THE FUNDING AND BENEFIT STRUCTURE OF THE PENNSYLVANIA STATEWIDE RETIREMENT SYSTEMS: A REPORT WITH RECOMMENDATIONS

FEBRUARY 2004

Staff Report
General Assembly of the Commonwealth of Pennsylvania
JOINT STATE GOVERNMENT COMMISSION
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The release of this report should not be interpreted as an endorsement by the members of the Executive Committee of the Joint State Government Commission of all the findings, recommendations and conclusions contained in this report.

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The Joint State Government Commission was created by act of July 1, 1937 (P.L.2460, No.459) as amended, as a continuing agency for the development of facts and recommendations on all phases of government for the use of the General Assembly.

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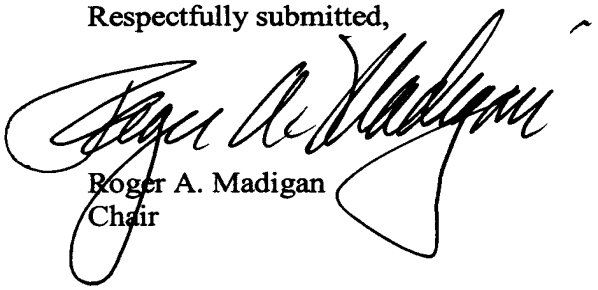
TO THE MEMBERS OF THE GENERAL ASSEMBLY:

The Joint State Government Commission is pleased to present this staff report on the funding and benefit structure of the Pennsylvania statewide public retirement systems, culminating a study that was undertaken pursuant to 2002 Senate Resolution No. 286.

The Commission recognizes with gratitude the assistance and guidance of the Public School Employees' Retirement System, the State Employees' Retirement System, and the Public Employee Retirement Commission, as well as the technical assistance and advice of Aon Consulting.

Respectfully submitted,



Roger A. Madigan
Chair

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EXECUTIVE SUMMARY

Assessment of Funding and Benefit Structure

The study pursuant to 2002 Senate Resolution No. 286 has reached the following conclusions regarding the funding and benefit structure of the statewide retirement systems:

Financial Soundness

- At present the systems are financially sound, with a funding ratio higher than all but a few systems in sister states. However, actuarial projections forecast sharply increasing employer contribution levels. Within the next ten years employer contributions are projected to reach a higher percentage of payroll than ever before.

Comparisons with Other States

- Largely because of a high benefit multiplier and the option to withdraw employee contributions at retirement, the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS) would appear to be among the more favorable statewide defined benefit retirement plans. The higher employee contribution makes PSERS less generous than SERS. The least favorable feature of the plans is most likely the lack of guaranteed inflation protection.

- The wide variety of terms of the statewide public retirement systems makes it very difficult to rate them comparatively. A valid comparison of retirement benefits should examine them in the context of total compensation and, indeed, all terms and conditions of employment, a task that is beyond the scope of this study.

Benefit Adequacy

- The conventional analysis of the adequacy of retirement benefits measures preretirement income against equivalent postretirement income. Largely because retirees do not incur work-related expenses and have a lower tax burden, the postretirement income may be about 25% lower than the preretirement income and still support the preretirement standard of living. The ratio of the retirement benefit to the income amount considered equivalent to the preretirement income is the replacement ratio. If that ratio is 100% or greater, the replacement ratio target is met.

- PSERS T-D and SERS AA general employees working for at least 30 years and retiring at age 65 will have sufficient pension benefits, in combination with Social Security, to meet or exceed applicable replacement ratio targets.

- SERS uniformed and safety employees receive a sufficient pension to meet the replacement ratio targets once Social Security commences, but require bridge income until eligible.

- The programs do not provide benefits that equal or exceed the replacement ratio targets on a stand alone basis. Social Security benefits, and in some cases, bridge employment, must be included to meet the targets.

Employer Contribution Rates

- Actuaries for the systems currently project employer contribution rates to rise sharply in the near future, to a peak of 27.73% of payroll for PSERS (in FY 2012-13) and 24.21% for SERS (FY 2011-12). These rates, easily higher than any in the history of the systems, are especially disconcerting because they follow a period when the rates fell to 0%.

- The primary cause for the escalation of employer contribution rates is the poor performance of the equity markets from 2000 to 2002. However, the benefit enhancements enacted by Act 9 of 2001 and Act 38 of 2002 contributed toward making the systems more vulnerable to weak investment returns.

- The adoption under 2003 Act No. 40 of a 30-year amortization period for recent investment losses and future gains and losses not caused by benefit enhancements may help alleviate the pressure on employer rates caused by the ten-year amortization under Act 9.

- Consistent funding at normal cost would reduce the probability of wide fluctuations in employer contribution rates. The employer contribution rate floors instituted by Act 40 represent a step toward a more consistent funding strategy.

Cost-of-Living Adjustments

- Like some other states, Pennsylvania has responded to the erosion of the purchasing power of pension benefits by the enactment of ad hoc cost-of-living adjustments (COLAs). These have generally come at intervals of four or five years. Recent COLAs have attempted to make up for at least one-half of the lost purchasing power since the last COLA or retirement, whichever was later.

- Most states use some variant of an automatic COLA based on the Consumer Price Index, modified in a variety of ways to reduce the cost. While expensive, automatic COLAs can be funded on a normal cost basis.

- Despite the desirability of inflation protection in our inflationary economy, COLA protection of retirees is rare in the private sector.

- COLAs and benefit enhancements must be considered in the context of the other benefits provided by the plan. Given the relatively high benefit multiplier provided by the systems since Act 9, future retirees may be able to maintain adequate benefit levels without COLA legislation.

- The benefit adequacy analysis suggests that long-term retirees may be able to largely protect themselves against inflation by saving an appropriate portion of their benefits.

- Techniques exist for tying the grant of COLAs to investment performance or to an employee option to assist the funding by an increased contribution or a reduced benefit multiplier. These may be considered preferable to funding the COLA entirely by amortization.

Early Retirement Incentives

- Early Retirement Incentive Programs (ERIPs) liberalize retirement benefits to induce employees to elect early retirement, usually by removing actuarial benefit reductions that would otherwise apply. For the Pennsylvania statewide retirement systems, the predominant inducement has been "30 and out": reduction of the service requirement for full retirement benefits from 35 to 30 years.

- ERIPs are often used to reduce payroll expenditures. Payroll savings are usually limited to the first three to five years after an ERIP is offered.

- The keys to a successful ERIP include strict controls over the filling of vacated positions and the salaries of replacements. Public agencies have a difficult time maintaining adequate controls on rehiring.

- ERIPs can be very expensive in the long run because pension benefit costs, combined with the payroll costs of replacement employees, are likely to outstrip initial payroll savings.

Defined Contribution Plans

- Under a defined contribution (DC) plan, the amount of the benefit depends on the amount contributed to the plan by employers and employees and investment returns on those contributions. This arrangement is attractive to some public employers because such a plan is fully funded by definition. However, defined benefit (DB) plans continue to predominate among public employees throughout the nation.

- DC plans shift investment risk to employees. Because employees rarely match the professionally invested returns under a DB plan, the effective benefit under DC is generally lower per amount contributed than under DB.

- DC plans offer superior portability and afford larger benefits to employees with shorter service. DB plans favor workers with longer service.

- Transition from a DB to a DC or DB-DC hybrid is a difficult undertaking that requires careful consideration of a host of issues. Because of this, and because the respective advantages and disadvantages of the DB and DC structures seem to nearly balance out, no recommendation is given on this issue.

Recommendations

Stabilization of Employer Costs

The General Assembly and the retirement systems may wish to consider the following strategies to control increases in employer contributions to the retirement systems:

- Presumptively set an employer contribution floor at normal cost, with measured reductions if warranted by high investment returns, pursuant to a predetermined formula or mechanism

- Investigate alternative methods of adjusting contribution rates for investment returns

- Include recurring plan changes in plan design by including them in the normal cost

- Lay off return risk by purchasing annuities to cover retirement benefits, using vehicles that permit the system to participate in positive returns

- Educate public employers on the unfavorable consequences to the systems of granting preretirement salary increases primarily to boost individual pension benefits

- Closely monitor the effect on the plans of such factors as public and private initiatives, the retirement of the baby boomer generation, and regional variations in economic and demographic conditions.

Providing Future Benefit Increases

The General Assembly may wish to consider adopting one of the following approaches toward structuring the systems to permit future COLAs and other benefit increases at a reasonable cost to public employers and taxpayers:

- Adopt a more conservative rate of return assumption and fund COLAs from resulting actuarial gains

- Set aside a portion of actuarial gains as a reserve fund, which can be drawn upon to defray COLAs

- Create an optional benefit tier that includes a guaranteed COLA formula in return for increased employee contributions

- Provide an automatic benefit increase when investment returns exceed a certain predetermined level on a year-by-year or cumulative basis

- Include firm controls on replacement rates and salaries in any ERIPs, and institute them only when necessary to reduce immediate payroll cost or improve the age mix of the workforce.

INTRODUCTION

This report is a study of the funding and benefit structure of the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS) as mandated by 2002 Senate Resolution No. 286.[1] Following the intent of the resolution, this report focuses on those features of the systems that have the greatest fiscal impact, particularly service retirement of the largest classes of employees. Paramount emphasis is placed on assuring that systems are structured in such a manner that they will continue to be affordable to the taxpayers of the Commonwealth.

The combination of recent legislation and the poor performance of the equity markets from 2000 to 2002 has put increased strain on the Commonwealth's statewide public pension systems. Act 9 of 2001 (P.L.26, enacted May 17) (Act 9) put into place a significant net benefit increase for active members and compressed the amortization period for certain system liabilities, thereby requiring larger annual contributions in the years immediately after the amendment. The next year, Act 38 of 2002 (P.L.272, enacted April 23) (Act 38) added an ad hoc cost-of-living adjustment (COLA) for retirees. Unfortunately, these increased commitments coincided with large investment losses in 2001 and 2002.[2] As the report will detail, these factors will combine to put substantial upward pressure on employer contributions in the near future. It should nevertheless be emphasized that the funds are at present on a sound financial footing and that the investment losses incurred by the retirement systems took place in years during which investment losses were almost universal.

The immediate background for this study is described in chapter 1. Chapter 2 describes the present funding and benefit structure of Pennsylvania state systems. Chapter 3 (with appendices C and D) compares the provisions of other states to those of the Pennsylvania systems, and describes some unusual provisions adopted by the largest states and those contiguous to Pennsylvania. Chapter 4 describes the adequacy of the benefits provided by the Pennsylvania systems. The report then takes up the following four policy issues: stabilization

[1] The text of the resolution is set forth in Appendix A.

[2] PSERS, *Comprehensive Annual Financial Report (CAFR) for Fiscal Year Ended June 30, 2002* (Harrisburg: PSERS, 2002), 32, 33; SERS, *CAFR for the Year Ended December 31, 2002* (Harrisburg: SERS, 2002), 8.

of employer contributions (chapter 5); preservation of retiree purchasing power (chapter 6); early retirement incentives (chapter 7); and defined contribution plans (chapter 8). Chapter 9 concludes the report with a discussion of alternative policy options.

Any merit this report possesses is largely due to the excellent cooperation and guidance the staff of the Joint State Government Commission (JSGC) received from the Public School Employees' Retirement System, the State Employees' Retirement System, and the Public Employee Retirement Commission (PERC). As will be evident, this report builds on the sound foundation of the reports and actuarial notes of PERC on the policy issues dealt with. JSGC recognizes the able assistance of Aon Consulting, which served as technical advisor for this study. We would also like to thank the representatives of the following organizations for sharing their views with JSGC staff: American Federation of State, County, and Municipal Employees (AFSCME), Council 13; Pennsylvania Association of Retired State Employees (PARSE); Pennsylvania Association of School Retirees (PASR); Pennsylvania School Boards Association (PSBA); and Pennsylvania State Education Association (PSEA). The cooperation of the staffs of the retirement systems of other states was very helpful in compiling the comparative tables, and their assistance is appreciated.

The Joint State Government Commission hopes this report will assist the General Assembly to select policies that will preserve the financial soundness of the retirement systems, while securing reasonably adequate benefits for existing employees, preserving the purchasing power of benefits for retirees, and treating the other citizens of the Commonwealth with equal fairness, both as consumers of services and as taxpayers.

CHAPTER 1
BACKGROUND

This report on the funding and benefit structure of the Public School Employees' Retirement System (PSERS)[3] and the State Employees' Retirement System (SERS)[4] is a response to concerns stated in 2002 Senate Resolution No. 286 (adopted by the Senate on November 26, 2002) that the statewide retirement systems face funding pressures. The resolution notes that favorable investment returns in the 1990s permitted the systems to reduce employer contributions while still attaining full funding of the systems. The resolution observes that the systems "are financially sound and have secured the pension benefits payable to their members." However, as a result of "the current downturn in the financial markets," employer contributions will increase, which must ultimately be funded by the taxpayers of the Commonwealth. Concerns arise as to the impact of these rising employer contributions on state and local taxpayers and the ability of the systems to fund benefit enhancements, COLAs, or both. Therefore, the resolution directed the Joint State Government Commission to study and make recommendations "concerning the current funding and benefit structure of [PSERS] and [SERS], including the need, design and funding of any future COLAs." The resolution called on PSERS, SERS, and PERC to assist JSGC in the performance of this study.

PERC describes the basic scope and nature of the systems as follows:

> The Public School Employees' Retirement Code and the State Employees' Retirement Code . . . are governmental, cost-sharing, multi-employer pension plans. The designated purpose of the Systems is to provide retirement allowances and other benefits, including disability and death benefits to public school and state employees. As of June 30, 2002, there were approximately 695 participating employers, generally school districts, area vocational-technical schools, and intermediate units in PSERS, and as of

[3] PSERS was first established by Act 343 of 1917 (P.L.1043, enacted July 18, 1917). This was recodified by the Public School Employes' Retirement Code of 1959 (1959 Act No. 96, P.L. 350, enacted June 1, 1959). The statute that presently governs PSERS is 24 Pa.C.S. Part IV, enacted by Act 96 of 1975 (P.L.298, enacted October 2, 1975).

[4] SERS was first established by Act 331 of 1923 (P.L.858, enacted June 27, 1923). This was recodified by the State Employes' Retirement Code of 1959 (1959 Act No. 78, P.L.392, enacted June 1, 1959). The statute that presently governs SERS is 71 Pa.C.S. Part XXV, enacted by Act 31 of 1974 (P.L.125, enacted March 1, 1974).

> December 31, 2002, there were approximately 108 participating state and other organizations in SERS. Membership in the Systems is mandatory for most school and state employees. Certain other employees are not required but are given the option to participate. As of June 30, 2002, there were 242,616 active members and 141,414 annuitant members of PSERS, and as of December 31, 2002, there were 111,059 active members and 91,228 annuitant members of SERS. In general, the annual retirement benefit for both Systems is equivalent to the product of 2.5% of the member's high three-year average salary multiplied by the member's years of service.[5]

The immediate background for this study may be traced back to Act 9 of 2001 and Act 38 of 2002. Responding to the surpluses building in the retirement funds at a time of high investment earnings, Act 9 put into place a 25% benefit increase for most active members. This change was funded in part by a 25% employee contribution increase amounting to an additional 1.25% of salary, but it also generated a substantial additional liability to the systems. After the enactment of Act 9, many retirees expressed disappointment that they had not been given a COLA in that legislation, pointing out that three years had passed between the immediately preceding COLA (Act 88 of 1998 (P.L.685)) and Act 9. The General Assembly responded by enacting Act 38, which included a COLA that would (1) guarantee that the benefits for all retirees would have at least half the purchasing power they had at the time they were first received and (2) offset half of the erosion of purchasing power caused by inflation between 1998 and 2002.

This sequence of events indicates that the long-run viability of the statewide public retirement plans may be undermined unless restraining measures are adopted. Surpluses in favorable economic times are used to fund benefit enhancements that can prove difficult to sustain when investment returns dip to normal or below normal rates. In the meantime, demands by retirees for inflation protection continue without regard for benefit enhancements that do not apply to the great majority of retirees. Consequently, employer contributions increase sharply. Since constitutional restrictions preclude any cuts in benefits promised to existing employees, and increased governmental efficiencies are unlikely to absorb the full brunt of anticipated contribution increases, public employers are likely to be forced to absorb increased contributions by raising taxes, cutting services, or both. It is vital to the fiscal health of this Commonwealth that the actuarial soundness of the statewide retirement systems be maintained, regardless of the vagaries of the business and investment market cycle.

[5] PERC, "Actuarial Note Transmittal, re Document No. 5598" (July 16, 2003), 2.

CHAPTER 2
FUNDING AND BENEFIT STRUCTURE

Following a general statement of the goals of a public employee retirement system, this chapter will outline the funding and benefit provisions of the Pennsylvania statewide public retirement systems.[6]

Goals of Public Employee Retirement Systems

Retirement programs are an important part of an employee's compensation package. A typical compensation program is designed to attract, retain, and motivate quality employees, and to enable aging employees to retire with an adequate benefit.

> In designing a plan to best meet the needs of the individual and the state or local government, several objectives must be considered. These objectives provide a general framework for designing a plan. The pension plan should:
>
> - Attract and retain a high quality work force;
>
> - Allow employees to depart from the work force financially secure and maintain the value of benefits throughout retirement;
>
> - Provide benefits that are fiscally responsible and financially supportable;

[6] The Pennsylvania Municipal Retirement System (PMRS) is an independent state agency that administers municipal retirement plans throughout the state on behalf of municipalities that elect to join that system. PMRS currently administers about 824 municipal plans covering over 12,500 local government employees and retirees. See the PMRS website at http://www.pmrs.state.pa.us/index.html. Analysis of PMRS is beyond the scope of this report as defined by 2002 Senate Resolution No. 286.

Much of the theoretical discussion in this chapter is based on material supplied by PSERS and SERS and on two reports prepared under contract with JSGC by Aon Consulting: *Report on Programs Benchmarking* (August 2003) and *Report on Plan Costs* (December 2003).

