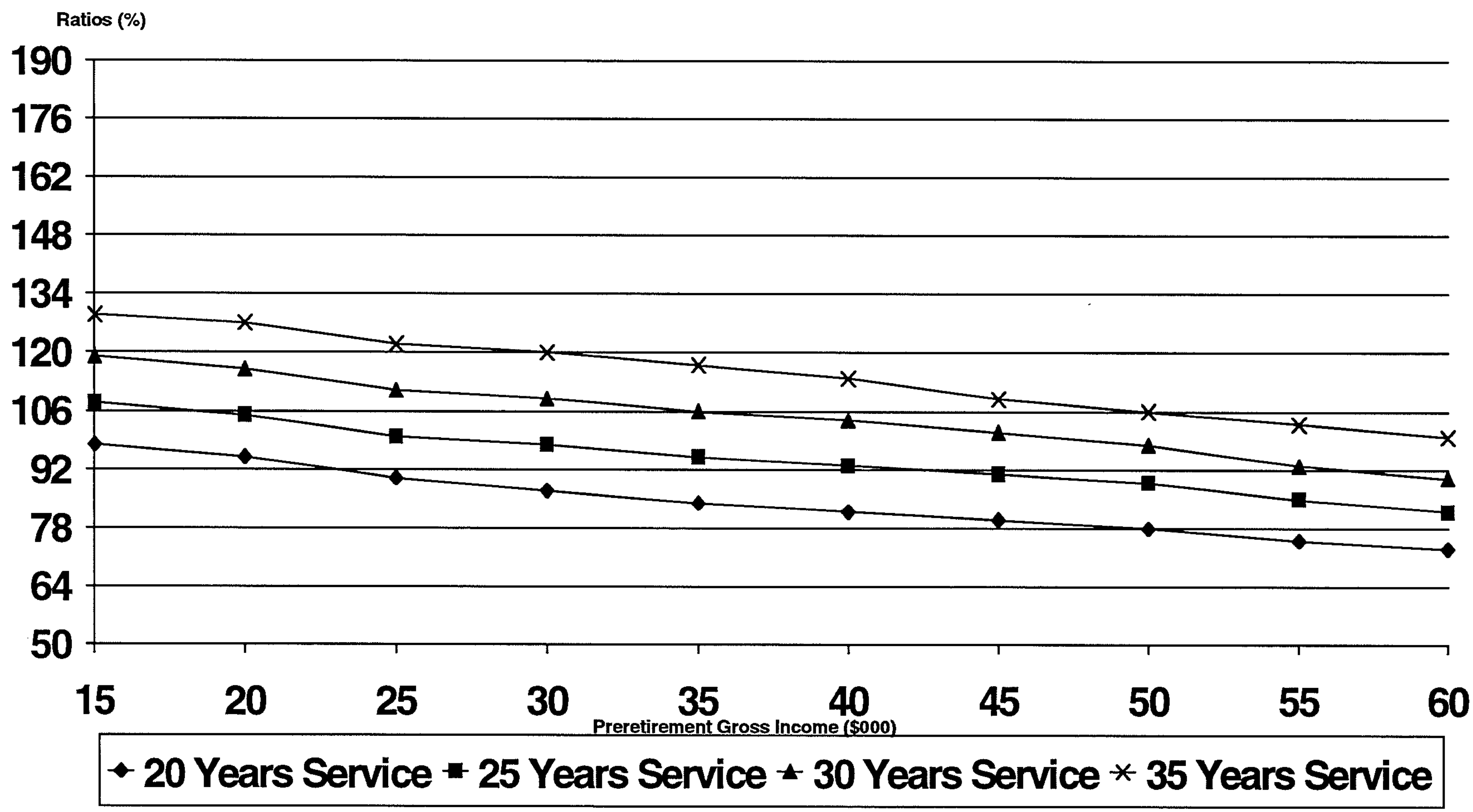


CHART 12

REPLACEMENT RATIOS, SINGLE, RET AGE 62, AT AGE 65



REPLACEMENT RATIOS, SINGLE, RET AGE 60, AT AGE 65

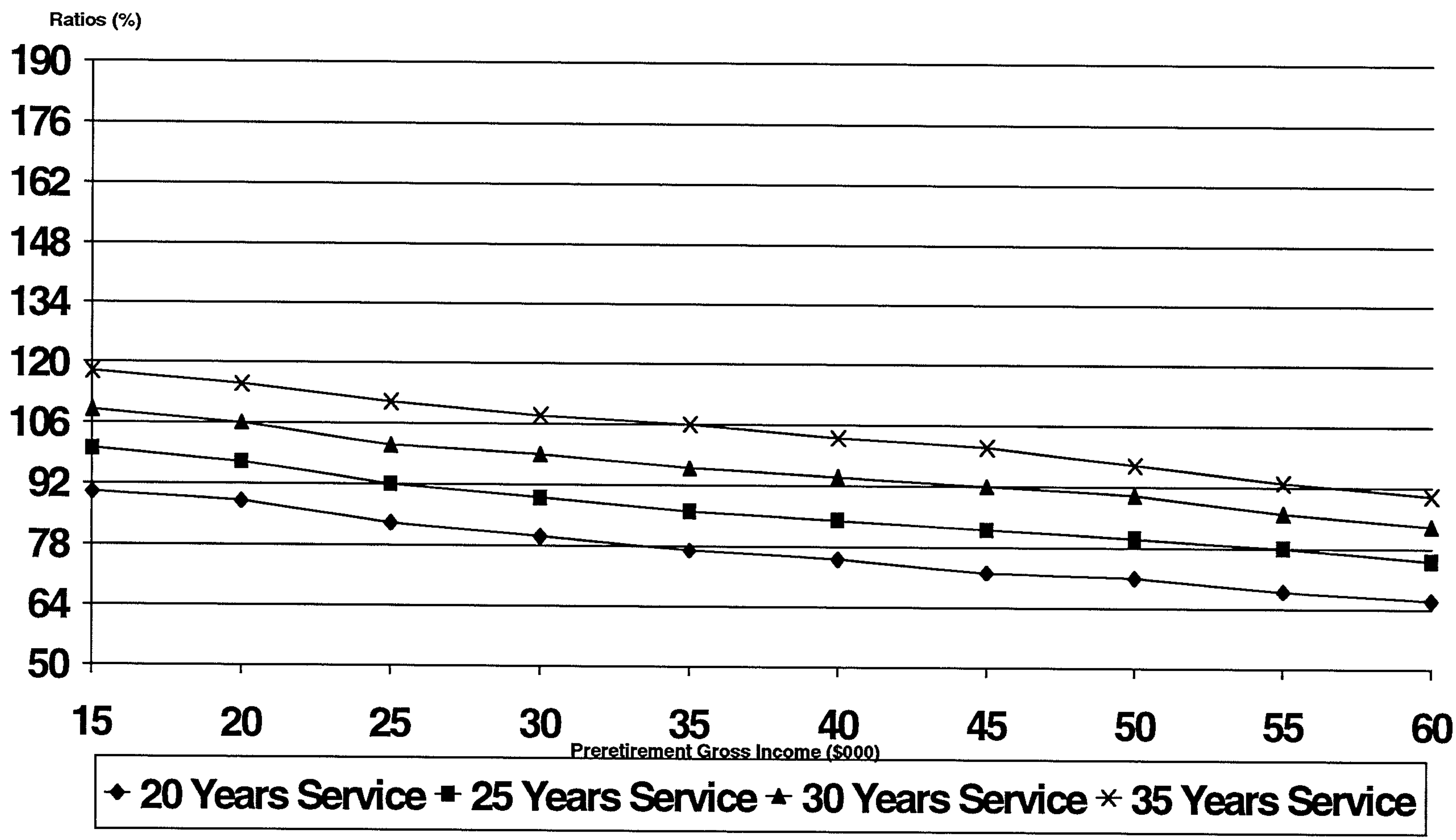


CHART 14

SURVEY OF COMPARABLE PUBLIC RETIREMENT SYSTEMS

I. Introduction

This section presents a comparison of the Mississippi Public Employees' Retirement System with systems maintained in nine other Southeastern states. It was our intent to select only a few plans for comparison, since more extensive listings tend to obscure meaningful regional comparisons.

The primary source of the data on other state systems contained in this section is the Survey of Systems, published jointly on March 15, 1989, by the National Association of State Retirement Administrators and the National Council on Teacher Retirement. In addition, "Comparative Statistics of Major State Retirement Systems, 1984-88," LFP #68, published May, 1989, by the National Conference of State Legislatures was used in preparation of our report. Data from these sources were verified when possible with the "1991 State Employee Benefits Survey" published by Workplace Economics, Inc. and updated, if necessary.

Data for the state of Alabama was not included in the primary source material and was taken exclusively from the secondary sources.

Data for the state of Mississippi reflects Mississippi law as amended through 1990.

Our report is restricted to the major features of the benefit program. It is further restricted to that plan maintained by the state for its general employees. Special plans or features maintained for selected categories of workers such as firefighters or teachers are not included in this comparison.

II. Retirement Allowance Formula

Chart 15 presents the formula used to calculate the basic retirement benefit for each state. In addition, the state's election to participate in the Federal Social Security System is indicated since that decision may affect the level of benefits in the state plan.

Each of the plans surveyed bases the normal retirement allowance on final average earnings (FAE) and utilizes a formula of the form:

<u>FAE</u> times <u>multiplier</u> times <u>years of service</u>

In this formula, FAE is the worker's average earnings over a specified time (usually 3 to 5 years) prior to retirement. This average is then multiplied by a percentage, indicated as "multiplier" in the formula. The resultant product is then multiplied by the number of years of service credited to the worker under the system.

Two of the plans adjust benefits to reflect the availability of Social Security benefits as a supplemental source of retirement income. Arkansas does this by subtracting a portion of the Social Security benefit in its formula, and Tennessee uses a higher multiplier on salary above a specified amount. Such adjustments are adopted to reflect the fact that Social Security benefits are disproportionately high at lower income income levels and, in addition, do not reflect earnings above the Taxable Wage Base.

The Mississippi formula is somewhat unique among the selected states in providing an increase in benefits after 25 years of service. Only Florida offers a similar benefit for longevity and our sources did not reveal the level of increased benefit in that state.

> <u>Conclusion</u>. The general level of benefit offered by Mississippi was the fourth highest in the survey, behind Alabama, Kentucky and Louisiana. The basic formula is only one aspect of benefit design, however, and premature conclusions should be avoided. It may be noted, for example, that Louisiana does not participate in Social Security so that total retirement income will be lower than in Mississippi. In addition, none of the three states ahead of Mississippi automatically adjusts benefits to reflect inflation.

SURVEY OF PUBLIC RETIREMENT SYSTEMS

CHART 15

BASIC BENEFIT FORMULA

State	Basic Benefit Formula	Final Earnings Period	Minimum Benefit	Social Security Coverage
Mississippi	(.01875 x Years + .00125 x Years over 25) x FAE	Highest 4 Consecutive Years	None	Yes
Alabama	.020125 x Years x FAE	Highest 3 Consecutive Years of Final 10	None	Yes
Arkansas	(.018 x FAE - .0125 x SSPIA) x Years	Highest 60 Months	.007 x Years x FAE	Yes
Florida	.016 x Years x FAE (Gradual increase after 30 Years at age 62)	Highest 5 Years	None	Yes
Georgia	.0164 x Years x FAE	Highest 8 Quarters	None	Most
Kentucky	.0197 x Years x FAE	Highest 5 Years	None	Yes
Louisiana	.025 x Years x FAE plus $300 if member before 7-7-86	Highest 3 Consecutive Years	None	No
North Carolina	.0164 x Years x FAE	Highest 48 Consecutive Months	None	Yes
South Carolina	.017 x Years x FAE	Highest 3 Consecutive Years	None	Yes
Tennessee	.015 x Years x FAE + .0025 x Years x (FAE in excess of SSIL)	Highest 5 Consecutive Years	Min = $8 x Years Max = .75 x FAE	Most

III. Age and Service Conditions

Most public employee retirement systems impose certain age and service conditions to qualify for an unreduced normal retirement allowance.