- Fund benefits on an actuarially sound basis; and

- Invest assets prudently for the exclusive benefit of plan participants.[7]

According to leading pension experts Howard E. Winklevoss and Dan McGill, pension benefits should be such that the retiree can maintain the standard of living he or she enjoyed prior to retirement from the benefit and the retiree's other income, and this benefit should be adjusted to protect that standard of living from erosion due to inflation.[8]

Pennsylvania Public Retirement Systems

Funding Methodology

Both PSERS and SERS are defined benefit (DB) plans funded through three sources: (1) employee contributions; (2) employer contributions; and (3) investment earnings. This section describes the mechanism by which the funding level of the retirement systems is determined.

Modern public pension systems are funded by an advance funding system. Compared with pay-as-you-go, advance funding enhances the security of the benefit accruals for the covered employees, allocates the cost of pensions among different generations of taxpayers and employees, and permits a balance between budgetary discipline and flexibility.[9] Winklevoss and McGill describe the basic criteria for an advance funding method as follows:

1. Asset Target: The asset target of the plan should be equal to the financial obligation for the accrued benefits of both active and nonactive members. . . . The actuarial assumptions used to compute the asset target should be best-estimates, and the actuarial methodology should be based on the presumption of an ongoing plan. Finally, the plan's asset target need not be significantly greater than the obligation of accrued benefits as defined.

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[7] Texas House of Representatives, Committee on Pensions and Investments, *Interim Report 2000*, (Austin?: Texas House of Representatives, 2000), 14.

[8] Howard E. Winklevoss and Dan McGill, *Public Pension Plans: Standards of Design, Funding, and Reporting* (Homewood, Ill.: Dow Jones-Irwin, 1979), 20.

[9] Ibid., 184-85.

2. Funding Period: The period over which plan assets are scheduled to eventually accumulate to the asset target should not be greater than 40 years.

3. Pension Contribution: Pension contributions should be equal to a level percentage of payroll during the funding period and equal to the amount required to maintain assets at the level of the asset target thereafter.[10]

Robert Tilove, another leading pension expert, gives a similar list of funding system criteria:

1. All elements of long-term cost should be taken into account.

2. Contributions should approximate a level percentage of payroll.

3. Additional funding should be provided only to the extent that security is needed against the possibility of future incapacity of the government to pay.

4. The funding method should provide fair and realistic cost estimates for benefit proposals.

5. The funding method should be one that can be firmly maintained in the face of political pressure and debate.[11]

Note that points 3 and 5 seem to have no counterpart in Winklevoss and McGill, while Tilove's list does not require determination of an asset target or a definite funding period.

Actuarial Process. The actuarial process assures that there will be a systematic flow of contributions at a specified level to pay for plan benefits and that these contributions, together with investment earnings, will be sufficient to meet all benefit and expense requirements of the plan. Actuarial cost methods for funding the pension plans are defined in the Public School Employees' Retirement Code[12] (PSERC) and the State Employees' Retirement Code[13] (SERC) in similar

[10] Ibid., 185.

[11] Robert Tilove, *Public Employee Pension Funds* (New York: Columbia University Press, 1976), 164.

[12] 24 Pa.C.S. § 8328.

[13] 71 Pa.C.S. § 5508.

terms. Like the majority of public systems, SERS and PSERS use the entry age normal funding system, which is designed to determine a level percentage of payroll that will fund the ascertained liability indefinitely.

The actuaries for each system develop “actuarial assumptions,” which are highly educated models of what will occur in the future with respect to salary growth, investment returns, and demographic factors. The actuary's annual valuation tests the validity of the underlying actuarial assumptions against the actual experience of the plan since the last valuation. Comprehensive five-year experience studies also compare and validate the plan's actuarial assumptions against the plan's actual experience, but over a longer time period. Guided by this continuous review, the plan's actual experience is used as a basis for making any necessary revisions to the plan's actuarial assumptions.

Any deviation from these assumptions through actual experience constitutes either an actuarial gain or loss to the plan. The net impact of these actuarial gains or losses is then factored into the calculation of the employer contribution rate based on a statutorily defined amortization schedule. Based on the annual valuation, the actuary develops a recommended employer contribution rate, which is presented to the system’s board of trustees for its approval. Each board has the authority to establish the employer contribution rates for the system it administers.

The primary economic assumptions for both systems project an average annual investment return of 8.50%. PSERS assumes an average annual salary increase factor of 6.25%, which comprises annual growth rates of 3.50% inflation, 1.00% real wage growth and 1.75% career scale growth. SERS assumes an annual salary increase factor of 6.8%, which comprises nominal annual growth rates of 3.5% for career salaries and 3.3% for general salary schedules; its assumed inflation rate is 3.0%. The calculation of employer contributions also takes account of demographic factors regarding changes in the workforce and retiree group, including salary increases, turnover, disability, retirement ages and timing, and mortality.

For actuarial purposes, the gains and losses on investments are smoothed over a five-year period to reduce the impact of investment market volatility on the employer contribution rate. In order to smooth out fluctuations in the market value of assets, which could otherwise result in rather volatile year-to-year employer contribution requirements, the system actuaries rely upon the actuarial value of assets (not the market value) for funding calculations. Over a five-year period, the actuarial value of assets gradually recognizes the differences between total investment return and the assumed annual rate of return. Allocating the investment rate of return over a five-year smoothing period, each system recognizes only 20% of the asset gain or loss that occurred during the year

immediately preceding the actuarial valuation date, with the remainder to be recognized in 20% increments over the following four years. As a result, when investment earnings trends change, as they did in 1995 and again in 2000, their effect on employer contribution rates is delayed.

As mentioned above, the plan funding schedule is tied to a set of demographic assumptions about changes in the workforce and the retiree group. The size of the groups involved provides a credible statistical base for developing these assumptions. Changes will occur, but absent workforce changes in the broader economy, the demographic element is likely to be a relatively modest source of cost volatility. Sound practice calls for demographic assumptions to be reviewed for pattern changes. Through the statutorily mandated procedure of annual valuations and five-year experience studies, it appears that both systems adequately monitor demographic changes and adjust assumptions as needed.[14]

Employee Contributions. The percentage amount of employee compensation required to be contributed by active members is fixed by law and does not vary with the financial condition of the plan.

Members of PSERS who, prior to Act 9, contributed to the retirement fund at the rate of 6.25% of their gross compensation, contribute 7.50% as of January 1, 2002, if they elected the class T-D membership established by that act. Members who formerly contributed at the rate of 5.25% will contribute 6.50% if they elected class T-D. (This group include those who have been in continuous membership since July 22, 1983.) Depending on date of hire and election, a PSERS employee may contribute at any of four different contribution rates. The average of all member contribution rates is 7.08% as of the June 30, 2002, actuarial valuation. PSERS members contributed $663 million for fiscal year 2001-02.

Most SERS members contribute to the fund at the rate of 6.25% of gross compensation, increased from 5% by Act 9 for those who elected to change their membership class from A to AA pursuant to that act. Commonwealth employees contributed approximately $240 million in 2001.

[14] See Buck Consultants, *Public School Employees' Retirement System of Pennsylvania: Experience Review for the Period July 1, 1995 to June 30, 2000* (Chicago: Buck Consultants, 2001); HayGroup, *Fifteenth Investigation of Actuarial Experience of the State Employees' Retirement System of Pennsylvania* (HayGroup, 2001?). The statutory mandates referred to are provided by 24 Pa.C.S. § 8502(j) (PSERS) and 71 Pa.C.S. § 5902(j) (SERS).

Determination of Plan Costs. While the employee contribution is fixed by statute, the employer contribution depends upon an annual determination based on plan costs and investment returns. A retirement plan accumulates assets over each employee's working lifetime to pay for employee benefits. The "true cost" of a retirement plan is equal to the net of all benefit payments and expenses from the plan less all investment earnings credited to the pension trust fund assets. Since these quantities can not be known in advance, the true cost of a plan is not known until the last retiree dies and all benefit payments cease. Consequently, actuarial estimates are made to determine the amounts that must be available to the plan in order to ensure the payment of current and future benefits.

The "normal cost" is the amount determined to be necessary to cover the scheduled allocation of the projected retirement benefit. If all assumptions about future contingencies are correct, the underlying plan cost is equal to the normal cost of the plan plus the cost of any plan changes. If all actuarial assumptions were and continue to be realized, and all contributions have been and continue to be at the normal cost, the cost of the plan would equal the normal cost, and the normal cost could be expressed as a *level* percentage of covered pay. In that case, only plan changes and actuarial gains and losses would create differences in the cost. However, the normal cost alone usually will not fund the system's total liabilities. The three major sources of plan cost instability are investment returns, contribution strategy, and changes to the benefit plan. (Demographic changes can create cost volatility also, but this is a relatively modest factor in the plans under study because their large demographic bases permit fairly reliable projections.)

The cost item that must be funded in addition to the normal cost is variously called "unfunded actuarial liability," "unfunded accrued liability" (UAL), or "unfunded actuarial accrued liability" (UAAL); these terms refer to the difference between the measure of plan assets and the measure of plan liabilities at a given point in time.[15] Unfunded liabilities typically arise because benefit enhancements (including COLAs) add costs that were not funded before they were instituted, or unfavorable demographic or economic experience requires changes in the assumptions that entail higher costs to the system. Whenever a plan improvement takes place that increases benefits on the basis of employees' or retirees' past service, it creates an unfunded liability. In years when experience gains are larger than liabilities from plan changes, it may seem as if the benefit improvement has no cost. However, a benefit enhancement amendment simply represents a way of "spending" that gain and will put upward pressure on plan costs and hence on employer contribution rates if future actuarial losses are experienced.

[15] This report assumes that the unfunded liability is accrued using the statutorily prescribed actuarial methods, notably five-year smoothing of investment returns. Given that assumption and the limitations on the description of technical detail undertaken in this report, the term UAL is used to describe all these concepts interchangeably.

UAL is not funded within the normal cost, but rather is amortized, that is, funded in installments in the same manner as a mortgage. Amortization raises the issue of determining the period over which the liability should be paid off. Like a mortgage, the amortization period represents a trade-off. A shorter period entails a larger annual payment obligation and lower total interest costs, while a longer period implies lower payments and higher total interest costs.

The determination of the amortization period for UAL has been the topic of much legislative attention in recent years; indeed, two of the three most recent major amendments to the retirement codes have dealt with this issue. Before Act 9, UAL arising from COLAs was funded over 20 years, with the contribution increasing by 5% per year, a method designed to approximate a level percentage of payroll over the amortization period.[16] In 2002, Act 9 mandated that future increases due to legislative amendments and then-existing liabilities arising from ad hoc COLAs be amortized in equal dollar annual installments over a ten-year period. The shortening of the amortization period was instituted in order to save interest costs and to better match the funding to the period during which the COLAs would be paid out. Most recently, Act 40 of 2003 (P.L.228, enacted December 10) has bifurcated the amortization schedule. Recent investment gains and losses, costs arising from the Act 9 benefit enhancement, and future actuarial gains and losses are to be amortized over 30 years. Ten-year amortization is retained for unfunded liabilities incurred before 2001 and future liabilities arising from benefit changes or COLAs. The change from ten-year to 30-year amortization was adopted to provide state agencies and school districts some relief from high projected employer contribution rates.

Employer Contribution. The employer contribution is determined on an annual basis by the board of trustees of each system, based on an actuarial assessment of the funded status of the plan performed by the consulting actuary of the system. The actuarially determined employer costs rise and fall from year to year based on changes to the financial status of the plan. The employer contribution rate, which is conventionally expressed as a percentage of covered employee pay, is a combination of the normal cost rate and a payment to amortize any unfunded past service liabilities. As mentioned above, a statutorily determined amount of that obligation is met by employee contributions. The rest of the obligation must be met either by investment returns or employer contributions. If investment returns rise, employer contributions will tend to fall, but the opposite is also the case.

For the PSERS program the employer's share of the normal cost is currently about 7.25% of covered pay. PSERS employers should expect to contribute an amount equal to 7.25% of payroll each year to support the pension

[16] 24 Pa.C.S. § 8328(c); 71 Pa.C.S. § 5508(c).

program. (At the covered payroll stated in the PSERS valuation as of June 30, 2002, this represents an annual employer normal cost of about $680 million.)[17] Over time, as the group that was employed before July 1983 retires, the employer normal cost rate will gradually decline to around 7.00% of pay, because the employee contribution rate will increase on average from 7.08% (FY 2003-04) to 7.35% (FY 2013-14). This is because new members required to contribute 7.50% are replacing retirees who were under a lower contribution rate requirement. In PSERS, the employer contribution rate includes a contribution for health care premium assistance in addition to the pension contribution.

The current SERS employer normal cost is 8.64% of pay. (At the covered payroll stated in the SERS valuation as of December 31, 2002, this represents an annual employer normal cost of about $440 million.)[18] The rate varies from class to class under the plan based on the benefits provided to that class. The employer normal cost for SERS has been somewhat volatile; over the last 20 fiscal years, it has ranged from a low of 3.6% (FY 1986-87) to a high of 10.7% (FY 1995-96).[19]

In order to reduce the volatility of employer contribution rates, recent legislation has set a floor on these rate. Act 38 mandated a 1% floor rate for both systems. Act 40 raised the floor rate as follows: 4% for PSERS, beginning July 1, 2004; and for SERS 2% for FY 2004-05, 3% for FY 2005-06, and 4% for FY 2006-07. (The PSERS premium assistance contribution is in addition to the employer contribution floor prescribed by Act 40.)

Further discussion of the recent history of the employer contribution rates appears in chapter 5, which deals with the issue of the substantial increases forecast for employer rates due to recent benefit enhancements and declines in investment performance.

Investment Returns. From 1995 to 2000, the employer contribution rates dropped for both systems, largely because the investment earnings of the fund exceeded the actuarially assumed rate of return of 8.50%.

While the investment markets were not favorable during the fiscal years ended June 30, 2001 and June 30, 2002, and returns were negative, PSERS was fortunate to have experienced positive investment returns in each of the twenty preceding years. For PSERS, the investment rate of return for fiscal years ending June 30, 2001 and June 30, 2002 were -7.22% and -5.25%, respectively. The

[17] The PSERS covered payroll as of June 30, 2002 is $9.379 billion. Buck Consultants, *PSERS Annual Valuation, June 30, 2002* (Chicago: Buck Consultants, 2003), 16.

[18] The SERS "funding payroll" as of December 31, 2002 was $5.093 billion. *SERS 2002 Actuarial Report*, 1.

[19] SERS, "Funding Process and Actuarial Status" (Harrisburg: SERS, November 7, 2003).

annualized rate of investment return over the past five year period ending June 30, 2002 was 5.07% and 9.22% over the past ten year period. The market value of net assets of PSERS was $43 billion as of June 30, 2002, making it one of the 25 largest pension funds in the world.

In 2000, the SERS fund earned a return of 2.2% and finished the year with a market value of $27.9 billion. In 2001, the SERS fund saw a loss of 7.9% and ended the year with assets of $24.7 billion. The fund sustained a further loss of 10.9% in 2002, and the market value of the SERS assets was $20.9 billion as of December 31, 2002, which is the latest available valuation date. Those three years marked a departure from the fund's very favorable performance in the preceding five years. From 1995 through 1999, the fund had experienced investment rates of return ranging from a low of 15.9% to a high of 25.5% and earned its best ever five-year annualized return of close to 19%. Under five-year smoothing, the impact of the returns in 2000, 2001 and 2002 will be offset by strong performances in the earlier years. The SERS fund's annualized investment rate of return for the twenty-year period 1981-2000 was 13.2%, exceeding the actuarially assumed rate of return, which has been 8.5% per year since 1997. A positive return exceeding the assumed rate is expected in 2003.

Both systems have been in place for a long time and have accumulated a significant amount of assets. Expected plan investment returns were roughly six times the actual total contribution (employee and employer) levels for 2001-02. Because plan assets are large in relation to payroll, investment returns are an important source of annual cost variations: every percentage point return on plan assets is equivalent to over 4% of covered pay.

In order to achieve the investment returns that are assumed in the actuarial model the funds of the systems must be invested in a combination of equity and fixed income securities. This mix will result in a high degree of volatility in returns from year to year. Volatility is a price that must be paid for achieving rates of return higher than treasury bill rates.

Funded Ratio. The ratio of the actuarial value of plan assets to the actuarial value of its liabilities is called the “funded ratio,” and is the single most commonly used test of the fiscal health of a public pension plan. As of the actuarial valuation for the most recent completed fiscal year, both PSERS and SERS are fully funded. "Fully funded" means that the funded ratio is 100% or higher, which in practical terms means that actuarially the plan is funded for *past* benefits. It is occasionally implied that a fully funded plan requires no more funding to remain viable, but that is a misconception. For the following year and each year thereafter as long as the plan exists, the normal cost will need to be funded, plus or minus the effect of any difference between actual experience and what was assumed.

The funded ratio of PSERS increased from 81.7% in FY 1991-92 to a high point of 123.8% in FY 1999-2000. PSERS first achieved a fully funded status in 1997. As of July 30, 2002, the latest available actuarial valuation date, the PSERS plan was 104.8% funded.

Although the funded ratio of SERS increased from 101.8% in 1992 to 132.4% in 2000, this upward trend ended 2001. As a result of less favorable investment earnings in 2000 and 2001 and the effect of Act 9, which significantly increased the fund's actuarial accrued liabilities, the funded ratio for 2001 was 116.3%. The most recent calculation of the funded ratio as of this writing is for December 31, 2002, when the ratio stood at 108.7%.

Full funding may be a necessary standard for a private plan, but it is not necessary for a public plan because a public entity can assume perpetual life.