Separate age and service requirements are frequently specified to qualify for early retirement. In these cases, the worker may receive an immediate income if the conditions are met, but the amount of income will be reduced from the amount that would be payable at normal retirement.

Chart 16 presents a summary of these provisions. In the column headed "Normal Retirement Qualification," the conditions to qualify for unreduced normal retirement benefits are listed. Every state has optional qualification methods:

(1) work for a specified number of years, or

(2) attain a specified age and work for a lesser number of years.

The provisions regarding qualification for normal retirement in the Mississippi system are of the same form as the other states in this survey, but were somewhat more liberal in Mississippi than in the other states. For example, 25 years' service is required for unreduced retirement in Mississippi whereas the other 9 states all require 30 years.

The other two columns in Chart 16 deal with early retirement qualification and reduction. Mississippi formerly required 25 years for early retirement. Since that is now a normal retirement condition, a separate provision for early retirement is not necessary.

SURVEY OF PUBLIC RETIREMENT SYSTEMS

CHART 16

QUALIFICATION

State	Normal Retirement Qualification	Early Retirement Qualification	Early Retirement Reduction
Mississippi	25 Years or Age 60 & 4	None	NA
Alabama	30 Years or Age 60 & 10	25 Years	6.6% for Each Year Early
Arkansas	30 Years or Age 65 & 10	Within 10 Years of Full Benefit Age	1/2% for Each Month Early
Florida	30 Years or Age 62 & 10	After 10 Years Service	5/12% for Each Month Early
Georgia	30 Years or Age 65 & 10	Age 60 & 10 Years	5% for Each Year Under 65
Kentucky	30 Years or Age 65 & 4	Age 55 & 5 Years or 25 Years	5% for Each Year Under 65 or 30 Years
Louisiana	30 Years or Age 55 & 25 or Age 60 & 10	10 Years & 50	2.5% for Each Year Early
North Carolina	30 Years or Age 60 & 25	20 Years & 50 or 5 Years & 60	Not Clear
South Carolina	30 Years or Age 60	Age 60	5/12% for Each Month Before 65
Tennessee	30 Years or Age 60 & 10	10 Years & 55	4/10% for Each Month Early

IV. Cost of Living Adjustments

The Mississippi system provides for the payment of an additional benefit reflecting increases in the Consumer Price Index that have occurred since a member's actual retirement date. The additional amount payable each year is:

the normal retirement allowance

times the sum of

(a) 2-1/2% for each year of retirement through 6/30/84,

plus

(b) the annual increase in the Consumer Price Index (but not over 2-1/2%) for each year of retirement subsequent to 6/30/84.

Arrangements of this nature are generally referred to as automatic Cost of Living Adjustments or COLA's. It is also possible to have (by legislation) ad hoc COLA's, and a state may have both. Ad hoc adjustments were made to many plans in the 1980's when the rate of inflation was very high.

The Mississippi formula provides a linear adjustment. Such an approach provides a somewhat smaller benefit than a compound formula. For example, if you retire in 1991 and the CPI increase exceeds 2-1/2% in every year thereafter, then in 1995 you will receive an additional ("13th") check in the amount of:

$$4 \times 2.5\% = 10\%$$

of your regular annual benefit.

This may be contrasted to a compound formula for calculating increases under which the increase in this example would be computed as:

$$1.025^4 - 1 = 10.38\%$$

of the regular annual retirement allowance.

Chart 17 presents details of the COLA activity for the 10 states in the survey. As indicated, Georgia was the only other state surveyed that used a linear formula in computing the amount of the cost of living adjustment. It can be noted, however, that the Mississippi Public Employees' Retirement System has operated within the mainstream of activity in this regard since one-half of the systems surveyed had automatic COLA features.

SURVEY OF PUBLIC RETIREMENT SYSTEMS

CHART 17

STATE	COLA PROVISION	MOST RECENT AD HOC INCREASE
Mississippi	Up to 2.5% (linear) Automatic	7-1-87
Alabama	No	Not Available
Arkansas	Up to 3% Automatic	7-1-85
Florida	Up to 3% Automatic	No
Georgia	No	Up to 3% (linear) if Appropriated or Actuarial Gains
Kentucky	No	If "Rate Margin" Adequate to Finance
Louisiana	No	1987
North Carolina	No	Appropriation or Actuarial Gain
South Carolina	4% Increase if CPI up 3% or More	1988 (10%)
Tennessee	Up to 3% Automatic	1987

V. Required Contributions

Chart 18 summarizes contributions required from members and employers in each of the systems surveyed. The sources for this information were:

Mississippi: Current Law

Other Member Contributions: Report of National Association of State Retirement Administrators

Other Employer Contributions: Report of National Conference of State Legislatures, modified by 1991 Benefits Survey

The Internal Revenue Code provides that if the public system meets the necessary qualifications and the system so elects, employee contributions may be treated for tax purposes as a reduction in salary and a contribution by the employer. This arrangement has the effect of reducing the employee's current tax. The presence of this arrangement is indicated in Chart 18 in the column headed "Section 414(h) Pick Up."

As to employer contributions, it is important to note that the NCSL report contains the following caveat:

> "The information ...on employer contributions is less reliable than other PERS provisions surveyed in this report. Employer contributions are often stated in annual reports as dollars instead of as a percent of payroll. Also, employer costs often vary from year to year depending upon periodic actuarial valuations. In addition, employer costs may be paid from several sources and may be divided into several categories including normal cost, amortization, and administrative costs."

This information, therefore, should only be used to obtain a very general idea regarding employer contributions in other systems. Detailed conclusions cannot be drawn from such limited data.

<u>Conclusion</u>. The total funding levels in Chart 18 place the Mississippi system on the high side. The difference is not dramatic, but this situation may be related to observations in earlier Charts that benefit and retirement provisions may be slightly more liberal than in the other states surveyed. This may be a matter which the Committee will wish to observe rather closely in the future.