> [F]unding policy should be chosen to fulfill a carefully chosen goal. Actuarial formulas can and should be designed to implement policy. Policy should be readily defensible in legislative forums. It should reflect all long-term costs and be applicable both to the determination of contributions and to the realistic pricing of plan changes. Funding policy should enforce responsibility by requiring current payment for current decisions.
>
> Contributions based on long-term costs will also result in the accumulation of some reserves, which will help reassure the pensioners of their ultimate security and produce investment earnings that will substantially reduce cost to the government. However, to the extent that a governmental entity can realistically presume perpetual life and ability to pay, it need not accumulate those levels of reserves which private pension plans need in order to provide security for employees and pensioners against the possibility of plan termination.[20]

While current investment losses are likely to cause the funding ratio to drop below 100%, both systems are soundly funded at this time. In an adverse investment climate, the systems can dip below full funding and still remain financially healthy. A leading bond rating agency recently assessed the current soundness of the statewide plans in the United States as follows:

> Despite the likelihood of increasing pension costs for [state and teacher] plan sponsors, the plans themselves are, on the whole, in good condition at the present time. . . The average funding ratio decline from 2001-2002 was a relatively modest 4.2%. However,

[20] Tilove, *Public Employee Pension Funds*, 167-68.

> as poor investment returns of 2000-2002 work their way into subsequent plan valuations, the average funding ratio may decline more rapidly; some experts predict the average will fall below 80%. . . .
>
> . . . Generally, a current funding ratio of 70-80% is considered by Fitch to be adequately funded from a credit perspective. However, in cases where actuarial assumptions are clearly aggressive and outside current norms, this range may be insufficient.[21]

Institutional Structure. The public retirement systems are subject to legal requirements and other institutional safeguards that help assure that the systems will be operated on a sound and professional basis. The retirement codes mandate an actuarial funding system that reflects responsible practices and requires the consideration of expert actuarial advice. The systems have adopted formal investment policies. The annual financial reports indicate that they follow such sound investment practices as allocation to maximize return and minimize risk, rebalancing among market sectors, diversification, and minimizing investment expenses and costs. The boards of both systems meet regularly to review the allocation and performance of the investment funds.

Each system publishes an annual actuarial valuation and a Comprehensive Annual Financial Report (CAFR). Furthermore, Act 66 of 1981 (P.L.208) mandates that every proposed amendment to the retirement codes be reviewed by the Public Employee Retirement Commission (PERC) before consideration by either House, so that the General Assembly is afforded a professional estimate of the amendment's cost and is alerted to any significant policy issues raised by the proposal.[22]

Volatility Resulting from Contribution Strategy. Both systems use the same contribution strategy. The employers contribute an amount equal to the employer normal cost adjusted by the amortization of any difference between the actuarial value of plan assets and the actuarial accrued pension liability over the statutorily prescribed time period.

The result of this strategy is that actuarial value of plan assets tends to be pushed close to the measure of plan liabilities. When experience results in plan assets exceeding plan liabilities, the employers are allowed to reduce their contributions to the programs. When experience results in plan assets below plan liabilities, the employers are required to increase their contributions to the programs. This strategy has the effect of systematically "spending" any excess

[21] Joseph D. Mason, "Reversal of Fortune: The Rising Cost of Public Sector Pensions and Other Post-Employment Benefits" (New York: Fitch Ratings, September 18, 2003), 2.

[22] Act 66 of 1981, § 7.

assets by allowing employers to reduce their payments. Cost volatility then results, because when a year of unfavorable experience occurs the excess assets that might have softened the effect are not available. The annual amortization of gains and losses has been large compared to the normal cost. As a result, when new losses are realized or old losses expire, the plan contribution can vary by a large percentage.

Retirement Benefits

The benefits currently available to members of PSERS and SERS are summarized here. More complete official explanations of the benefits available to PSERS and SERS members are published by the Public School Employees' Retirement Board[23] and the State Employees' Retirement Board.[24] (While this summary gives more detail than the comparative tables in appendix C and appendix D, it should be emphasized that the retirement codes include many complex, detailed provisions that apply more narrowly than those described here.)

Features Applying to Both Systems

Retirement benefits for members of the public retirement systems are protected under the provisions of the United States Constitution and the Constitution of Pennsylvania forbidding enactment of laws impairing the obligation of contracts.[25] These provisions have been interpreted to render invalid any legislation that changes the terms of the retirement statutes adversely to active members or retirees.[26] However, adverse changes that apply only to persons commencing membership in the system on or after the effective date of the change are constitutional.[27]

The statewide retirement systems are deemed to be qualified plans under Internal Revenue Code (IRC) § 401, permitting members to defer taxes on accumulations until after retirement. The details of the application of the qualification requirements to the statewide plans will not be elaborated in this report.

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[23] PSERS, *Active Member Handbook* (Harrisburg: PSERS, 2002); PSERS, *Retired Member Handbook* (Harrisburg: PSERS, 2002).

[24] SERS, *Member Handbook* (Harrisburg: SERS, 2002).

[25] U.S. Const, art. I, § 10; Pa. Const., art. I, § 17.

[26] *Assoc. of Pennsylvania State Coll. and Univ. Faculties v. State Sys. of Higher Ed.*, 479 A.2d 962 (Pa. 1984); *AFSCME, Council 13 v. Commonwealth*, 554 A.2d 39 (Pa. 1989).

[27] *Harper v. State Employees' Ret. Sys.*, 649 A.2d 643 (Pa. 1994).

Employees of both systems have periodically received ad hoc post-retirement adjustments, which are detailed in chapter 6. From 1982 to 1999, many employees retired under early retirement incentive plans, which are further detailed in chapter 7.

Like other retirement benefits "paid to persons retired from service after reaching a specific age or after a stated period of employment," Pennsylvania public retirement benefits are exempt from the Pennsylvania personal income tax. Also exempt are disability benefits and employer contributions.[28]

PSERS Retirement Benefits

PSERS is a defined benefit pension plan established pursuant to the Public School Employees' Retirement Code, 24 Pa.C.S., Part IV (§ 8101 et seq.).[29]

Membership. Eligible members include full- and part-time public school employees from about 700 school employers throughout the Commonwealth. Membership is mandatory for most public school employees (§ 8301). The two primary membership service classes are T-C and T-D, which together include all active members and the great majority of retirees. All members hired on or after July 1, 2001, are in class T-D. Class T-D also includes PSERS members who were in class T-C as of July 1, 2001, and elected to become T-D members (§§ 8305, 8305.1).

Employee Contributions. Most class T-D members are required to make employee contributions of 7.5% of salary; a minority of T-D members contribute 6.5%. Most class T-C members must contribute 6.25%, the rest in the class contribute 5.25% (§§ 8102, 8302(a), 8305.1(c)). Pursuant to IRC § 414(h), the employee contributions are considered picked up by the employer, so that the contributions are not included in federal taxable income; for all other purposes, including state and local income taxes, the amount of the employee contribution is considered employee income (§ 8322.1).[30]

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[28] Tax Reform Code of 1971, § 301; 72 P.S. § 7301. Employee income paid into the statewide retirement systems as the employee contribution is subject to Pennsylvania income tax, but exempt from federal income tax as a "pick-up contribution."

[29] The Public School Employees Retirement Code was enacted in its original form by the act of October 2, 1975 (P.L.298, No.96). Section references in the text of the "PSERS Retirement Benefits" section of this chapter are to 24 Pa.C.S., unless otherwise indicated. School retirement benefits are not subject to collective bargaining, with limited exceptions for early retirement and severance pay provisions. Act 88 of 1992, § 7.

[30] For both systems, federal income tax attributable to the pick-up contributions is paid at the time the benefits are distributed to the retiree.

Purchase of Service. Employees who have accumulated nonschool service within one of eight categories are eligible to purchase credit in PSERS on the basis of that service, subject to statutory terms and conditions that vary depending on the type of nonschool service (§ 8304(b)).[31]

Service Benefits. Upon retirement from service, PSERS provides a member a monthly benefit based on age, final average salary, and years of credited service. This benefit can be received at normal superannuation retirement, after reaching the age of 62 with at least one full year of credited service, the age of 60 with 30 or more years of service, or 35 years of service regardless of age (§§ 8102, 8307(a); 22 Pa.Code § 213.7). The yearly maximum single life annuity for T-D members is calculated as follows:

$$2.5\% \times \text{Final Average Salary} \times \text{Years of Credited Service}^{32}$$

Benefits for class T-C are calculated using the same formula, except that the benefit multiplier is 2% instead of 2.5% (§§ 8102, 8342(a)).

Table 1 summarizes the service classes of PSERS, including membership, benefit multipliers, and employee contribution rates.

The final average salary (FAS) is essentially the three highest years of compensation, determined on a monthly basis. The FAS is subject to the cap imposed by IRC § 401(a)(17) and adopted by § 8325.1, which is $200,000 as adjusted for inflation by the federal Secretary of the Treasury. As of 2004, the adjusted limit is $205,000.

Benefits may not exceed the limitations set forth in IRC § 415(b) (adopted by § 8342(c)). This limitation is exceeded if the employee's annual benefit is greater than the equivalent of $160,000 in the third calendar quarter of 2001, as adjusted by the Secretary of the Treasury. As of 2004, the adjusted limit is $165.000.

[31] Eligibility for creditable service employment is the subject of many proposed amendments to the retirement codes. As this issue has not had a substantial impact on the fiscal soundness of the retirement funds, it will not be dealt with at length in this report, although some provisions from other states dealing with purchase of service are listed in chapter 3. For a policy discussion of the issues relating to purchase of nonschool and nonstate service, see PERC, *Service Purchase Authorizations for Pennsylvania Public Employee Retirement Systems* (Harrisburg: PERC, June 1989).

[32] For class T-D members, credited service includes school service and purchased intervening military service. Other purchased service is credited at 2.0%.

Table 1
Classes of Active Employees in PSERS

Employee Class	Number of Active Members (as of June 30, 2002)	Percentage of Total Active Members (%)	Employee Contribution Rate (%)	Benefit Multiplier (%)	Superannuation Age
Class T-C – Public school employees hired prior to July 22, 1983, who have not elected class T-D	388	0.16	5.25	2.0	Age 62 with one year of service or age 60 with 30 years of service or 35 years of service regardless of age
Class T-C – Public school employees hired on or after July 22, 1983, who have not elected class T-D	9,316	3.84	6.25	2.0	Age 62 with one year of service or age 60 with 30 years of service or 35 years of service regardless of age
Class T-D – Public school employees hired prior to July 22, 1983, who elected class T-D by July 1, 2001	55,802	23.00	6.50	2.5	Age 62 with one year of service or age 60 with 30 years of service or 35 years of service regardless of age
Class T-D – Public school employees hired on or after July 22, 1983, who elected class T-D by July 1, 2001; and all public school employees hired on or after July 1, 2001	177,110	73.00	7.50	2.5	Age 62 with one year of service or age 60 with 30 years of service or 35 years of service regardless of age

SOURCE: Material supplied by PSERS.

Payment Options. The retiree has several options as to the structure of payments of the retirement benefit (§ 8345). He or she may choose to receive a maximum single life annuity. While providing the largest possible monthly benefit, this option only guarantees the retiree the accumulated contributions plus 4% interest; otherwise, the benefit terminates upon the retiree's death.

In order to structure the benefit to provide a larger amount for a surviving spouse or other beneficiaries, most retirees elect an option that provides a monthly benefit smaller than the maximum, but actuarially equivalent to the maximum annuity.

> Option 1—Members receive a reduced monthly benefit based on age at retirement and sex. Upon the member's death, the unpaid value of the retirement benefit is paid to the beneficiary.
>
> Option 2—Members receive a reduced monthly benefit based on age at retirement and sex, and the age and sex of the designated survivor annuitant. Upon the member's death, the survivor annuitant receives the same monthly benefit as the member received.
>
> Option 3—Members receive a reduced monthly benefit based on age at retirement and sex, and the age and sex of the designated survivor annuitant. After the member's death, the survivor annuitant receives one-half the member's monthly benefit.
>
> Option 4—Members can choose an individualized monthly benefit approved by PSERS as actuarially equivalent to the maximum single life annuity. The retirement code specifically permits the retiree to elect a lump sum withdrawal of all accumulated contributions plus 4% statutory interest earned theron.[33]

Retired members may change beneficiary at any time under the maximum single life annuity or Option 1. Under Options 2, 3, or 4, the beneficiary may be changed only if the beneficiary predeceases the member or the member marries or divorces after electing the option. Limited opportunities to change the payment option and survivor annuity designation are provided by regulation. (§ 8507(e), (j); 22 Pa. Code § 213.45)

[33] Very few other states' public retirement provisions permit such a lump sum withdrawal, although several permit withdrawal of up to 36 months' contributions. See chapter 3 and appendix D.

Early Retirement. Retirement prior to superannuation age is available to members with five years of service at an actuarial benefit reduction (§ 8307(b)). A member between the ages of 55 and 62 with at least 25 years of service may obtain early retirement under a more advantageous reduction factor: the benefit is reduced by 0.25% per month that the member's retirement age is lower than the applicable superannuation age. However, the benefit is not reduced more than 15% of the annual maximum benefit.[34] (§ 8342(a)).

Other Service Retirement Benefits. A member who leaves school service may receive the accumulated contributions standing to his or her credit, in lieu of any other benefit from the retirement system (§ 8341).

A member becomes vested when he or she has five years of credited service (§ 8308). A member who leaves school service before vesting is entitled only to the return of accumulated deductions (§§ 8307, 8310). After vesting, a member who leaves school service may leave the accumulated deductions in the system and, if his or her years of service are below the requirement for normal or early retirement, receive a retirement benefit reduced to the present value of an annuity starting at superannuation age (§ 8342(a)).

Disability Retirement. A member unable to perform the duties for which he or she was employed may apply to PSERS for a disability benefit. To receive benefits, the member must have at least five years of credited service and prove mental or physical incapability to perform his or her employment duties to a medical examiner. Benefits are terminated if the disability ceases or the member otherwise becomes ineligible (§§ 8307(c), 8344, 8505(c)). Benefits are calculated on the basis of the maximum single life annuity, but full benefits are available only if creditable service is at least 16.667 years (§ 8344(a)). Joint and survivor options are available to those with ten or more years of service credit (22 Pa.Code § 213.44).

Death Benefits. If a member with more than five years of credited service dies while employed in school service, the member's beneficiaries receive the present value of the member's monthly annuity he or she would have received if he or she had retired on the day before the death. If the member dies before vesting, the member's contributions and interest are paid to the beneficiaries. If no other form of payment election has been made, Option 1 applies. (§ 8347)

Deferred Compensation. School districts have the option to establish a deferred compensation program, which is a voluntary defined contribution program established by Pennsylvania statute pursuant to IRC § 457. Few have

[34] PSERS, *Active Member Handbook*, 21.

established such a program, and most school district programs have been limited to administrative supervisors.[35] Many school districts have adopted tax-sheltered retirement savings programs under IRC § 403(b).

Health Benefits. The Health Options Plan (HOP) is a voluntary program PSERS offers to retirees and eligible dependants. Participants may choose among two indemnity and three managed care options. In most cases, medical insurance premiums are automatically deducted from the monthly benefit, and premium rates are generally guaranteed for a period of one year. Retirees not currently participating in HOP can enroll only within 90 days of one of the following qualifying events: member retirement or loss of coverage under the school employer's health plan; involuntary loss of health care coverage under a non-school employer's health plan; member or spouse's attainment of age 65 or eligibility for Medicare; change in family status (including divorce, death of member or spouse, or addition or loss of a dependent); eligibility for PSERS premium assistance due to change in legislation; termination of approved PSERS premium assistance plan; or member's moving from his or her premium assistance plan's service area.[36]

PSERS also provides a premium assistance program, which affords a subsidy of $100 per month for health insurance premiums. To be eligible for premium assistance, a member must have at least 24.5 years of credited service; be 62 years of age or older on the date of termination and retired with at least 15 years of credited service; or be receiving a PSERS disability retirement benefit. The member must also be covered and have an out-of-pocket premium expense for basic health insurance coverage under either HOP or a Pennsylvania school district plan.[37] HOP and the premium assistance plan are authorized under § 8701 et seq. and § 8509, respectively.

SERS Retirement Benefits

SERS is a defined benefit pension plan established pursuant to the State Employees' Retirement Code, 71 Pa.C.S., Part XXV (§ 5101 et seq.).[38]

[35] Information provided to JSGC by the Pennsylvania School Board Association (PSBA). Because most deferred compensation participants in the statewide retirement systems are SERS members, the description of that program appears in the "SERS Retirement Benefits" section of this chapter.

[36] See http://www.psers.state.pa.us/Publications/newsletters/Hotline/summer03.htm#art3.

[37] Ibid., 25.

[38] Section references in the text of the "SERS Retirement Benefits" section of this chapter are to 71 Pa.C.S., unless otherwise indicated.

Membership. Most permanent full-time and permanent part-time State employees and employees of certain independent agencies are required to join SERS. Part-time employees within the mandatory employment classes must join SERS if they are compensated for more than 750 hours or 100 days in a calendar year (§ 5301). Members of SERS become vested once they reach five years of service (§ 5102).

Employee Contributions. Class AA members are required to make employee contributions of 6.25% of salary to SERS (§§ 5102, 5501). As with PSERS members, employee contributions are picked up by the employer for purposes of the federal income tax (§ 5503).

Purchase of Service. Employees who have accumulated nonstate service within one of eight categories are eligible to purchase credit in SERS on the basis of that service, subject to statutory terms and conditions that vary depending on the type of nonstate service (§ 5304(c)).[39]

Normal Retirement Benefits. Members who retire on or after the normal retirement age, or superannuation age, can receive a maximum single life annuity calculated as follows:

Benefit Multiplier × Final Average Salary (FAS) × Years of Credited Service[40]

The superannuation age varies by class of employee. Class AA employees (the largest group of members) have a superannuation age of 60 with 3 years of service or 35 years of service regardless of age and a benefit multiplier of 2.5%. Table 2 shows the major membership classes with the employee contribution rate, benefit multiplier and superannuation age applying to each class.[41]

The FAS is essentially the three highest years of compensation, determined on a quarterly basis. As with PSERS, the FAS is subject to the cap imposed by IRC § 401(a)(17) (§ 5506.1).

Members can receive more than the maximum retirement allowance in the following cases: members who have 41 to 45 years of combined class A and class AA service are entitled to a supplemental benefit increase of 2 to 10% (§ 5702(a)(6)); members who work beyond their 70th birthday are guaranteed a

[39] See footnote 31.

[40] § 5702(a)(1). The benefit multiplier is the multiplication product of 2% and the class of service multiplier. 71 Pa.C.S. §§ 5102 ("class of service multiplier," "single life annuity") and 5702(a).

[41] Other classes of service exist, but have few members.

Table 2
Major Classes of Active Employees in SERS

Employee Class	Number of Active Members (as of Dec. 31, 2002)	Percentage of Total Active Members (%)	Employee Contribution Rate (%)	Benefit Multiplier (%)	Superannuation Age
Class A – State Police officers hired on or after March 1, 1974, members of the judiciary who have not elected class E-1 or E-2, legislators elected before July 1, 2001 who have not elected class AA or class D-4 and class A employees hired before July 1, 2001 who remained in class A[1]	5,876	5.29	5.00	2.0	Age 60 with 3 years of service or 35 years of service regardless of age[2]
Class AA – All eligible employees, except State Police officers, members of the judiciary and legislators, hired after June 30, 2001; employees hired before July 1, 2001 who elected class AA by December 31, 2001	103,944	93.59	6.25	2.5	Age 60 with 3 years of service or 35 years of service regardless of age[2]
Class C – Liquor law enforcement officers and other officers and certain employees of the State Police who have been members and employees continuously since prior to March 1, 1974[1]	140	0.13	5.00	2.0	Age 50 with 3 years of service

Table 2--(continued)

Employee Class	Number of Active Members (as of Dec. 31, 2002)	Percentage of Total Active Members (%)	Employee Contribution Rate (%)	Benefit Multiplier (%)	Superannuation Age
Class D-3 – Legislators who have been members and employees continuously since prior to March 1, 1974	6	0.01	18.75	7.5	Age 50 with 3 years of service
Class D-4 – Legislators coming into service after June 30, 2001 who elect to be SERS members, and legislators who elected class D-4 before July 1, 2001	215	0.19	7.50	3.0	Age 50 with 3 years of service
Class E-1 – Judges who elect class E-1	401	0.36	10.00 first 10 years; 7.50 thereafter	4.0 for first 10 years; 3.0 thereafter	Age 60 with 3 years of service or 35 years of service regardless of age
Class E-2 – District Justices who elect class E-2	477	0.43	7.50	3.0	Age 60 with 3 years of service or 35 years of service regardless of age

1. See discussion of DiLauro arbitration award in text.

2. The superannuation age for legislators, enforcement officers, correction officers, psychiatric security aides, and officers of the Delaware River Port Authority classified as class A or AA is 50 with 3 years of service. The superannuation age for State Police officers is 50 or 20 years of service at any age. For Capitol Police officers or park rangers, the superannuation age is 50 with 20 year of service.

SOURCE: Material supplied by SERS; HayGroup, SERS *2002 Actuarial Report*, 37 (employee class definitions).

benefit at least actuarially equivalent to the preceding year's benefits (§ 5702(a.1)); members who have elected Social Security Integration (SSI) coverage are entitled to a single-life annuity of 2% of the average noncovered salary for each year of SSI coverage (§§ 5305, 5702(a)(2)).[42]

Retirement benefits, after any reduction due to the payment option selected, may not exceed the highest salary received during any consecutive twelve months of service. As with PSERS the limitation under IRC § 415(b) applies. For SERS, however, this limitation is partly offset by a qualified governmental excess benefit arrangement pursuant to IRC § 415(m) (§§ 5702(c), (d), 5941).

The benefits of State Police officers in class A and class C are affected by the DiLauro arbitration award.[43] The award provided that such members with 20 years of service are eligible to receive a retirement benefit of 50% of the member's highest full year's salary, and those with 25 years of service may receive 75% of the highest full year's salary. Years of service between 20 and 25 or after 25 do not produce incremental benefit increases. The award applies to officers who retire on or after July 1, 1989. (Class A members with less than 20 years of service are not affected by the award and are eligible for the statutory class A benefit at a 2.0% benefit multiplier.) After the DiLauro award, 71 Pa.C.S. § 5955 was amended to provide that SERS retirement benefits are exclusively statutory and cannot be changed by collective bargaining agreements or arbitration awards under such agreements, but that section grandfathered pre-existing awards, including DiLauro.

Payment Options. The payment options available to SERS retirees are substantially identical to those provided for PSERS except that the Option 4 benefit must be approved by SERS (§§ 5705, 5907(j)).

Early Retirement. Once a SERS member has at least five years of credited service but has not reached normal retirement age, he or she may retire early; however, the benefit amount will be actuarially reduced for the number of years the individual is below normal retirement age (§ 5702(a)(1)). The percentage reduction depends on the member's age and length of time between retirement and superannuation age, but it is often about 6% per year below retirement age. At age 55, a member with 25 years of service may take early retirement with a reduction factor of only 3%.

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[42] "Average noncovered salary" is the average annual salary received while covered by SERS since January 1, 1956, in excess of the maximum covered wages under Social Security for which Social Security integration credit was accrued by the member (§ 5102).

[43] The DiLauro award was rendered on February 17, 1988, under the Act 111 of 1968 (P.L.237), which relates to collective bargaining by police officers and firefighters.

Other Service Retirement Benefits. A member who leaves state service may receive the accumulated contributions standing to his or her credit, in lieu of any other benefit from the retirement system (§ 5701).

A member becomes vested when he or she has five years of credited service (§ 5309). A member who leaves state service before vesting is entitled only to the return of accumulated deductions (§§ 5308, 5701). After vesting, a member who leaves state service may leave the accumulated deductions in the system and, if his or her years of service are below the requirement for normal or early retirement, receive a retirement benefit reduced to the present value of an annuity starting at superannuation age (§ 5702(a)(1)).

Disability Retirement. A member unable to perform the duties for which he or she was employed may apply to SERS for a disability benefit. To receive benefits, the member must have at least five years of credited service[44] and prove mental or physical incapability to perform the employment duties to a medical examiner. Benefits are terminated if the disability ceases or the member otherwise becomes ineligible (§§ 5308(c), 5704, 5905(c)). Benefits are calculated on the basis of the maximum single life annuity, but full benefits are available only if creditable service is at least 16.667 years (§ 5704(a)). In the case of a service connected disability, the member may be eligible for an additional benefit, determined so as to bring the total amount received up to 70% of the member's FAS (§ 5704(f)).

Death Benefits. If a member with more than five years of credited service dies while employed in State service, the member's beneficiaries receive the present value of the member's monthly annuity he or she would have received if he or she had retired on the day before the death. If the member dies before vesting, the member's contributions and interest are paid to the beneficiaries. If no other form of payment election has been made, Option 1 applies. (§ 5707).

Deferred Compensation. Under Act 81 of 1987 (P.L.394)[45] the SERS Board of Trustees was directed to establish and oversee an IRC § 457 deferred compensation program for Commonwealth officers and employees, through which participants may voluntarily build retirement savings by deferring a portion of salary. As of 2003, a SERS member may defer his or her compensation in an amount up to $12,000 per year.[46] Participants are given a choice of funds in

[44] The credited service requirement does not apply to members of the State Police or enforcement officers (§ 5308(c)).

[45] 72 P.S. §§ 4521.1, 4521.2, 4521.3 (West 1995 and Supp. 2003).

[46] IRC § 457(e)(15).

which they can invest their deferred compensation withholdings.[47] Deferred compensation contributions are excluded from federal taxable income at the time of contribution, and accumulations to the funds are free of federal and state taxes. Once participants are no longer employed in State service, they may withdraw their invested funds through a number of plans including a lump sum payout and various installment plans. Withdrawals from the plan are taxed in the same manner as withdrawals from qualified retirement plans. Prior to retirement, members may also withdraw funds for an unforeseeable emergency.[48]

The deferred compensation plan in effect constitutes a voluntary defined contribution plan as a supplement to the mandatory defined benefit plan provided by SERS. As of December 31, 2002, over 46,000 SERS members—about 46% of all Commonwealth employees—were active or inactive participants in this program.[49]

Health Benefits. SERS employees' health benefits are controlled by contractual arrangements, not the State Employees' Retirement Code. For most class AA employees, these benefits are determined through collective bargaining agreements and are administered through the Pennsylvania Health Benefits Trust Fund.

Recent Legislation

As has been mentioned above, Act 9 of 2001 (P.L.26) and Act 38 of 2002 (P.L.272) made significant changes to the retirement codes, such that a separate summary of their central provisions is necessary to an analysis of the current position of the retirement systems. Most recently, Act 40 of 2003 (P.L.228) enacted December 10, made changes relating to the amortization period and raised the minimum employer contribution rate.

[47] SERS, Deferred Compensation Program, "Investment Options at a Glance" (Harrisburg: SERS, October 31, 2003).

[48] IRC § 457; State Employees Retirement System, Deferred Compensation Program, "Program Features and Highlights" (Harrisburg: SERS, n.d.).

[49] SERS, "Report to the House Appropriations Committee 2003-2004: Budget Information" (Harrisburg: SERS, March 28, 2003), 71.

Act 9 of 2001

As described by PERC,[50] the major provisions of Act 9 are as follows:

Enhanced Benefit Classes

Created a new class of membership in PSERS, class T-D that resulted in all class T-D members receiving an annuity of 2.5% of their final average salaries for all credited school service and intervening military service effective July 1, 2001, and effective January 1, 2002, contributing 6.5% of their compensation if they were formerly contributing 5.25% or contributing 7.5% of their compensation if they were formerly contributing 6.25%.

Permitted all current active, inactive, and multiple service members of PSERS to become class T-D members.

Required all new school employees employed after June 30, 2001, to become class T-D members.

Created a new class of membership in SERS, class AA, which resulted in all class AA members receiving an annuity of 2.5% of their final average salary for all credited state service effective July 1, 2001, and effective January 1, 2002, contributing 6.25% of their compensation to the State Employees' Retirement Fund.

Permitted all current active, inactive, and multiple service members of SERS (except for members who became Pennsylvania State Police officers after June 30, 1989, and members of classes other than class A), to become class AA members.

Required all new state employees employed after June 30, 2001, who were not Pennsylvania State Police officers or eligible for another class (such as justices, judges, district judges, and legislators) to become class AA members.

[50] "Actuarial Note re Amendment Number 1841 to House Bill 26, Printer's Number 1749" (Harrisburg: PERC, May 7, 2001) (hereafter "Act 9 Actuarial Note"). These amendments were enacted as Act 9 on May 17, 2001. For both Act 9 and Act 38 in this section, the descriptions of the provisions are substantially the same as PERC's; the selection and ordering are by JSGC staff.

Created a new class of membership in SERS, class D-4,[51] which resulted in all class D-4 members receiving an annuity of 3.0% of their final average salary for all credited state service effective July 1, 2001, and effective January 1, 2002, contributing 7.5% of their compensation to the State Employees' Retirement Fund.

Permitted all current members of the General Assembly (except for members of classes other than class A) who were members of SERS to elect to become class D-4 members or class AA members.

Permitted all individuals who become members of the General Assembly after June 30, 2001, and elect SERS membership, to become class D-4 members.

Vesting

Reduced ten-year or special eight-year cliff vesting to five-year cliff vesting.

Amortization

Restructured amortization payments effective July 1, 2002, so that the total of the then existing unfunded actuarial accrued liabilities will be funded over a ten-year period beginning July 1, 2002, on a level dollar basis, and so that the total of all changes to the unfunded actuarial accrued liability caused by actuarial experience and benefit modifications effective during each successive fiscal year will be funded over a ten-year period beginning July 1 of the following fiscal year on a level dollar basis.

Miscellaneous

Imposed the limits of section 415(b) of the Internal Revenue Code on the benefits of all PSERS and SERS members employed after June 30, 2001, and all class T-D, class AA, and class D-4 members, except that the benefits of existing employees will not be less than they would have received had they remained in class T-C or class A.

[51] Like all D classes, membership in class D-4 is restricted to members of the General Assembly.

> Increased the PSERS health insurance premium benefits to eligible annuitants from the then-current $55 a month to $100 a month.

The effect of the benefit enhancements for the active members was substantial. The changes in the benefit multipliers increased the monthly pension benefit of the predominant classes of state and school employees who elected to take advantage of the new classes by 25%. (For members of the General Assembly, the enhancement factor was 50%.)[52] The benefit enhancements were defended in the findings and declarations that preceded the substantive amendments:

> Over the past two decades, both pension funds have experienced investment returns well in excess of expectations. As a result, State and school district contributions have decreased dramatically to less than 1% of payroll for the next year. At the same time, employee contributions range from 5% to 6.25% of payroll. The outstanding investment performance has resulted in the pension funds being over 123% funded, compared to current needs. The 4% statutory interest rate the employees receive on their pension accounts has consistently been eclipsed by the actual average rate of return on the funds over the last two decades and also has been less than available private market interest rates. The fact that employees have been and are projected to continue to contribute at a rate that is materially greater than the employers due to the more than 100% funded status of the plans raises the issue of the extent to which employees should be provided additional benefits. The increase in benefits for State and school employees provided herein will in effect allow them for the first time to share in the outstanding investment performance of the funds. To date, that experience has only benefited the employers through reduced contributions to the funds. Even with the increases in benefits provided herein, both pension funds are projected to maintain minimal employer contribution rates and at the same time maintain a fully funded status. For at least the next decade, members are projected to continue to contribute at a rate substantially in excess of that required from employers.[53]

The projections mentioned in this finding did not anticipate the protracted slump in market returns since the adoption of Act 9. Employer contributions are now projected to substantially exceed employee contribution rates, as will be shown in chapter 5.

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[52] "Act 9 Actuarial Note," 11.

[53] Act 9, § 1(2).

The preliminary findings and declarations of Act 9 also commented on the adoption of ten-year level dollar funding, arguing that the change from 20-year funding would "increas[e] intergenerational equity by reducing the time elapsed between the service of the members of the systems and the related funding."[54] PERC supported this change for the reason stated in the finding, adding that reducing the amortization period "would reduce the total of the required amortization payments associated with future benefit changes."[55]

The following table shows the costs attributed to Act 9:

Table 3
Increases in Costs Due to Act 9

	PSERS ($ in millions)	SERS ($ in millions)	Total ($ in millions)
Unfunded Liability	5,020	3,214	8,234
Annual Payment on Unfunded Liability	412	234	646
Total Employer Cost	578	338	916

SOURCE: PERC, "Act 9 Actuarial Note," 9, 10.

In terms of percentage of payroll, Act 9 increased the total employer pension cost by 5.59% of the PSERS payroll and 7.08 % of the SERS payroll.[56]

[54] Ibid., § 1(3).

[55] "Act 9 Actuarial Note," 8. PERC has also argued for accelerated amortization in the COLA context. PERC, *Funding Cost-of-Living Adjustments* (Harrisburg: PERC, November 2000), 8, 29.

[56] "Act 9 Actuarial Note," 9, 10.

Act 38 of 2002

As described by PERC,[57] the major provisions of Act 38 are as follows:

Cost-of-Living Adjustment

Provided a two-part cost-of-living adjustment to annuitants of both systems commencing July 1, 2002, and July 1, 2003, respectively.

Minimum Employer Contribution

Set a minimum employer contribution rate for both systems equal to no less than 1% of employee payroll. In the case of PSERS, the contribution floor is in addition to the premium assistance contribution rate.

Smoothing

With respect to PSERS, set at five years the period over which all realized and unrealized investment gains and losses are to be recognized in determining actuarial asset value.[58]

Without deprecating the importance of the other provisions in this act, the COLA received by far the most public attention. Following the enactment of Act 9, many retirees expressed disappointment at receiving no liberalization themselves. The last previous COLA had been granted by Act 88 of 1998, so that a COLA in 2002 would be consistent with the established pattern of granting an ad hoc COLA every four or five years.

[57] "Actuarial Note re Document Number 1182," (Harrisburg: PERC, April 4, 2002) (hereafter "Act 38 Actuarial Note"). The subject document was a proposed set of amendments that was enacted as Act 38 on April 23, 2002.

[58] For SERS, five-year smoothing was mandated by 1991 Act No. 23 (P.L.183), amending 71 Pa.C.S. § 5508(c).

The substantial increases in costs due to Act 38 were attributable to the COLA provisions. These were estimated in the actuarial note as follows:

Table 4
Increases in Costs Due to Act 38 COLA

	PSERS ($ in millions)	SERS ($ in millions)	Total ($ in millions)
Unfunded Actuarial Accrued Liability	1,102	652	1,752
Employer Annual Cost Amortization Payment	208	99	307

SOURCE: PERC, "Act 38 Actuarial Note," 7, 8.

In terms of percentage of payroll, the increases in the employer annual cost amortization payment attributable to Act 38 represent 1.92% of payroll for PSERS and 1.91% of payroll for SERS.[59]

Act 40 of 2003

This statute modified the funding structure in order to address the issue of fluctuating employer contribution rates. For both systems, the act establishes a two-tier amortization schedule over either ten or 30 years, depending on the nature of the liability, and raises the minimum employer contribution rate from 1% to 4%.

For PSERS, beginning July 1, 2004, the amortization period is extended from ten to thirty years for the outstanding balances of the accrued liability resulting from changes in benefits enacted by Act 9, the net actuarial losses incurred in FY 2000-01 and FY 2001-02, and future actuarial gains or losses. Ten-year level dollar amortization continues to apply to unfunded liabilities arising from legislation enacted before Act 9, from the five-year smoothing under Act 38, and from future benefit changes and COLAs. Also beginning July 1, 2004, the minimum employer contribution rate (not counting the premium assistance contribution) is increased from 1% to 4%.

[59] "Act 38 Actuarial Note," 7, 8.