SURVEY OF PUBLIC RETIREMENT SYSTEMS

CHART 18

State	Member Contributions	Section 414(h) Pick Up	Employer Contributions
Mississippi	7.25%	Yes	9.75%
Alabama	5%	Yes	7.1%
Arkansas	0	No	10%
Florida	0	Noncontributory	13.14%
Georgia	1.50%	No	17.80%
Kentucky	5%	Yes	7.45%
Louisiana	7.5%	Yes	10.70%
North Carolina	6%	Yes	11.22%
South Carolina	6%	Yes	7.7%
Tennessee	0	Noncontributory	10%

ANALYSIS OF PROPOSED GOVERNMENTAL ACCOUNTING STANDARDS BOARD STATEMENT FOR MEASUREMENT OF PENSION EXPENSE.

I. Actuarial Cost Method

The primary purpose of an actuarial valuation of a pension plan is to assist a plan sponsor in budgeting for the future costs of pension and ancillary benefits. Two items which have a material impact on this budgeting process are the assumptions and the actuarial cost method used.

An actuarial cost method is the scheme by which future costs are assigned to individual plan years. The selection of a particular cost method can have a material effect on contributions in a year. For example, Arizona recently changed the cost method for the Arizona State Retirement Systems for the fiscal year ending in 1991 resulting in a $281 million reduction in accrued liabilities and a smaller state contribution to the pension fund.

The issue of assumptions has been fully addressed for the Public Employees' Retirement System of Mississippi (PERS). Mississippi Code Section 25-11-119 requires biennial experience studies, prepared by the PERS actuary, to enable the board of trustees of PERS to set the assumptions used in actuarial valuations.

However, the issue as to which actuarial cost method to use has not been fully addressed by state law. Code Section 25-11-123 describes how contributions are to be determined; however, the description is not technically correct and does not define a recognizable funding method.

The use of the phrase "actuarial soundness" appears in Code Section 25-11-123 and in other material related to PERS. The phrases "actuarially sound" and "actuarial soundness" are not defined in State Law and have no generally recognized meaning in actuarial literature. These phrases appear to be relied upon in the absence of a stated actuarial cost method to determine funding levels and the cost of benefit increases for PERS.

The following example illustrates the importance of the actuarial cost method. A plan has one participant age 30 earning $25,000. Assume benefits and assumptions are similar to those of PERS. The Chart below shows the annual required contribution in the first year under two recognized cost methods.

	Contribution in First Year as % of Pay
Cost Method One	16.25%
Cost Method Two	11.70

Method Two produces a first year contribution less than 75% of Method One.

As you can see, the actuarial cost method is a very important part of any actuarial valuation. The particular cost method used by PERS should be selected after careful consideration and should be well defined.

To avoid the complications of writing into law an actuarial cost method, we recommend that the board of trustees adopt a cost method for PERS. The method should be well defined and selected in consultation with the PERS actuary. The responsibility of the board for selecting the method and the general characteristics of an acceptable method could be included in State Law.

> Recommendation. The actuarial cost method is an integral part of an actuarial valuation and has a large impact on funding levels. State Law does not define a cost method for PERS. The PERS board of trustees should be required to select a cost method in consultation with the PERS actuary.

II. Considerations for Selecting a Cost Method

There are several recognized actuarial cost methods which have been used by both private and public employers over the years to determine contributions to a pension plan.

Some of the more important considerations in selecting a method are as follows:

1. The method should generally provide for the funding of benefits by the normal retirement date of the participant.

2. The method should produce relatively stable, predictable costs so that pension expense is a budgetable item.

3. The method should not defer too much cost to later years so that the employer can realistically judge if the plan is affordable.

4. For a governmental plan, the method should match the pension expense for employees who provide services in a given period with the citizens who receive those services for the period.

Employers also select cost methods because of legal and accounting requirements. Private employers must use a method that complies with federal tax law as amended by the Employer Retirement Income Security Act of 1974 (ERISA) with subsequent amendments. In addition, a private employer which prepares a financial statement based upon generally accepted accounting principles must use a cost method described in Financial Accounting Standards Board Statement Number 87 to determine pension expense.

For many private employers, the amount which they contribute to their pension plans and the amount which they can expense are not the same due to the difference in cost methods allowed under federal law and accounting standards.

> <u>Conclusion</u>. In our opinion, a reliance on "actuarial soundness" will not be sufficient for the future as a substitute for the System considering alternative actuarial cost methods and selecting one which best meets the needs of the System and the State. As mentioned earlier, we recommend that the Board of Trustees for the System be given the responsibility of selecting a method in consultation with the PERS actuary.

> <u>Recommendation</u>. References to "actuarial soundness" should be avoided as such expression has no generally recognized meaning in actuarial literature.

III. Comparison of Current Funding Method with GASB Proposal

The Governmental Accounting Standards Board (GASB) establishes accounting standards for financial reports of all state and local governmental entities. On January 31, 1990, GASB issued an exposure draft which provides standards for determining pension expense for financial reports.

The exposure draft defines several cost methods which may be used to determine pension expense. There is no requirement that the same funding method be used for purposes of determining the contribution and the expense for financial statements. For most governmental entities, it would be impractical to contribute one amount and show an expense for a different amount in financial statements. Therefore, GASB is actually defining which cost method may be used by pension plans of public employers.

The cost of the pension plan to the employer is equal to the present value of future benefits, less the present value of future employee contributions, less plan assets.

The cost method splits the employer cost into two parts. One part is called the <u>unfunded accrued liability</u> (UAL) and generally reflects employer costs due to retrospective benefit increases. The remaining part, funded by the <u>normal cost</u>, generally represents the cost of future benefit accruals.

For PERS, as of 6-30-90, the actuarial valuation provided the following:

	6-30-90 (in millions)
Present value of future benefits	$8,847
Plan assets	4,062
Present value of future employee contributions at 6.5%	1,357
Total future contributions by employer	$3,428
Present value of future normal costs	881
Unfunded accrued liability	2,548
Unfunded accrued liability liquidation period	29 years

The unfunded accrued liability is funded over a certain period either as a level dollar amount or as a level percentage of payroll. Generally accepted practice is to fund the UAL over a period of 30 years. The past benchmark for PERS has been 30 years.