With respect to PSERS, the fiscal effect of this legislation is estimated to reduce the employer contribution rate for FY 2004-05 from the projected payroll rate of 9.69% to 4.23%, reducing the cost to the Commonwealth by $313.9 million and to the school districts by $290.0 million.[60]

For SERS, beginning July 1, 2004, the amortization period is changed from ten to 30 years for the outstanding balances of the accrued liability resulting from changes in benefits enacted by Act 9; the net actuarial losses incurred in calendar year 2002; and future actuarial gains or losses. Ten-year level dollar amortization continues to apply to unfunded liabilities arising from legislation enacted before Act 9 and from future benefit changes and COLAs. Increases in the minimum employer contribution rate are phased in as follows: 2% for FY 2004-05; 3% for FY 2005-05; and 4% for FY 2005-06.

With respect to SERS, the fiscal effect of this act is to reduce the employer contribution rate for FY 2004-05 from the projected payroll rate of 3.48% to 2.0%, which is estimated to reduce total employer contributions by $58.4 million.[61]

[60] Estimate supplied by PSERS.

[61] The description of Act No. 40 is based on Pennsylvania General Assembly, House Committee on Appropriations, "Fiscal Note for House Bill 85 (P.N.3060)" (Harrisburg: Committee, December 9, 2003).

CHAPTER 3
COMPARISONS WITH OTHER STATES

In order to put the Pennsylvania statewide public retirement systems in context, the first part of this chapter introduces two tables comparing specific features of our systems with the defined benefit plans of other states.[62] The comparisons include the provisions regarding qualifications and funding (appendix C) and those regarding benefits (appendix D)[63] for 79 statewide state employee and public school employee defined benefit retirement systems in all 50 states. The second part of this chapter describes selected provisions of the retirement codes of large and neighboring states.

Comparative Tables

Like Pennsylvania's retirement codes, the retirement codes in other states are very complex, often including multiple classes and other variations too intricate to be captured in tables of this sort. "The modern public pension system is a patchwork of plan types that entails different benefits, different valuation and funding methods, and varying intergovernmental relationships between the states and their subunits. This diversity complicates comparative analysis . . ."[64] Consequently, the tables in the appendices only give a broad description of the approach the other states use for their largest classes of employees. (Where different benefit tiers have been established, the tables describe the most recent tier, even if it does not cover the most employees, in order to show the latest policy determination.) The tables are compiled from various sources, including statutes, manuals and other publications of various systems, the

[62] See chapter 8 for a comparative table of the defined contribution plans in other states. The plans charted in the appendices are either pure defined benefit plans or hybrid (defined benefit and defined contribution) plans.

[63] The tables in the appendices update and verify the charts prepared by the Retirement Research Committee of the Wisconsin Legislative Research Council as relevant to this study. The council has compiled detailed comparative charts of statewide retirement systems since 1982. Wisconsin Legislative Council, Retirement Research Committee, *2000 Comparative Study of Major Public Employee Retirement Systems* (Staff Report No. 83) (Madison: [2001?]). See also idem., *2002 Comparative Study of Major Public Employes Retirement Systems* (Madison: Council, December 2003).

[64] Joseph D. Mason, "Reversal of Fortune," 3.

Wisconsin Legislative Research Council Report, and the 2002 Wilshire Report.[65] While conscientiously collected, the information in these tables cannot be guaranteed as entirely accurate and current. But even at this broad level of description, it is evident that our sister states have taken a wide variety of approaches to the issues presented by public retirement defined benefit plans.

Qualifications and Funding Table

Appendix C sets forth the following data relating to qualifications for benefits and the funding of the system:

Retirement system. This column shows the names of the statewide retirement systems covering state and public school employees.

Membership. "State" refers to the broad class of state employees. A few states have separate systems for relatively small subclasses of state employee, such as judges, legislators, or police and firefighters; such systems are not included in this table. "Local" refers to systems where municipal employees are included in the same system as state employees, often under provisions permitting a municipality to opt into the statewide plan.[66] "Teacher" refers to plans that cover public school employees.

Qualifications for Normal Retirement. This column refers to the qualifications for retiring with a benefit that is not reduced. Qualifications that combine age and years of service requirements are expressed as age/years of service. Thus "60/3" means that a member can retire at age 60 if he or she has three years of service. "R" refers to "rule of" qualifications that base eligibility on the sum of age and years of service. Under a rule of 85 ("R85" in the table), a member can qualify for retirement if age plus years of service is equal to or greater than 85; for example, if a member is 52 years old, the member must have at least 33 years of service to qualify. Some of these provisions are combined with a minimum age qualification.

Compared to other systems, the Pennsylvania systems are relatively strict regarding retirement based on years of service, but relaxed for retirement based wholly or primarily on age. For retirees claiming full benefits on the basis of age, only four other systems permit normal retirement at age 60 with only three years

[65] Stephen L. Nesbitt, "2002 Wilshire Report on State Retirement Systems: Funding Levels and Asset Allocation" (Wilshire Associates, Inc., August 12, 2002).

[66] Because of the scope of Senate Resolution No. 286, this report does not deal with retirement systems that mainly cover municipal employees, such as systems covering particular cities, or statewide systems exclusively covering municipal employees like the Pennsylvania Municipal Retirement System.

of service as SERS does, and only six grant normal retirement based on attainment of age 62, as PSERS does. On the other hand an employee with 35 years of service can obtain normal retirement in 38 systems in other states—no state that permits normal retirement on years of service alone requires more. An employee who qualifies under the PSERS rule of age 60 years with 30 years of service would qualify for normal retirement in any other statewide system except the two in Washington state.

Qualifications for Early Retirement. This column refers to the qualifications for retirement below normal retirement age but qualifying for a benefit that is reduced in accordance with a reduction factor described in the next column. Members who retire without so qualifying are entitled only to a return of accumulated contributions, if any, plus interest. The rules governing the qualification are shown in the same manner as the previous column.

Both Pennsylvania systems permit early retirement with only five years of service. In addition, SERS permits early retirement with a more generous reduction factor at age 55 with 25 years of service. The only other system with as liberal an early retirement rule as the Pennsylvania systems use is Nevada's. Ten systems make no provision for early retirement.

Reduction for Early Retirement. This is the factor used to reduce the retirement benefit where the member qualifies for early retirement but not normal retirement. Unless otherwise stated the percentage per year refers to the number of years the retiree falls below the age criterion. Actuarial reduction, which is used by SERS, reduces the benefit by a variable amount that can be as high as 6% per year. In most states the reduction is applied on a monthly basis, so that a reduction of 6% per year is actually applied as 0.5% per month.

Of the 67 sister state systems that permit early retirement, seven use the 3% rate used by PSERS or a lower rate. Ten use actuarial reduction (like SERS) and 14 use the roughly similar 6% reduction factor. The use of variable reduction rates or tables in many states makes this a particularly difficult category to make firm comparisons. Furthermore, states are not alike in the age or years of service mark from which the reduction is taken.

Social Security Coverage. This column refers to whether the employees are covered by the federal Social Security program. States have the option of not permitting their employees to participate in Social Security or having them participate on an optional basis. This information is supplied because non-participatory state systems usually require higher employee contributions and pay greater benefits than participatory systems, since a nonparticipating system must

perform the function of both a participatory system and Social Security. Sixty-two systems (including PSERS and SERS) are wholly or predominantly under Social Security, sixteen are wholly or predominantly not covered, and one is mixed.

Employee Contribution. This is the percentage of salary contributed to the system as the employee contribution.

Like Pennsylvania, almost all employee-contributory systems have taken advantage of Internal Revenue Code (IRC) § 414(h), under which the employee contributions are deemed to be paid by the employer for federal income tax purposes, and thereby excluded from federal taxable income. It is not uncommon for the employer to assume the employee contributions, especially as an alternative to a wage increase in collective bargaining negotiations; the effect is to exclude these payments from employee income for purposes of state and local income tax as well as federal. In some states, the federal pick-up or the assumption of the employee contribution may vary depending on the state agency or the school district. The chart does not include information on pick-up or assumption of employee contributions.

Of the pure defined benefit plans, 27 require contributions above the 6.25% required under SERS and 35 require contributions below the SERS rate, 17 require contributions over the 7.5% maximum contribution for PSERS, including 12 of the 16 systems that wholly or predominately do not participate in Social Security.[67] Seven plans are noncontributory. Seven contributory plans are DB-DC hybrid plans, none of which requires a contribution higher than SERS.

Vesting Period. This is the period of service required before an employee may qualify for a benefit under the system. If the employee terminates before serving the vesting period, he or she is only entitled to return of accumulated contributions plus interest. The vesting period is established as an incentive for employees to stay with the employer for that period of time.

The vesting periods for the plans charted are ten years (21 plans); eight years (three plans); six years (one plan); five years (43 plans); four years (four plans); three years (six plans); and immediately (one plan). With five-year vesting, the Pennsylvania plans use the same rule as the majority of the plans.

[67] The counts include two plans where the contribution rates are annually determined, with the assignment to category based on the current requirement.

Actuarial Method. This refers to the method by which the system calculates the amounts needed to maintain the system. The great majority of plans (59) use the entry age normal method, which is the method used by Pennsylvania's systems. Other methods are projected unit credit (13 plans); aggregate cost (four plans); and frozen entry age (two plans).

Funding Ratio. This column refers to the funding ratio of the systems, as determined by Wilshire Associates.[68] Only two systems had a higher funding ratio than PSERS, while 28 (including PSERS) had higher funding ratios than SERS.

Benefits Table

Appendix D sets forth the following data relating to the benefits provided by the respective systems:

Retirement System. This column shows the name of the system, as in appendix C.

Membership. This column shows the broad classes of employees covered, as in appendix C.

Benefit Multiplier. In most public defined benefit systems, the benefit received by the retiree is calculated by the following formula:

Benefit Multiplier × Final Average Salary (FAS) × Years of Credited Service

The benefit multiplier (also known as the accrual rate) for plans with a single multiplier for all members varies from 1.4% to 3.0%. Only two single multiplier and two variable multiplier systems use a benefit multiplier higher than the 2.5% used by the Pennsylvania systems, and four other systems use the same multiplier.

FAS Period. This is used in determining the second factor in the formula stated above. The FAS is the average annual salary over the period determined by the formula stated in the chart. The numeral shows the number of years taken into account, usually three or five. The requirements include the highest salary (H), a

[68] Wilshire Associates, "2002 Wilshire Report on State Retirement Systems," 17-19. The valuation dates used in this report range from before June 30, 2000 (14% of the 93 systems evaluated); June 30, 2000 (29%, including PSERS); between June 30, 2000 and June 30, 2001 (12%); June 30, 2001 (42%); and after June 30, 2001 (3%, including SERS). Ibid., 2, 15. As this was a period of falling equity market prices, the evaluation date may have a significant influence on the result.

limitation that the period used must be consecutive (C), or that the period must be the years within the last ten employed in which the highest salary was received. Many states have adopted the limit on the FAS set forth in IRC § 401(a)(17), which is currently $205,000. Another common provision excludes raises over a given percentage within the period for purposes of calculating the FAS. Thus, the statute may mandate that if an employee receives an increase of more than 10% over the previous year within the last three years of employment, the amount above the 10% will not be counted toward determining the FAS amount. Assuming rising salaries, the shorter the FAS period is, the more favorable it is to the employee.

The basic rule used by the Pennsylvania systems, namely the three highest years, is used by 16 plans in other states, making it the most frequent rule. Fourteen other plans use the three highest consecutive years. Fifty-seven use a three-year period in some fashion, and 15 use a five-year period. Fifteen plans include a raise exclusion provision, with 10% (in seven plans) as the most common cap. No state that mandates a five-year FAS period requires a raise exclusion.

Benefit Limitation. This column refers to the highest amount a retiree may receive. At a benefit multiplier of 2.5%, a retiree may receive a retirement benefit greater than his or her salary with more than 40 years of service. Since there is a perception of unfairness where a retiree earns almost as much or more than his or her working salary, many states have imposed a limit on the amount of the benefit. As the chart shows, many states have adopted the IRC § 415 limit on the overall benefit, which is currently $165,000. (In many states the effect of this limitation is somewhat attenuated by the adoption of a qualified governmental excess benefit arrangement, as it is in SERS.) Adoption of IRC § 415 is the most common approach to this issue, used by 46 systems, including both of the Pennsylvania plans.

Thirteen plans limit benefits to 100% of the FAS. Fifteen others put the limit at a percentage of the FAS, ranging from 50% to 94.5%; the most common caps are 80% of FAS (five plans) and 75% of FAS (four plans). The SERS rule limiting the benefit to the highest annual salary is sometimes also used by the two California systems and the Kentucky teacher system, but by no other plans. Twenty-one plans have no rule directed to this issue.

Postretirement Increases. This column refers to the method of determining the increases granted to retirees to offset inflation. Plans like the two Pennsylvania systems that grant a COLA solely on a discretionary basis are shown as “ad hoc” on the table. Sixteen other statewide plans also grant COLAs on an ad hoc basis. The most recent ad hoc adjustments in Pennsylvania have

been calculated to be equivalent to one-half the increase in the Consumer Price Index (CPI) since the immediately preceding COLA. We have not attempted to determine the formula behind ad hoc COLAs in other states.

Systems that grant automatic COLAs use a wide variety of formulas. The most common is based on the CPI, as determined by the federal Department of Labor; the CPI is used in some manner by 38 plans. Among these, 14 simply cap the increase at a stated percentage, which ranges from 2% to 6%, with the most common cap being 3%, used by eight systems. Twenty-four plans use the CPI in a more complex formula, which may include a cap in combination with other limitations, such as offset, percentage of CPI, or dollar amount. The major alternative to CPI is flat percentage, where retirees receive the stated percentage increase. Fifteen plans use flat percentage, ranging from 1.5% to 3.5%, with a 3% limit (ten plans) predominating. Two other plans grant a flat percentage plus an additional percentage contingent on available funding; another plan uses a 3% flat percentage subject to a dollar limitation. Three systems guarantee a purchasing power floor. In 15 systems, the adjustment is wholly or partially conditional upon investment returns.

For further discussion of postretirement increases, see chapter 6.

State Taxation of Benefits. This column describes the treatment of retirement benefits under the state income tax. (Strictly speaking, this is an evaluation of the income tax law as it applies to the retirement plan, not the retirement plan itself.)

The Pennsylvania systems are among 19 whose benefits are exempt. Ten systems are in states that do not levy an income tax. For 23 systems the benefits are fully taxable. For 25 systems, the benefits are partially exempt, in some cases above a dollar exclusion.

Lump Sum Withdrawal Option. This column shows the maximum amount the state permits the retiree to withdraw as a lump sum upon retirement. Withdrawals are assumed to include interest. The table does not include provisions in some systems permitting lump sum withdrawals where the amount of the benefit is relatively small, which usually applies to employees with a short service period.

Pennsylvania's plans permit a retiree to withdraw an amount equal to all employee contributions and take a reduction in the monthly benefit so as to make the entire benefit actuarially equivalent to the maximum single life annuity. Only two other systems allow this. One plan permits any actuarially equivalent option approved by the system's board, and one allows withdrawal of half the benefit. Six permit withdrawal of a defined contribution or cash balance account.

Fourteen plans permit withdrawal of a limited term of the benefit, of which twelve set the maximum period at three years. On the other hand, 51 plans make no provision for a cash withdrawal. On this issue, the Pennsylvania retirement codes offer one of the most favorable provisions in the nation.

Comparison between Pennsylvania and Other Statewide Plans

The comparisons made above are summarized in table 5, with regard to how favorable they are to the employee.

Largely because of a high benefit multiplier and the option to withdraw employee contributions at retirement, PSERS and SERS would appear to be among the more favorable statewide plans. The higher employee contribution rate and more restrictive normal retirement qualification make PSERS less generous than SERS. The least favorable feature of the plans is most likely the lack of explicit guaranteed inflation protection. However, even if the postretirement increase policy is characterized more unfavorably than in table 5, the overall plan appears to remain at least competitive with other plans.

Table 5
Summary Comparison of Pennsylvania Retirement Systems and Other State Systems

Feature	PSERS	SERS
Normal Retirement	Strict years of service requirement; liberal mixed requirement	Strict years of service and mixed requirement; liberal age requirement
Early Retirement	Among the most liberal requirements	Among the most liberal requirements
Social Security Coverage	Similar to most	Similar to most
Employee Contribution	Among the highest for Social Security covered plans	Somewhat higher than most
Vesting Period	Same as most	Same as most
Benefit Multiplier	Among the highest	Among the highest
FAS Period	Same as most	Same as most
Benefit Limitation	Same as most	Same as most
Postretirement Increases	Less favorable than most	Less favorable than most
State Income Taxation	More favorable than most	More favorable than most
Withdrawal Option	Among the most favorable	Among the most favorable

Special Features of Other State Retirement Systems

The following section briefly describes some features that are peculiar to the public retirement systems of one or a few of the states that either rank among the ten largest or border Pennsylvania, or both.

California

Both the state and school plans include a Supplemental Benefit Maintenance Account to guarantee a floor for the purchasing power of every retiree's benefit, based on a percentage of the purchasing power at the time of retirement. The floor is 75% or 80% for state plan members (depending on employee classification) and 80% for school plan members. Most of this fund is maintained by employer contributions, but for the school system this obligation is funded in part by revenues from certain designated lands.[69]

In the school system, the employer contribution is established by a memorandum of understanding reflecting the outcome of collective bargaining negotiations between the Governor and the teachers' representatives.[70]

The automatic COLA for employees of public agencies (a defined subclass of state employees) may be greater than the otherwise guaranteed 2%, depending on the outcome of collective bargaining negotiations. Agency employees are authorized to contract with the particular public agency for an automatic annual COLA of 3%, 4%, or 5%, funded by employer contributions determined on an actuarial basis.[71]

The benefit multiplier increases for employees who serve after the normal retirement age up to age 63.[72]

Georgia

The employer and employee contributions are set by the state and school retirement boards within a range set by statute.[73] For state employees, the benefit multiplier is also set by the boards within a statutory range.[74]

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[69] Cal. Educ. Code § 24401 et seq. (school); Cal. Gov. Code §§ 21337, 21337.1 (state) (FindLaw 2003).

[70] Cal. Educ. Code § 22901.3, Cal. Gov. Code § 3517.5 (FindLaw 2003).

[71] Cal. Gov. Code § 21335 (FindLaw 2003).

[72] Cal. Gov. Code § 21353 (state); Cal. Educ. Code § 24202.5 (FindLaw 2003).

[73] Ga. Code Ann. §§ 47-2-334 (c) (state); 47-3-41(a)(1) (school) (Lexis 2000).

[74] Ga. Code Ann. § 47-2-334(b)(1)(B) (Lexis 2000).

Illinois

Both the state and school systems use the unit credit system of funding.[75]

Both systems have a statutory funding plan that requires attainment of 90% funding by 2045. (The funding ratios shown in the 2002 Wilshire Report are 64% for the state system and 60.0% for the school system) The respective statutes mandate a minimum funding based on percentage of payroll. For the state system, the requirement increases from 9.8% of employee payroll for FY 1999 to 11.8% for FY 2009, increasing by intervals of 0.2% per year. For the school system, the requirement increases from 10.02% (FY 1999) to 17.74% (FY 2010), increasing by intervals of 0.69% or 0.70% per year.[76]

ERIPs in both systems have given employees up to five years additional service credit. Employees must contribute a percentage of their highest salary as determined by the system. The remaining unfunded accrued liability is amortized over ten years by employer contributions. The latest ERIP closed on December 31, 2002 (which could be extended by employers through April 2003 to reduce labor force disruptions). The Pension Commission is mandated to report annually through 2013 on payroll and net savings from this program. Until June 30, 2005, a teacher may offset the applicable pension reduction by contributing 7% of highest salary for each year of age below 60 or each year of service below 35, whichever difference is less.[77]

Michigan

State employees hired on or after March 31, 1997, are enrolled in the defined contribution program and are not eligible for the defined benefit plan. Members of the DB plan were given the option to elect the DC plan or continue in the DB plan. The DC plan is described in chapter 8.

School employees hired on or after January 1, 1990, are enrolled in a member investment plan (MIP), under which they are required to contribute to their retirement benefits. The contributions are graduated from 3% (applying to compensation up to $3,000); 3.6% (compensation from $5,000 to $15,000); or 4.3% (compensation over $15,000).[78]

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[75] Wilshire Associates, "2002 Wilshire Report on State Retirement Systems," 14.

[76] 40 ILCS §§ 5/14-131 and 5/16-158 (West 2002); State Employees Retirement System of Illinois, *2002 CAFR*, 14, Teachers' Retirement System of the State of Illinois, *2002 CAFR*, 20.

[77] 40 ILCS §§ 5/14-108.3, 5/16-133.2, and 5/16-133.3 (West 2002).

[78] Mich. Comp. Laws Ann. § 38.1343a (LexisNexis 2001 and Supp. 2003).

State or school employees under the DB plan may elect an "equated plan," which provides for an increased annuity between retirement and age 65 so as to equalize the annuity with respect to Social Security.[79]

School employees may buy up to five years additional service credit by making contributions to the system. Credit purchased under provisions permitting buy-back of service in specific employment counts against the service purchasable under this provision, and the purchased service does not count toward vesting.[80]

New Jersey

Members with three or more years of service in either the state or school system may borrow up to half of their accumulated deductions at 4% interest. Loans are repaid by deductions from compensation in monthly installments at least equal to the employee's contributions but no more than 25% of the employee's compensation. Balances unpaid at the time of retirement or death are collected from benefits otherwise due.[81]

Retirees under either system may elect an option that gives the designated beneficiary a full or fractional survivorship benefit whereby if the beneficiary predeceases the retiree, the retiree receives the maximum retirement allowance for the retiree's life as if he or she had not elected a reduced option. This is called a "pop-up survivor" option.[82] (This option is available to Pennsylvania retirees under Option 4 by request to the board, but is not explicitly mentioned in the retirement codes.)

Members of both systems are subject to mandatory retirement at age 70. The retirement date is the first day of the month after the age is attained, unless otherwise set by the board at no more than one year thereafter. State employees may be continued in service on an annual basis after age 70 by the head of the employing agency.[83]

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[79] Mich. Comp. Laws Ann. § 38.20(2) (LexisNexis 2001 and Supp. 2003).

[80] Mich. Comp. Laws Ann. § 38.1369f (LexisNexis 2001 and Supp. 2003).

[81] N.J. Stat. Ann. §§ 18A:66–35 and 18A:66–35.1 (West 1999 and Supp. 2003) (teachers); N.J. Stat. Ann. §§ 43:15A–34 and 43:15A–34.1 (West 1991 and Supp. 2003) (state).

[82] N.J. Stat. Ann § 18A:66–47 (West Supp. 2003) (school); N.J. Stat. Ann. § 43:15A–50 (West Supp. 2003) (state).

[83] N.J. Stat. Ann § 18A:66–43(b) (West 1999) (school); N.J. Stat. Ann. § 43:15A–47b (West 1991) (state).

New York

Members with one year or more service are permitted to borrow up to 75% of accumulated contributions at a rate of interest set by the board but not less than 5%. Loans are repaid by deductions from compensation in monthly installments of at least 2% of salary and in an amount sufficient to repay the loan within five years. Balances unpaid at the time of retirement or death are collected from benefits otherwise due.[84]

Members have the option to guarantee five or ten years of the monthly benefit in return for a reduced annuity. If the retiree dies before the end of the term elected, the commuted value of the unpaid installments so guaranteed is paid to the retiree's designated beneficiary, the contingent beneficiary, or the estate.[85]

Recent legislation authorizes the state comptroller (who has jurisdiction over the unified state public employee retirement plan) to implement a "comprehensive structural reform program" including the power to alter the valuation, billing, and payment regulations that apply to the employer contribution and to require a minimum annual employer contribution of 4.5% of payroll.[86]

Ohio

State employees hired on or after January 1, 2003, or those with five or fewer years of service credit at that time, may elect among a defined benefit plan, a defined contribution plan, or a combined plan.[87]

The retirement boards are given authority to set employee contribution rates within a range of 8 to 10% of employee compensation.[88]

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[84] N.Y. Retire. & Soc. Sec. Law §§ 613-a and 613-b (Consol. Supp. 2003). Note that employees are only required to make contributions for the first ten years of service.

[85] N.Y. Retire. & Soc. Sec. Law § 610 (Consol. Supp. 2003). This option is available to Pennsylvania public retirees within Option 4, but it is not specifically described in the statute. See 24 Pa.C.S. § 8345(a)(4) (school) and 71 Pa.C.S. § 5705(a)(4) (state).

[86] 2003 S. 4902, amending the Retirement and Social Security Law and the Local Finance Law (enacted May 14, 2003).

[87] Eligibility for and election of individual account benefit plan: Ohio Rev. Code Ann. §§ 145.19 and 145.191 (West Supp. 2003) (state); Ohio Rev. Code Ann. §§ 3307.25, 3307.251, 3309.251, and 3309.252 (school). Terms of individual account benefit plan: Ohio Rev. Code Ann. § 145.80 et seq. (state); Ohio Rev. Code Ann.§§ 3307.80 et seq. and 3309.80 et seq. (school). See http://www.opers.org/RetirementPlans/Site/planinformation/plancomparisons.html for a description of the options available.

[88] Ohio Rev. Code Ann. § 145.47 (West 2002) (state); Ohio Rev. Code Ann. §§ 3307.26 and 3309.47 (West Supp. 2003) (school).

As of a date no later than July 1, 2004, a new retiree will be permitted to withdraw six to 36 times the retiree's unadjusted monthly benefit amount as a lump sum. The monthly benefit, as reduced to take account of the lump sum distribution, may not be less than half the unadjusted monthly benefit.[89]

A new retiree is deemed to elect a reduced retirement allowance for life plus one-half the allowance for the life of the surviving spouse, unless the retiree is unmarried, the retiree's spouse consents in writing to the alternative election, or the retirement board waives the consent requirement. The board may waive the consent requirement if the spouse is incapacitated or cannot be located, or for any other reason specified by the board.[90]

Texas

Members of the state system may buy up to 60 months' service credit after ten years of actual service with payment of the actuarial present value of the standard annuity attributable to the purchase of the service credit. A similar option exists for school system members, but only three years' service can be purchased upon seven years of actual service.[91]

A state system retiree may authorize an automatic deduction from the benefit for the membership fee to an eligible state employee organization with at least 2,500 members.[92]

The school system is authorized to accept rollover distributions from other qualified plans as payment for creditable service.[93]

Reduced options specifically provided for include a guaranteed five- or ten-year annuity payable to the beneficiary. All reduced options automatically "pop up" to the unreduced annuity if the beneficiary predeceases the member.[94] Any option may be combined with a lump sum withdrawal in an amount equal to up to 36 months of the standard annuity payment.[95]

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[89] Ohio Rev. Code Ann. § 145.46(B)(3) (West Supp. 2003) (state); Ohio Rev. Code Ann. §§ 3307.60(B) and 3309.46(B)(3) (West Supp. 2003) (school).

[90] Ohio Rev. Code Ann. § 145.46(B)(1) (West Supp. 2003) (state); Ohio Rev. Code Ann. §§ 3307.60(H) and 3309.46(B)(1) (West Supp. 2003) (school).

[91] Tex. Gov't Code Ann. § 813.513 (Vernon Supp. 2003) (state); Tex. Gov't Code Ann. § 823.405 (Vernon Supp. 2003) (school).

[92] Tex. Gov't Code Ann. § 814.009 (Vernon Supp. 2003).

[93] Tex. Gov't Code Ann. § 823.005 (Vernon Supp. 2003).

[94] Tex. Gov't Code Ann. § 814.108 (Vernon Supp. 2003) (state); Tex. Gov't Code Ann. § 823.204 (Vernon Supp. 2003) (school).

[95] Tex. Gov't Code Ann. § 814.1082 (Vernon Supp. 2003) (state); Tex. Gov't Code Ann. § 823.2045 (Vernon Supp. 2003) (school).

West Virginia

Provisions are made for rollover payments from the public system into another qualified plan and for rollover contributions to the public plan for service credit or repayment of withdrawn or refunded contributions.[96]

If payments to state retirees in any year exceed 10% of the sum of the balances in the employers' accumulation fund plus the retirement reserve fund, the annuities payable in the next fiscal year must be reduced pro rata so that the 10% ceiling is not exceeded.[97]

Retirees may authorize deductions from benefits for membership dues or fees to a retiree association.[98]

School employees hired on or after July 1, 1991, are required to participate in the DC plan. Except for members who formerly participated in the defined benefit plan and return to school service, the DB plan is closed to new employees.[99]

Members of the school defined benefit program may borrow up to half of their accumulated deductions at 6% interest or a higher rate set by the board. Loans are repaid by deductions from compensation in monthly installments so as to repay the loan in a period of 6 to 60 months. Balances unpaid at the time of retirement or death are deducted from benefits otherwise due. The loan program is made subject to IRC §§ 72(p) and 401.[100]

[96] W. Va. Code Ann. §§ 5-10-27c and 5-10-27d (Michie 2002) (state); W. Va. Code Ann. §§ 18-7A-28c and 18-7A-28d (Michie Supp. 2002) (school defined benefit); W. Va. Code Ann. §§ 18-7B-11a and 18-7B-13b (Michie Supp. 2002) (school defined contribution).

[97] W. Va. Code Ann. § 5-10-43 (Michie 2002).

[98] W. Va. Code Ann. § 5-10D-6 (Michie 2002).

[99] W. Va. Code Ann. § 18-7B-7 (Michie Supp. 2002).

[100] W. Va. Code Ann. § 18-7A-34 (Michie Supp. 2002).

CHAPTER 4
BENEFIT ADEQUACY

This chapter comments on the benefit adequacy of PSERS and SERS as presently constituted, based on an analysis provided to the Joint State Government Commission by Aon Consulting, Inc.[101] Benefit adequacy is defined as the ability to maintain a standard of living during a person's retirement that is equivalent to the standard of living enjoyed while employed. The Aon analysis reaches the following broad conclusions:

- PSERS T-D and SERS AA general employees working for at least 30 years and retiring at age 65 will have sufficient pension benefits, in combination with Social Security, to meet or exceed applicable replacement ratio targets.

- PSERS T-C employees must work at least 25 years in order to retire at age 65 and meet the replacement ratio targets.

- SERS uniformed and safety employees receive a sufficient pension to meet the replacement ratio targets once Social Security commences, but will require income from bridge employment until eligible.

- Given typical employment patterns (including income from non-SERS employment), justices, appellate and trial judges, district justices, and legislators will have sufficient SERS benefits, in combination with Social Security, to meet or exceed replacement ratio targets

- The programs do not by themselves provide benefits that equal or exceed the replacement ratio targets. Social Security benefits, and in some cases bridge employment income, must be included to meet the targets.

[101] The analysis consisted of the Aon Consulting, *Report on Program Benchmarking* and Aon Consulting, *Replacement Ratio Study™: A Measurement Tool for Retirement Planning* (Chicago: Aon Consulting, 2001). Both documents are on file with the JSGC.

A well-designed retirement program targets a certain benefit to be provided, whose attainment is conditional on service level at retirement and age at retirement; employees leaving employment prior to the targeted age or service receive a lower benefit. The PSERS and SERS programs target different age and service requirements within their plans. Differences are based on the type of position, nature of employment, and hire date.

Replacement Ratio Analysis

The benchmark analysis performed by Aon Consulting for JSGC was designed to provide a factual basis for evaluating the adequacy of the PSERS and SERS programs against an objective standard by determining how much of the required replacement ratio the PSERS and SERS plans provide for employees.

The replacement ratio model used in this report is based on a study performed by Aon Consulting along with Georgia State University. The study took national data including expenditure data, tax information, and savings information from Federal sources and used that data to create a model that described what changes in taxes occur after a person retires. Since the study was based on national data, its findings are not precisely applicable to any particular individual or group. Postretirement income estimates were adjusted to account for the pattern of expenditure changes that occur in retirement. The result establishes a relationship between the level of gross income a person receives prior to retirement and the implied standard of living maintained by that gross income level, and the gross income needed after retirement to keep the same living standard. The replacement ratio study arrives at a useful, though certainly not foolproof, model that may assist in comparing the adequacy of different retirement programs. The study concludes that, due largely to shifts in the tax burden and changes in savings patterns as elaborated further in this chapter, a person can maintain the same level of spending after retirement as he or she enjoyed before retirement even with a lower gross income after retirement.

The benchmark analysis shows the level of inflation-adjusted income employees can expect to receive from the plan and how much of a gap exists between the plan levels and objectively determined target levels. For each class of retirees, the analysis shows results for seven hire ages (25, 30, 35, 40, 45, 50, and 55), with two retirement ages (three for SERS AA) for each hire age. The use of multiple retirement ages allows the impact of retirement incentive programs to be shown. Appendix B of this report shows the replacement ratio analysis as it applies to the major PSERS and SERS classes at hiring dates that are typical of employment in the respective classes. The analysis assumes 4% annual salary

increases, 3% annual inflation, and 3.5% annual increase in the taxable wage base. In reviewing the adequacy of benefits, the primary retirement formulas were used, assuming that for evaluation purposes, employees would have only regular service with the eligible employers. No adjustments were made for employees who might buy prior military service or other creditable service with public sector employers.

"Replacement ratio" is defined as the portion of pre-retirement income, expressed as a percentage, needed to produce an equivalent standard of living after retirement. Comparison between the actual benefit and the benefit that satisfies the replacement ratio gives a basis for determining the adequacy of the benefit. The replacement ratio approach is well accepted in the field, as it is used by basic reference works describing the theoretical underpinnings of current public pensions. For instance Winklevoss and McGill describe the preferred analytical framework as follows:

> There has been a growing acceptance of a philosophy that provides a foundation for setting benefit objectives in a more rational manner. This is the view that a person in retirement should have enough income from all sources to enjoy approximately the same standard of living that he enjoyed during the years immediately preceding retirement, and that the standard of living should be protected against inflation during retirement by adjustment of the pension benefits in accordance with changes in a suitable cost-of-living index.[102]

The basis of comparison for determining benefit adequacy is the employee's standard of living prior to retirement.

Once an employee retires, the income the employee needs to maintain the same standard of living is generally lower than it was when the employee was still working. This is due primarily to the following factors:

1. Taxes generally decrease after retirement. Social Security wage taxes end at retirement, and Social Security benefits are received partially or fully tax-free. The balance, the taxable income, will generally be subject to a lower tax rate.

2. Personal savings efforts are reduced or discontinued.

[102] Winklevoss and McGill, *Public Pension Plans,* 20. See also Tilove, *Public Employee Pension Funds,* 51.

3. There are changes, up or down, in the expenses an employee incurs after retirement. Work-related expenses end, but age-related expenses, such as those for health care, typically increase. On balance, the reductions in work-related expenses are larger than the increases in age-related expenses, leading to a net reduction in expenditures.

Table 6 shows the calculation of the replacement ratio for a person earning $50,000 at the time of retirement.

Table 6
Replacement Ratio Calculation

Gross income	$50,000
Less expenditures no longer incurred:	
Income and FICA taxes	10,562
Savings	1,829*
Total subtractions	12,391
Remaining income	37,609
Less reduction in age- and work-related expenditures after retirement	603**
	37,006
Plus income taxes after retirement	134
Income required after retirement	37,140
Divided by pre-retirement income	50,000
Replacement ratio	74.3%

*Replacement ratios assume savings stop at the time of retirement.

**Changes in age- and work-related expenditures are isolated. Expenditures not age- or work-related are assumed to be the same before and after retirement. Amount of reduction is based on data from the United States Department of Labor's Consumer Expenditure Survey. Aon Consulting, *Replacement Ratio Study ™*, 2.