The normal cost is funded over the remaining future period of anticipated employment of active participants. The normal cost is usually calculated to be a level percentage of covered payroll. <u>The amortization period for the normal cost is generally materially shorter than the amortization period for the UAL</u>.

The current contribution rates for PERS are as follows:

	Contribution as % of Payroll
Normal cost	4.22%
Amortize UAL	5.53
	9.75%

Conclusion. The current actuarial cost method used by PERS does not comply with the GASB exposure draft. It is important to remember that the accounting standards have not been finalized and may be changed in the final version.

Under current practice, contribution rates are set by statute. Actuarial valuations are performed to measure the remaining amortization period of the unfunded accrued liability based on the statutory rates of contribution. If the liquidation period is 30 years or less, then the System is judged sound.

The exposure draft requires that the UAL be funded over a closed period. A closed period requires that the amortization period for the UAL decrease over time. For example, if there were no amendments to PERS, GASB would require that the 6-30-91 UAL be amortized over 28 years. (It was 29 years in the 6-30-90 valuation.) Under the current cost method, the amortization period of the UAL is compared to 30 years. If the UAL is amortized in 30 years or less, no adjustments are made to the contribution percentages. This technique is called an open amortization period.

Deviation of actuarial experience (investment earnings, mortality, salary increases, etc.) from expected produces experience gains and losses.

The PERS cost method does not separately determine gains and losses, but allows gains to decrease the UAL and losses to increase the UAL. The exposure draft would require the gains and losses, not separately determined, to be funded through the normal cost.

As mentioned, the final version of the GASB standards has not been published. Once the final version is published a careful comparison should be made of the PERS cost method to the standard.

IV. Is the Current Funding Method Reasonable?

Questions of reasonableness of a funding method for governmental plans can generally be answered by looking at the UAL and how amortization of the UAL is progressing.

As mentioned earlier, the UAL generally represents one of two parts of the total cost of the plan to the employer.

The following Chart shows the percentage that the UAL is of the total employer cost for PERS for the indicated years.

Unfunded Accrued Liability
<u>Percent of Total Employer Cost</u>

1984	1986	1988	1990
59.34%	55.69%	57.00%	74.32%

As you can see, the UAL has increased materially as a portion of total employer cost for PERS since the 1980's.

The PERS cost method amortizes the UAL as a level percent of payroll as opposed to a level dollar amount. Plans of private employers must amortize the UAL as a level dollar amount. The following Chart shows the percent that the UAL is of the covered payroll for members of PERS for the indicated years.

Unfunded Accrued Liability
<u>Percent of Covered Payroll</u>

1984	1986	1988	1990
59.41%	50.41%	55.40%	107.90%

During the 1980's the UAL was close to 50% of covered payroll and is now larger than covered payroll. In last year's analysis, Milliman & Robertson, Inc. pointed this out along with the additional fact that the national average for UAL as a percent of covered payroll is 47.6%.

The UAL will increase with interest from year to year. With an 8% interest assumption in PERS, a UAL contribution rate of 5.53% and a UAL which is 107.90% of compensation, the anticipated contribution toward the UAL for the fiscal year ending 6-30-91 will not cover the interest on the UAL for the year.

UAL 6-30-90	$2,547,537,127
Interest on UAL (8% x UAL)	203,802.970
Anticipated payroll	2,479,093,045
UAL contribution (5.53% x pay)	137,093,845

Chart 19 at the end of this section shows the pattern of amortization anticipated by the 6-30-90 actuarial valuation which determined a 29 year amortization period for the UAL. The UAL will grow to $3.11 billion in thirteen years. No reduction in the UAL over current levels will occur for 22 years.

The 6-30-90 actuarial valuation assumes that for active members as of 6-30-90, all benefits will be funded in 30 years at the current contribution rates. However, it also assumes that over 75% of the anticipated cost will be contributed over the last 25% of the above period.

Also shown, in Chart 19, is the pattern for a level dollar amortization of the UAL.

Consideration should be given to the amount of anticipated employer cost that is deferred under the current cost method and the appropriateness of this method for future valuations.

<ins>Conclusion</ins>. In summary, the current actuarial cost method used by the System may not be appropriate for the following reasons:

1. The current method does not comply with the proposed GASB standards. Even though these standards have not been finalized, they do provide a benchmark for comparison.

2. The current method may allow too much of the employer cost to be funded through amortization of the unfunded accrued liability.

3. The current method may allocate too much of the cost to later plan years and not recognize appropriate amounts in current years.

<ins>Recommendation</ins>. PERS should be asked to address the above in consultation with the PERS actuary. The current practice of using the liquidation period of the unfunded accrued liability as the measure of the soundness of the System should be reviewed with the PERS actuary.

V. Considerations in Funding Benefit Increases with Employee Contributions

When benefit increases are funded by a uniform increase in employee contributions, issues of equity will often arise. As a practical matter, employees will not uniformly benefit from a plan amendment even though they may be required to uniformly contribute towards the cost of the amendment.

The recent amendment to PERS in an example. The following Chart compares benefits and employee contribution rates before and after the amendment.

	Before Amendment	After Amendment
Employee contribution rate	6.50%	7.25%
Normal retirement age	55 with 25 years of service	any age with 25 years of service
Benefit formula	1-7/8% of average compensation for each of first 30 years, 2% thereafter	1-7/8% of average compensation for each of first 25 years, 2% thereafter

An employee benefits from the above depending on the following:

1. age at hire,
2. length of service, and
3. period of time required to make increased contributions.

For example, an employee hired at age 30 who retires at age 55 would receive the same benefit from PERS both before and after the amendment. The employee would receive 46.875% (1-7/8% times 25) of his average compensation to begin at age 55.

Prior to the amendment, 34% of the above employee's retirement benefit would be provided for by his own contributions. If he were 35 years of age at the time of the amendment, then he would contribute for 20 years at the increased rate and his contributions would provide for 37% of his retirement benefit. Since his retirement benefit does not increase, the benefit provided through employer contributions decreases and he actually has a 4.72% decrease in his employer provided benefit.

Chart 20 is a graph of the percent reduction in employer provided benefits for employees hired at 30 with 25 years of service at retirement for various years of increased contributions.