In the above example, the replacement ratio is 74.3%, meaning that it takes 74.3% of this family's preretirement income to enjoy the same standard of living after retirement as it enjoyed just prior to retirement. The main differences that account for the need for less income after retirement are:

- *Reduction in expenses:* The *Replacement Ratio Study*™ quantified work-related and age-related expenditures. The results showed a net expenditure reduction for all income levels. Among age-related expenses, large increases in health care costs were offset by large reductions in the shelter category. Other age-related categories (reading and education, utilities, household operations, and entertainment) were less significant. Age-related expenditures increased after retirement for the $20,000 and $30,000 income levels, while declining for all income levels from $40,000 to $90,000. The work-related categories of expenditure were food, apparel and services, and transportation; these declined for all income categories.[103]

- *Elimination of retirement savings*. *The Replacement Ratio Study*™ isolated the amount of gross pre-retirement income allocated for retirement savings. This money is available after retirement for disposable spending and so does not need to be replaced with postretirement income. For a person earning $50,000 at retirement the average amount of annual savings is $1,829 in the above example, which equals just over 3.6% of pay. Participants in the PSERS and SERS programs are required to make employee contributions in an amount considerably larger than 3.6% of pay. Consequently, the standard study somewhat overstates the required replacement ratio for these participants.

- *Reduction in federal and state income taxes.* The federal income tax system has different tax rates and standard deductions depending on income levels, marital status, and the ages of the taxpayer and spouse. The replacement ratios used are based on the baseline case of one wage earner who is assumed to be three years older than his or her nonworking spouse. The federal income tax amount is reduced on average from $5,239 (about 10% of gross pay) to $108. This is due in part to the larger standard deduction to which a person age 65 or older is entitled. In addition, over half the total income expected is paid by Social Security and largely free of income tax. The *Replacement Ratio Study* ™ does not isolate or provide data on the tax differences on a state-by-state basis, but does provide information on an average basis. For this example the state taxes are reduced from $1,498 (3% of gross wages) to $26.

[103] Aon Consulting, *Replacement Ratio Study*™, 20, 21.

- *Elimination of Social Security wage taxes (FICA).* Prior to retirement FICA taxes equal 7.65% of pre-retirement income. For the person earning $50,000 per year, elimination of this tax after retirement represents an expenditure reduction of $3,825.

Replacement Ratio Targets. Table 7 shows the 2001 study baseline case results. The baseline case assumes a family where there is one wage earner who retires at age 65 with a spouse age 62. Thus, the family unit is eligible for family Social Security benefits. (Family benefits are 1.375 times the wage earner's primary Social Security benefit.) The baseline case also takes into account age- and work-related expenditure changes after retirement, pre-retirement savings, and changes in taxes after retirement.

Table 7
Replacement Ratio Targets

Pre-retirement Income ($)	Expected Social Security (%)	Minimum-Required Private and Employer Sources (%)	Target Total (%)
20,000	61	22	83
30,000	53	25	78
40,000	49	27	76
50,000	44	30	74
60,000	39	36	75
70,000	35	40	75
80,000	31	44	75
90,000	28	48	76

SOURCE: Aon Consulting, *Replacement Ratio Study*™, 3.

Benefit Adequacy

The determination of benefit adequacy is based on a level pension amount reduced on a theoretical basis to an inflation-adjusted benefit. As a result, a level pension that may equal half a person's salary at the point of retirement is shown as equaling about 35% of that person's salary after being inflation adjusted. While an inflation-adjusted benefit is not currently an option under the PSERS or SERS plans, this technique provides information as to how adequate the overall benefit is and whether postretirement cost of living increases are needed.

A person living the average life span will theoretically be able to use the monthly pension and proceeds from his or her investment account to provide a self-funded indexed benefit, thereby maintaining a consistent standard of living despite inflation. For example, suppose a retiree receives monthly pension income from PSERS or SERS of $1,000. The retiree currently needs $700 to maintain his or her standard of living. Assume the retiree invests the remaining $300 for a 6% annual return. The following year the retiree will need $730, assuming a 4% increase for cost of living increases, and he or she can add the remaining $270 to savings. During the later years of the retiree's life, the monthly benefit payment will tend to slip below the needed income, but the standard of living can be maintained by drawing on savings set aside during the years immediately after retirement from the gap by which the benefit in those years exceeded the target income level.

Taking these factors into account, replacement ratio analysis determines the target for evaluating benefit adequacy. For any given retiree, a benefit equal to or exceeding the replacement ratio is considered adequate. One can then determine to what extent retirees receive benefits from the system that meet the replacement ratio and decide on that basis whether the plan as a whole is adequate. One approach that may be appealing is to propose that a career employee who retires when he or she meets the requirements for a normal retirement benefit should ordinarily be entitled to a benefit that meets the replacement ratio target when combined with his or her Social Security benefit. An alternative is that the benefit plan is sufficient if it meets replacement ratio targets for a career employee if the employee retires when he or she is eligible for a full Social Security benefit. For shorter term employees, replacement ratio data may help determine whether the retirement plan is contributing reasonably to the employee's retirement, given the number of years the employee worked under the system.

While replacement ratio analysis is a useful approach to evaluating benefit adequacy, it does not address all factors that may be relevant to that determination. To reiterate, the replacement ratio criterion is satisfied if the retiree has the same standard of living he or she enjoyed before retirement. If the former standard was not sufficient to meet the retiree's needs, a benefit equal to the replacement ratio will be equally inadequate. Furthermore, the replacement ratio approach considers the retiree's economic situation in terms of a steady income stream; it does not take into account extraordinary financial demands, such as an expensive medical operation or a natural disaster, that may threaten the retiree's economic well-being.

Results for PSERS and SERS Retirees

General employees participating in SERS and all PSERS participants. For these groups, the existing programs provide an adequate retirement benefit.

- The programs provide income that, combined with expected Social Security benefits, meets the replacement ratio targets for an employee who works in the public schools or as a general employee of the state for a full career, assumed to be 30 or more years of service and retirement at age 65.

- For the average employee no additional retirement savings are needed to meet the targets, although careful management of income is needed to offset the effects of inflation.

- Under the economic assumptions used, no postretirement cost of living increases are needed to enable a full career employee to maintain the preretirement standard of living.

Public safety employees of SERS. These employees are assumed to retire somewhat earlier than general service employees, as a result of the nature of the positions they hold.

- For purposes of this study we have assumed that a public safety employee retiring by age 55 will have some sort of bridge employment between retirement from the state and age 65.

- It is also assumed that the employee will participate in Social Security and receive retirement benefits therefrom.[104]

- Based on these parameters, the pension for a full career (25 years of service) employee meets the replacement ratio target.

- This analysis includes an inflation adjustment assuming the SERS pension starts as early as age 50.

- The SERS benefits are insufficient if no bridge employment or Social Security benefits are included.

Judicial participants in SERS.

- The pensions provided to judges and district justices meet the replacement ratio targets, based on those participating having a full career of 20 or more years and retiring at age 65 or older.

- This determination ignores any other retirement income accumulated in pre-state employment.

The figures shown in appendix B for the judicial group do not include participation in the voluntary Social Security integration benefit, a program which provides higher benefits for employees with wages in excess of the Social Security wage base. Aon Consulting estimates that including the Social Security integration benefit would increase the replacement ratios by ten to 15 percentage points, depending on pay levels. SERS records show that 91% of active judges participate in Social Security integration.

Legislative members of SERS.

- The pensions provided to those in the General Assembly meet the replacement ratio targets, based on those participating having a full career of 20 or more years and retiring at age 65.

[104] State Police are permitted to opt out of Social Security, and a substantial proportion of them have done so. The State Police tables in appendix B have assumed employee participation in Social Security. No adjustment is made to account for officers that may only have Social Security coverage after their period of employment as a State Police officer has ended. Individuals who have less than 35 years of participation in Social Security may receive a lower benefit. On average, for this group, we estimate that the replacement ratio to be expected from Social Security would be lower by approximately 10 percentage points (e.g., instead of a 30% replacement ratio the retiree could expect a 20% replacement ratio).

- As with the judicial members, this determination does not consider other pre-retirement income.

In retirement, individuals value a safe, secure pension. Retirees may also find themselves in need of the flexibility of a liquid asset account to meet financial emergencies. The current program provides a fixed monthly pension. In addition, employees are permitted through Option 4 to withdraw their own contributions with interest at the time of retirement. The availability of this option significantly enhances the value of these plans.

CHAPTER 5
EMPLOYER CONTRIBUTION RATES

Actuarial projections of both public employee retirement systems forecast a steep rise in employer contribution rates. Weak investment returns constitute the most important cause for this, but not the only one. If current projections turn out to be accurate, increased contributions into the pension funds are very likely to hamper the ability of state government and the public schools to implement programs and deliver services. This chapter describes the extent of the problem and its causes. Chapter 9 discusses measures that may alleviate the problem.

As noted in chapter 2, the retirement systems are funded from three sources: employee contributions, investment returns, and employer contributions. Employee contribution rates are fixed by statute. The employer contribution rates are determined annually by the respective retirement boards, based on the funding requirements of each system as determined with the advice of their actuarial consultants.

The actuarial break-even point for both systems is the assumed investment yield of 8.5%. Yields better than that result in credits that can be used to lower employer contribution rates under the sum of normal cost plus the cost to amortize UAL, which sum may be called the base rate. At a yield of exactly 8.5%, investment return neither lowers nor raises the employer contribution rate from the base rate. Of course, lower investment yields raise the employer contribution above the base rate.

In order to prevent the employer contribution rates from fluctuating widely in response to varying rates of return, investment rates are smoothed over a five-year period in both systems. That is, each year's rate of return is averaged in with the four other most recent return rates to arrive at the rate of return used in the employer contribution rate calculation in a given year.

Recent Employer Contribution Rates

PSERS

For most school districts, the PSERS employer contribution is split evenly between the Commonwealth and the district. In some districts, such as distressed districts or those under the Commonwealth's control, the Commonwealth's share is larger and may reach up to 70%. The PSERS employer contribution includes the health premium assistance contribution rate in addition to the contribution toward pension benefits. The premium assistance component of employer contributions was instituted by Act 23 of 1991 (P.L.183), which instituted the premium assistance program with a premium subsidy capped at $55 per month. Act 9 raised the benefit cap to $100 per month, which largely accounts for the increase in the premium assistance component in fiscal year (FY) 2001-02 and succeeding years. The Commonwealth's share of the employer contribution is funded by appropriations from the General Fund.

The PSERS employer contribution rates for FY 1979-80 through FY 2003-04 are set forth in table 8. In recent years the employer contribution has been relatively small by historic standards, due to favorable investment returns. Employer contributions are conventionally expressed as a percentage of the payroll cost of the members of the system. As of June 30, 2002, the total payroll of PSERS members was $9.38 billion; thus each percentage point difference in employer contributions represents $93.8 million.[105]

[105] Buck Consultants, *PSERS Actuarial Evaluation, June 30, 2002*, 10.

Table 8
PSERS Employer Contribution Rates

Fiscal Year	Employer Contribution (% payroll)			Employer Contribution ($ in millions)
	Employer Pension Rate	Premium Assistance	Total	
1979-80	13.31	--	13.31	397
1980-81	15.00	--	15.00	479
1981-82	15.00	--	15.00	501
1982-83	16.00	--	16.00	541
1983-84	17.06	--	17.06	609
1984-85	19.31	--	19.31	763
1985-86	20.04	--	20.04	832
1986-87	19.90	--	19.90	888
1987-88	19.54	--	19.54	933
1988-89	19.27	--	19.27	990
1989-90	19.68	--	19.68	1,086
1990-91	19.18	--	19.18	1,142
1991-92	14.40	0.50	14.90	961
1992-93	13.74	0.50	14.24	966
1993-94	12.92	0.25	13.17	927
1994-95	10.61	0.45	11.06	825
1995-96	11.10	0.62	11.72	909
1996-97	10.00	0.60	10.60	845
1997-98	8.61	0.15	8.76	731
1998-99	5.89	0.15	6.04	527
1999-2000	4.36	0.25	4.61	413
2000-01	1.64	0.30	1.94	186
2001-02	0.00	1.09	1.09	109
2002-03	0.18	0.97	1.15	116
2003-04	2.98	0.79	3.77	398

SOURCE: Buck Consultants, *PSERS Actuarial Valuation, June 30, 2002*, 19 (FY 1994-95 through FY 2003-04); material supplied to JSGC by PSERS.

Table 9 breaks the employer contribution rate down into its three components (the employer normal cost rate, the UAL rate, and the premium assistance rate) for the fiscal years from 1994-95 through 2003-04.

Table 9
Historical Chart of Employer Contributions to PSERS

Fiscal Year	Employer Normal Cost Rate (%)	Unfunded Liability Rate (%)	Employer Pension Rate (%)	Health Care Premium Assistance (%)	Total Employer Contribution Rate (%)
1994-95	6.43	4.18	10.61	0.45	11.06
1995-96	6.43	4.67	11.10	0.62	11.72
1996-97	6.44	3.56	10.00	0.60	10.60
1997-98	6.44	2.17	8.61	0.15	8.76
1998-99	6.33	(0.44)	5.89	0.15	6.04
1999-2000	6.40	(2.04)	4.36	0.25	4.61
2000-01	6.29	(4.65)	1.64	0.30	1.94
2001-02	5.63	(6.05)	(0.42)	1.09	1.09
2002-03	7.20	(10.03)	1.00	0.97	1.15
2003-04	7.25	(4.27)	2.98	0.79	3.77

SOURCE: Buck Consultants, *PSERS Actuarial Valuation, June 30, 2002*, 19.

In FY 2001-02, the negative preliminary employer pension rate obviated the need for an employer retirement contribution, but did not result in a credit against the health care premium assistance contribution, because the employer contribution may not be less than zero (24 Pa.C.S. § 8328(a)). For FY 2002-03, the PSERB initially adopted an employer contribution rate of 5.46% composed of a 4.67% pension component and a 0.97% premium assistance component. However, section 18 of Act 38 reduced the total employer contribution rate to 1.15%.

SERS

Table 10 shows the SERS employer contribution rates for FYs 1979-80 through 2003-04. Note that the employer contribution rate declined from accustomed levels, such that no contribution at all was made for FYs 2001-02 or

2002-03. The total payroll of SERS members as of December 31, 2002, was $5.09 billion; each percentage point difference in employer contributions represents $50.9 million.[106]

Table 10
SERS Employer Contribution Rates

Fiscal Year	Employer Contribution (% payroll)	Employer Contribution ($ in millions)
1979-80	13.75	252
1980-81	14.67	306
1981-82	14.41	326
1982-83	17.85	384
1983-84	16.77	414
1984-85	18.09	440
1985-86	18.03	460
1986-87	13.09	407
1987-88	13.09	366
1988-89	13.09	382
1989-90	13.03	416
1990-91	12.32	419
1991-92	9.87	381
1992-93	8.92	319
1993-94	8.92	304
1994-95	8.92	343
1995-96	10.27	385
1996-97	7.69	374
1997-98	7.28	324
1998-99	6.70	311
1999-2000	5.00	271
2000-01	1.39	168
2001-02	0.00	0
2002-03	0.00	77
2003-04	1.04	53

SOURCE: Materials supplied to JSGC by SERS.

[106] HayGroup, *SERS 2002 Actuarial Report*, 1.

Table 11 breaks the SERS employer contribution rate down into its two components (the employer normal cost rate and the UAL rate) for the fiscal years from 1994-95 through 2003-04.

Table 11
Historical Chart of Employer Contributions to SERS

Fiscal Year	Employer Normal Cost Rate (%)	Unfunded Liability Rate (%)	Total Employer Contribution Rate (%)
1994-95[a]	10.23	(1.70)	8.53
1995-96	10.73	(0.46)	10.27
1996-97	8.49	(0.80)	7.69
1997-98	8.89	(1.61)	7.28
1998-99	8.99	(2.29)	6.70
1999-2000	8.96	(3.96)	5.00
2000-01	9.02	(7.63)	1.39
2001-02	8.72	(10.36)	0.00
2002-03	8.64	(12.03)	0.00
2003-04	8.43	(7.39)	1.04

a. For FY 1994-95, SERS adopted a contribution rate of 8.92%, instead of the actuary's suggested rate of 8.53%. Hay/Huggins Co., *SERS Actuarial Report* (June 8, 1994), 5.

SOURCE: Material supplied by SERS as compiled by Aon Consulting.

Primarily as a result of favorable investment experience since 1992, the actuarial value of assets has exceeded the actuarial accrued liability. Therefore, since 1992 the UAL amortization part of the employer contribution has been a credit, offsetting a portion of the employer normal cost contribution otherwise required, resulting in total employer contributions below the level of employer normal costs. Ultimately, the credit briefly exceeded the employer normal cost. Thus for FY 2001-02 the employer contribution rate for PSERS and SERS was for the first time ever, zero, and SERS did not require an employer contribution in FY 2002-03, either.

Projected Employer Contribution Rates

Employer contribution rates have been projected realizing recent unfavorable returns and assuming returns in future years will be 8.5% and that there will be no other deviations from actuarial assumptions. Table 12 shows projected employer contribution rates and amounts for PSERS and SERS, respectively.

A remarkable feature of table 12 is the dramatic increase in projected costs for both systems, in FY 2012-13 for PSERS and in 2012-13 for SERS. This increase results from the completion of the ten-year amortization schedule of the pre-2001 UAL. The UAL to be amortized over the ten-year period was actually a surplus, and therefore provides an offset to employer costs for the duration of the amortization schedule. The projected contribution reveals the cost pattern resulting from Act 40 of 2003, which changed the amortization period for the large investment losses that occurred in 2001 and 2002; the employer costs resulting from those losses are deferred but not avoided. If offsetting gains occur before 2013, either from investment performance or demographic changes, the increase shown will be reduced.