Employees with 30 years of service hired on or after age 25 do not benefit form the change in the normal retirement age but do benefit from the change in benefit formula for service after 25 years.

We calculated the ratio of the accumulated value of increased contributions to increased benefits for employees hired at ages 25 with 30 years of service at retirement for various years of increased contributions, see Chart 21.

As you can see from Chart 21, an employee hired at age 25 who pays the increased employee rate of 7.25% for 25 years (i.e., he was 30 when the amendment became effective) pays in 2.94 times more in increased contributions than he receives in increased benefits due to the amendment.

Charts 22 and 23 show the results of similar calculations for employees hired at ages 30 and 35, respectively. These Charts show that an employee who will have 30 years of service at retirement, is hired on or after age 25 and is more than eight years away from retirement at the time of the law change, will pay in more in increased contributions than he will receive in benefits.

These Charts also show a group of employees which benefit from the amendment. For example in Chart 22, an employee hired at age 25, who will have 30 years of service at retirement and is within 5 years of retirement at the time of the amendment will pay in about half (53%) in increased contributions of what he can expect to receive in increased benefits.

> Conclusion. As illustrated by the above, funding benefit increases through employee contributions can produce large inequities among groups of employees. PERS should carefully analyze such inequities in the future as part of considerations to fund benefit increases through employee contributions.

> Recommendation. In general, benefit increases should not be funded solely through increased member contributions. Increases in member contributions should be reserved to aid in maintaining the overall soundness of the System.

AMORTIZATION OF UNFUNDED ACCRUED LIABILITY OUTSTANDING BALANCE BEGINNING 6-30-90

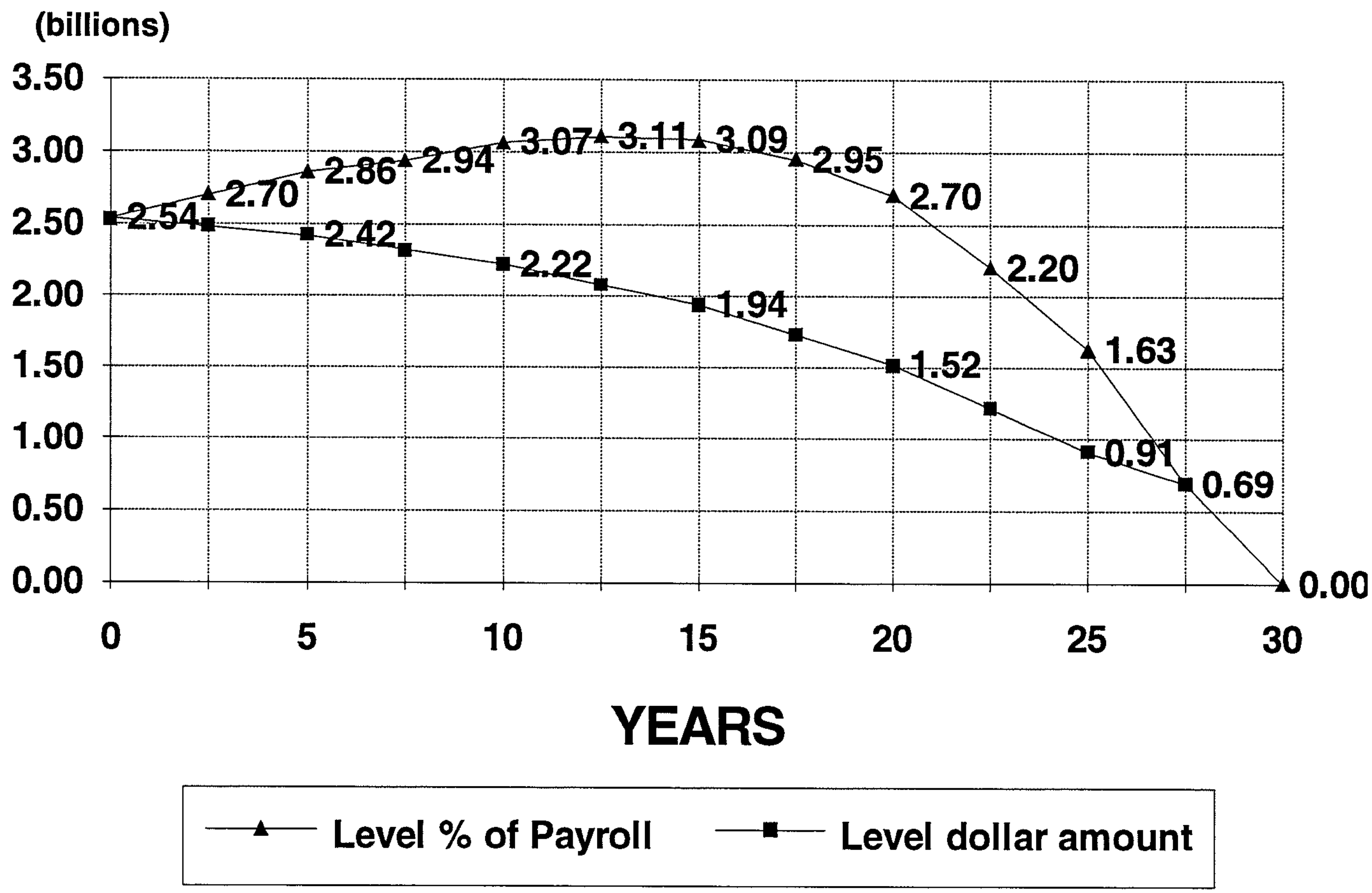


CHART 19

MEMBERS WITH 25 YEARS OF SERVICE AT RETIREMENT PERCENTAGE DECREASE IN EMPLOYER PROVIDED RETIREMENT BENEFIT

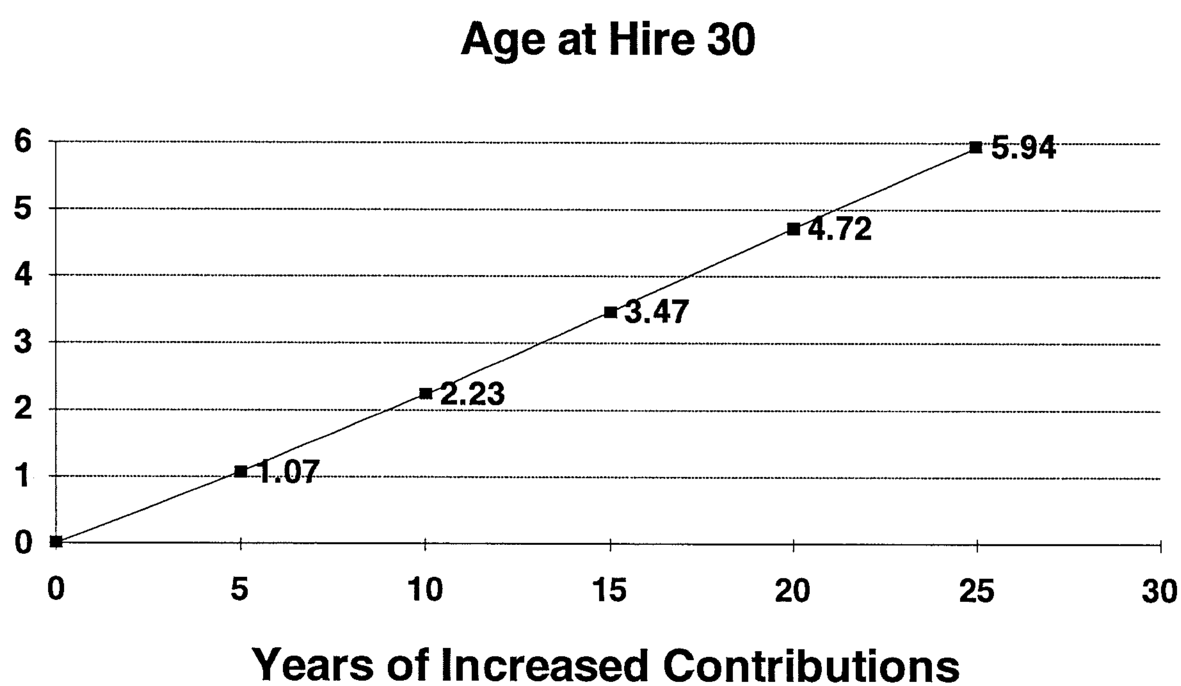
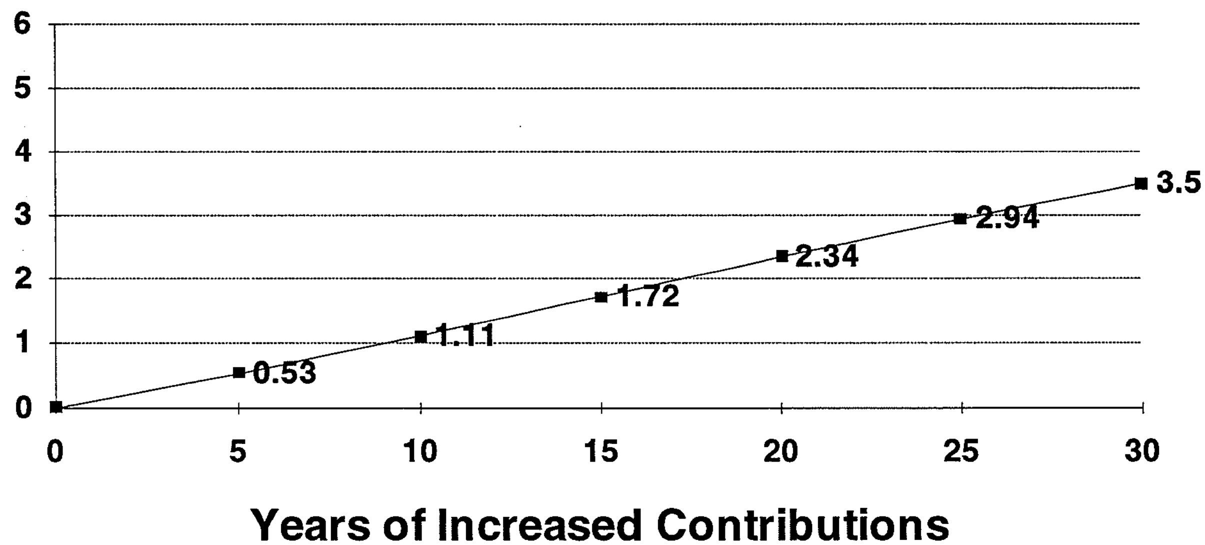


CHART 20

MEMBERS WITH 30 YEARS OF SERVICE AT RETIREMENT RATIO OF INCREASED CONTRIBUTIONS TO INCREASED BENEFITS

CHART 21

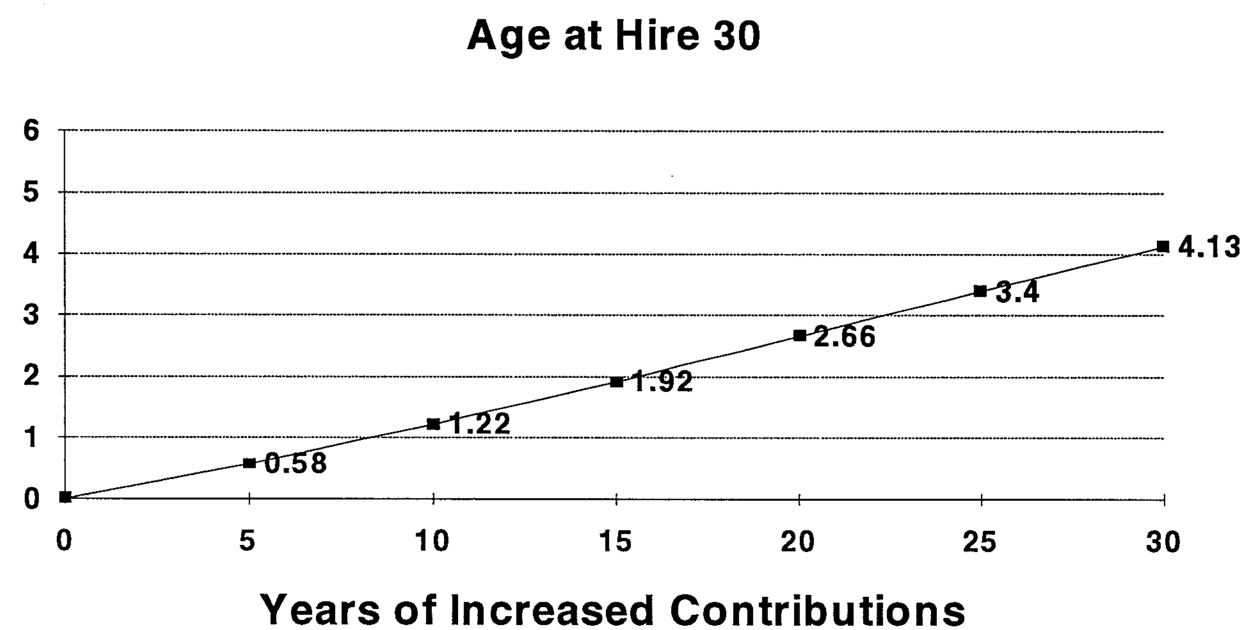
Age at Hire 25



Based on actuarial assumptions used in 6-30-90 Actuarial Valuation of PERS.

MEMBERS WITH 30 YEARS OF SERVICE AT RETIREMENT RATIO OF INCREASED CONTRIBUTIONS TO INCREASED BENEFITS

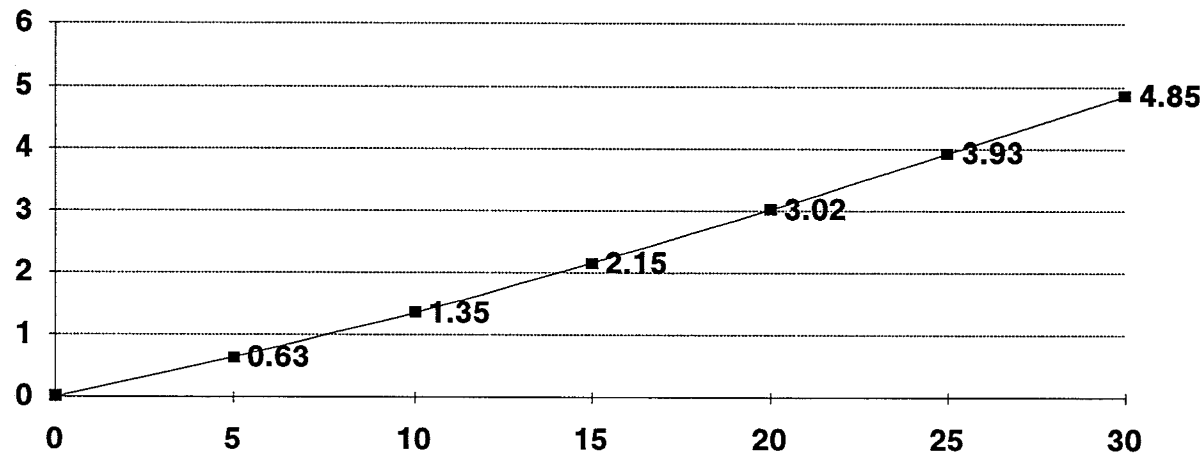
CHART 22



Based on actuarial assumptions used in 6-30-90 Actuarial Valuation of PERS.

MEMBERS WITH 30 YEARS OF SERVICE AT RETIREMENT RATIO OF INCREASED CONTRIBUTIONS TO INCREASED BENEFITS

Age at Hire 35



Years of Increased Contributions

Based on actuarial assumptions used in 6-30-90 Actuarial Valuation of PERS.

ADDENDUM

In 1989, the Legislature passed H.B. 301 (1989 *Laws,* Chap. 303), which established a "twenty-five-year and out" retirement benefit with a penalty for those retiring before the age of fifty-five. Originally, the drafters of the bill intended to finance benefit extensions with a 1% increase in the employee contribution and a 1% increase in the employer's contribution. Before passage of the bill, the period required for amortizing the unfunded accrued liability was seventeen years. The actuary who assisted in drafting the legislation urged the Legislature to increase the employee's contribution by only one-half percent. The actuary told the Legislature that a one-half percent increase would extend the amortization period to twenty-five years. The actuary's recommendation was adopted. After the Legislature passed H.B. 301, it discovered that the actuary was using an outdated mortality table which had been superseded by the Board of Trustees (the new table reflected improved longevity). Using the new table showed that H.B. 301 had extended the amortization period to twenty-nine years.

In 1991, the Legislature passed Senate Bill 2889 (1991 *Laws,* Chap. 513), which authorized retirement after twenty-five years of service at any age with no penalty. The bill provided for a 3/4% increase in the employee's contribution, with no change in the employer's rate. Of the 3/4%, about 1/2% was needed to finance the benefit provided by S.B. 2289, and about 1/4% was intended to reduce the amortization period more quickly, countering the effects of H.B. 301.

The choice of funding these early retirement options with increases in the employee contribution rather than with increases in the employer's contribution means that employees who had less than ten years of service will pay substantially more in contributions to receive this benefit than older employees.

Pension systems evolve, usually increasing benefits and contributions. As a matter of equity, benefit increases which favor one group of employees should not be funded with across-the-board increases in the employee contribution rate. However, changes in a pension system must be evaluated by their long-term effects, in conjunction with all other changes which have occurred or which are likely to take place. Changes in contribution rates should be evaluated in light of the equities of the total compensation package over time. In effect, H.B. 301 and S.B. 2889 rewarded loyal, long-term public employees who began public service in the 1960's and 1970's and who had not been richly compensated early in their careers.

Another effect of the funding mechanism for H.B. 301 and S.B. 2889 is that employees who withdraw from the system without receiving a retirement benefit will receive a larger refund than if the employer's contribution rate had been increased more to fund the early retirement provision. Employees who withdraw receive a refund of their contributions, but not a refund of their employer's contributions with respect to them.

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