Table 12
Projected Employer Contribution Rates

Fiscal Year	PSERS Contribution Rate (%)	PSERS Contribution Amount ($ in millions)	SERS Contribution Rate (%)	SERS Contribution Amount ($ in millions)
2004-05	4.23	468	3.00	158
2005-06	4.82	550	5.62	305
2006-07	8.07	948	7.96	446
2007-08	10.11	1,221	8.47	490
2008-09	10.93	1,355	8.78	526
2009-10	11.15	1,417	8.93	552
2010-11	11.23	1,462	8.99	574
2011-12	11.20	1,495	24.21	1,598
2012-13	27.73	3,800	23.14	1,578
2013-14	26.61	3,750	21.82	1,536
2014-15	25.08	3,640	21.40	1,556
2015-16	24.53	3,673	20.99	1,576
2016-17	23.96	3,709	20.59	1,597
2017-18	23.39	3,750	20.20	1,620
2018-19	22.80	3,792	19.82	1,641
2019-20	22.23	3,842	19.46	1,664
2020-21	21.66	3,894	19.11	1,689
2021-22	21.10	3,949	18.76	1,713
2022-23	20.55	4,006	18.43	1,738
2023-24	20.02	4,066	18.12	1,764
2024-25	19.52	4,131	17.81	1,791
2025-26	19.03	4,197	17.51	1,819
2026-27	18.56	4,265	17.22	1,849
2027-28	18.13	4,339	16.94	1,878
2028-29	17.71	4,414	16.66	1,910
2029-30	17.29	4,487	16.40	1,942
2030-31	16.91	4,569	16.15	1,975
2031-32	16.54	4,653	14.14	1,786
2032-33	13.90	4,072	13.21	1,723
2033-34	12.71	3,879	12.73	1,716

SOURCE: Material supplied to JSGC by PSERS and SERS.

The financial status of the plans is projected forward in order to give employers a look at possible future plan costs. Such projections are a necessary function in any prudent and responsible pension plan. However, these projections need to be reviewed carefully. For example, the PSERS June 30, 2002, actuarial report contains a ten-year projection that shows rapidly escalating employer costs.[107] As table 13 shows, the same projection three years earlier was dramatically different. Both projections reflected with reasonable accuracy the situation at the time they were made. Large asset losses, as well as the benefit enhancements of Acts 9 and 38, served to dramatically change the situation. Current projections should accordingly be considered in the context of their sensitivity to experience and to changes in assumptions. An actuarial projection of the current plan by definition makes no provision for later changes in the plan.

Table 13
Comparative Projection of PSERS Employer Contribution Rates

	Projected Rates (with Premium Assistance Costs)	
Fiscal Year	1999 Valuation (%)	2002 Valuation (%)
2002-03	0.38	1.15
2003-04	0.37	3.77
2004-05	0.37	9.71
2005-06	0.36	14.73
2006-07	0.36	19.61
2007-08	0.36	21.97
2008-09	0.36	22.29
2009-10	0.36	22.37
2010-11	0.36	22.29

SOURCE: Aon Consulting, *Report on Plan Costs*.

[107] The June 30, 2002, projection shown in table 13 was made earlier than the one used in table 12.

The projection creates a contribution pattern based on the assumption that there will be no variation of experience from assumptions over the entire future period. Because it is virtually certain that such deviations will be experienced, a determination measuring the sensitivity of the rates to different economic conditions could provide useful perspective.

Causes of Projected Employer Rate Increases

The investment experience from calendar year 2000 onward has been the most important factor driving projected increases in employer contribution rates. The investment yields for the respective systems over the most recent FYs are as follows:

Table 14
Investment Returns on Market Value of Assets

Year Ending	PSERS Return (%)	SERS Returns (%)
1998	15.8	16.3
1999	12.2	19.9
2000	11.9	2.2
2001	(7.4)	(7.9)
2002	(5.3)	(10.9)

SOURCE: Buck Consultants, *PSERS Actuarial Valuation, June 30, 2002*, 9; HayGroup *SERS 2002 Actuarial Report*, 5.

This period is the most volatile equity investment period in at least 50 years. Since the rates of return that are now being smoothed in are substantially below 8.5%, employer contribution rates will face upward pressure until rates of return higher than 8.5% can again be achieved. The improved investment market climate in 2003 is likely to give some relief, but will only change the pattern fundamentally if favorable returns continue.

Aside from low investment returns, two other causes contribute to increases in UAL, augmenting the strong upward pressure on employment contribution rates. The benefit enhancement instituted by Act 9 and the COLAs mandated by Act 38 both added substantially to the systems' UAL. Other states reacted to the favorable investment climate of the late 1990s in ways that were broadly similar to Pennsylvania's response, including "funding holidays" and benefit enhancements.[108]

The rapid increase in projected costs shown in the 2002 Valuation is also in part a direct result of the contribution strategy. The stress from increased UAL was exacerbated by the mandate under Act 9 to compress the amortization of the UAL existing on the effective date of that act and all UAL accumulated from that time forward. The amortization rule was changed from 20-year level percentage to 10-year level dollar, which had an effect similar to the refinancing of a mortgage to change the term from 20 to 10 years: interest costs were lower, but the payment amount increased. Shortening the amortization period was an attractive option at a time when investment revenues exceeded expectations. Ten-year amortization of surpluses and deficits can create large swings in costs, however, because plan assets and liabilities are large compared to the payroll or contribution base. For example, the PSERS liability is over five times the covered payroll. As a result, a modest gain or loss in assets or liabilities is large compared to the payroll. The ten-year amortization period was relatively short given the magnitude of the losses or gains.

It may be appropriate to consider other approaches to determining employer contribution rates. The projected employer contribution rates are larger than they would have been had these rates not been permitted to drop so low in the years of more favorable returns. If employer contribution rates had been subject to even a 4% floor, the systems would have greater reserves that could dampen the upward rate swing in years of poor return. Act 38 moved in that direction by mandating a 1% floor on employer contributions; however, this level is likely insufficient.

Act 40 of 2003 represents a response to the threat of rising employer contribution rates. The adoption of 30-year amortization for certain unfunded costs, while retaining ten-year amortization for future benefit increases and COLAs, will relieve employer contribution pressure while maintaining fiscal discipline. Raising the minimum employer contribution rate to 4% promises to insulate the systems somewhat from employer rate volatility. One possible approach to further stabilizing employer rates is to raise the mandated contribution to the normal cost level, i.e., about 7.25% for PSERS and 8.64% for SERS. This alternative will be further elaborated in chapter 9.

[108] Joseph D. Mason, "Reversal of Fortune," 1, 2.

CHAPTER 6
PROTECTION OF PURCHASING POWER

The Need for Inflation Protection

Protection afforded to retirees against inflation has been a prevalent feature of public employee retirement systems. Since an important purpose of a retirement system is to assure that retirees have an adequate income to live on, provisions to maintain that income in the face of the ravages of inflation have been seen as highly desirable, if not essential. "One commonly accepted goal of a public employee retirement system is to provide a benefit at retirement that is adequate. The provision of cost-of-living postretirement adjustments to ensure the adequacy of the benefit throughout retirement represents a logical extension of this goal."[109]

Even moderate levels of inflation can rapidly erode the value of a pension and leave a retiree on a fixed income in a perilous financial position. At a historically moderate rate of 2% inflation, a retiree will lose 26% of the value of his or her pension benefit in 15 years.[110] At 3%, the inflation rate assumed by SERS, the cut in the pension's value after 15 years is 36%. Given this, if no protection is afforded retirees, a severe decline in the standard of living of the retiree can result.

Inflation protection for retirees is far more common in the public than the private sector, as has been the case for many years.[111] Only 7% of private employees in defined benefit plans receive an automatic COLA.[112] Probably the main reason inflation protection is rare in the private sector it that it is expensive,

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[109] PERC, *Funding Cost-of Living Adjustments* (Harrisburg: PERC, November 2000), 13.

[110] Winklevoss and McGill, *Public Pension Plans*, 140. Fifteen years was the average period life expectancy of a man retiring at age 65 in 1979 when this source was written; it was 16.3 years as of 2000. For a woman, life expectancy at age 65 is 19.2 years as of 2000. U.S. Census Bureau, *Statistical Abstract of the United States, 2002* (Lanham, Md.: Berman, 2002), 72.

[111] Thomas P. Bleakney and Jane D. Pacelli, *Benefit Design in Public Employee Retirement Systems* (Chicago: Government Finance Officers Association, 1994?), 31.

[112] U.S. Department of Labor, Bureau of Labor Statistics, *National Compensation Survey: Employee Benefits in Private Industry in the United States, 2000* (Bulletin 2555) (Washington, D.C.: GPO, January 2003), 58.

and if a COLA is adopted in the public sector, great care must be exercised so that the cost is reasonable in terms of the tax burden the public can be expected to bear. Furthermore, the systems should not be expected to assume the entire burden of inflation protection for the retiree. Some inflation protection is provided by Social Security, whose benefits are fully indexed to the CPI. Like other citizens, public employees can be expected to maintain savings plans over and above the retirement systems, through the Commonwealth's deferred compensation plan and otherwise, which can help cushion the impact of inflation.

The need for inflation protection must also be evaluated in the context of the retirement system as a whole. The more generous the retirement system, the less urgent the need for inflation protection may be.

> The retirement benefit coverage, in the amount of the final average salary which it replaces or the margin above subsistence which it provides, may already have adjusted for the absence of a post retirement adjustment mechanism for post retirement adequacy purposes by providing a retirement benefit which at retirement is more than adequate. The margin of overadequacy following retirement, under this perspective, offsets the eventual margin of adequacy caused by inflation. If the margin of overadequacy is used to advantage and invested, no adverse effect from inflation may in fact be felt. In Pennsylvania, with the retirement benefit levels provided by [SERS and PSERS] estimated by some sources as being among the top ten percent of all public retirement systems in the nation, this offsetting period of overadequacy may occur in some instances. With the addition of optional annuity form #4, allowing recovery of member contributions to SERS and PSERS with less than an actuarial equivalent adjustment, this phenomenon more arguably may be occurring.[113]

Chapter 4 argues that the systems as presently constituted, including a benefit multiplier of 2.5% per year, enable most future retirees to meet targeted income replacement ratios without a COLA. Benefits are arguably generous enough to enable a retiree to finance a "self-funded indexed benefit." Whether COLAs should continue to be granted if they are considered affordable is clearly a policy issue that is for the General Assembly to address. Much of the remainder of this chapter and chapter 9 will comment on the structure of future COLAs to best assure their compatibility with sound public pension financing.

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[113] PERC (Lawrence A. Martin, Executive Director), "Memorandum re Post Retirement Adjustments: Policy Considerations" (Harrisburg: PERC, August 3, 1983), 14.

Alternative Approaches to COLAs

Postretirement adjustments may be granted for reasons other than cost-of-living protection, namely remedial (to correct disparities between different classes of recipients) and welfare (to ease financial hardship of certain retirees).[114] This chapter does not deal with remedial adjustments, because they are of such limited applicability that they have little effect on the financial soundness of the systems. The emphasis is on COLAs, because almost all postretirement adjustments for PSERS and SERS have been of this nature.[115] As *Funding COLAs* emphasizes, it is important for policymakers to be clear as to the purpose of any postretirement adjustment, partly because the adjustment's design should be selected to meet the purpose.[116]

Implementation Method. Perhaps the most basic dilemma concerning postretirement adjustments is whether to implement them on an ad hoc or automatic basis. The choice involves a trade-off between flexibility for the employer and security for the employees and retirees.

> Whether to enact automatic post-retirement mechanisms or to make ad hoc adjustments is a much debated issue. Ad hoc adjustments are flexible in the sense that they can be designed—in terms of fixed dollars or percentages or minimums—in any way the legislature decides. A price can be attached. Since it does not involve the long-term and perhaps uncertain commitment of an automatic adjustment, it allows the legislature to change its mind on the next round, and also gives it several opportunities to grant benefit increases instead of concentrating all its good works into the one enactment of an automatic mechanism. The objection, of course, is that ad hoc adjustments do not reassure the pensioner as to future changes.[117]

[114] PERC, *Funding COLAs*, 9-12.

[115] The only recent exception is Act 167 of 1996, which is classified as a remedial adjustment. The total amortization payments for this act was forecast to be between $2.8 million and $13.9 million, in either case a relatively small amount compared to the overall costs of the systems. PERC, *1996 Annual Report*, (Harrisburg: PERC, March 1997), 48. None of the last three adjustments have had a welfare component.

[116] Ibid., 3.

[117] Tilove, *Public Employee Pension Funds*, 249-50.

An ad hoc COLA is "provided one time to a fixed group of retirees that meet the eligibility requirements on the effective date of the adjustment."[118] (Following recent practice, Act 38 designated stated groups of retirees as eligible on the basis of retirement date and granted specified percentage factor increases.[119] The percentage factors were determined so as to offset one-half the CPI increase since the retirement date of each cohort of retirees, and to establish a purchasing power floor of 50% of the initial retirement benefit for all retirees; this was the same formula as was used for the immediately preceding COLA granted by Act 88 of 1998.) The formula that controls the adjustment is not stated in the legislation, but is only implicit in the specific amounts of increases explicitly granted. Because there is no formal commitment to enact a COLA at any other time, the ad hoc method can respond to an adverse fiscal climate or any other condition perceived as making a COLA unwise by simply not enacting any COLA legislation at that time. However, it may be more difficult for system actuaries to plan based on such an arrangement, because the timing and terms of future COLAs are unknown. As will be detailed below, the practice of the Pennsylvania General Assembly has been to grant an ad hoc COLA about every four to five years; but the terms of the COLAs have varied. Of the 79 statewide defined benefit plans in the United States, 18 use ad hoc adjustments.

As the name indicates, an automatic COLA is implemented through enacting a formula that governs an annual adjustment that continues indefinitely. In contrast to the ad hoc COLA, the statute effectuating the automatic COLA includes an explicit annual benefit increase formula, such as "one-half CPI, subject to a cap of 3%." The system implements this increase each year, unless the legislature of that state enacts a contrary amendment. The advantages and disadvantages reverse those of the ad hoc COLA. The automatic COLA is less flexible for the public employer, but its costs are ascertainable, and it provides better security for current employees and retirees. The expected cost of an automatic COLA is spread over the working lifetime of the intended recipient, allowing for funds to be put aside. Implementing and funding an automatic COLA is much more difficult for a mature plan than for a new plan, because the mature plan incurs substantial UAL to represent the cost of the COLA for existing members, while a new plan can fund that cost from the outset by including the COLA's cost in its normal cost. Because of the constitutional principles that may limit amendment or repeal of automatic COLAs (principally the Contracts Clause), automatic COLAs may lock in present decisions, thereby potentially

[118] PERC, *Funding COLAs*, 1.
[119] 24 Pa.C.S. §§ 8348.6 and 8348.7; 71 Pa.C.S. §§ 5708.6 and 5708.7.

hampering the ability of future legislation to respond to changes in societal priorities and fiscal resources. Automatic COLAs may also have the effect of lowering the benefit limitation under IRC § 415(b).[120]

COLA Formulas. Whether explicitly in an automatic COLA or implicitly in an ad hoc COLA, the issue of how to determine the amount of the COLA must be addressed.

> The methodology used to determine the amount of a COLA payable to any individual at any time may be simple or complex, and it can involve any number of factors. The following list indicates some of the major mechanisms used:
>
> - Flat dollar—each monthly retirement allowance is increased either by the same dollar amount or by the same dollar amount for each year of service.
>
> - Percentage increase—the same percentage of either the current benefit or the initial benefit at retirement is added to each retirement allowance.
>
> - Index-related—the increase is related to the change in the CPI, or some salary index, or the actual salary of a specified employee group.
>
> - Purchasing power target—the COLA is such as to bring the retirement allowance up to a certain index-adjusted goal (such as 70% of the benefit at retirement) after adjusting for the increases in the CPI (or some other index) since retirement.
>
> - Yield-adjusted—the COLA is such as can be provided by an allocated portion of the investment gains of the system.
>
> - Combinations of the above.[121]

A flat dollar increase is generally considered inappropriate for COLAs, although it may merit serious consideration for a welfare adjustment. Since a flat dollar adjustment is not proportional to inflation, it may not reflect the need for adjustment. "Inflation, by whatever means it is measured, represents a

[120] SERS staff has also noted possible limitations of COLAs, including ad hoc COLAs, under proposed IRS regulations under IRC § 401(a)(9), relating to minimum distribution requirements.

[121] Bleakney and Pacelli, *Benefit Design in Public Employee Retirement Systems*, 33.

proportional erosion in the purchasing power of the affected benefits. As such, a proportional adjustment is best designed to replace all or a portion of that lost purchasing power."[122] A flat dollar adjustment is easy to understand, however, and gives a greater proportion of its benefits to lower paid retirees than any other adjustment method. But if it is considered desirable to favor the lower paid retirees, a change in the benefit formula to accomplish that purpose should be made as well.[123]

A more common nonproportional method is the percentage increase, such as an automatic increase of 3% per year. An increase applied to the amount of the initial benefit is called a *simple* increase, while if applied to the current pension, it is *compound*. The latter is considered more logical, because the loss of purchasing power due to inflation is compounding.[124] Like the flat dollar method, percentage increase method is not directly proportional to inflation. Percentage increase "avoids the complexity of the index adjustment, is easily understood by the plan participants, provides a predictable pattern of benefit increases, and limits the obligation of the employer to predetermined adjustments."[125] Fifteen statewide retirement systems use a percentage increase adjustment, ranging from 1.5% to 3.5%; ten of these increase at the 3% rate.

The most prevalent proportional method, and the one most favored by expert observers, is an index-based method. This method is considered desirable because it "assures a relationship between the adjustment and the need."[126] The measure of inflation currently used in all systems that use indexing is some variant of the CPI. A pure CPI-based adjustment would simply adjust the benefit by the CPI for that year. All public retirement systems that use a CPI make some modification to it, most likely because an unmodified CPI COLA "could be prohibitively expensive."[127] The modifications that can be used include the following, separately or in combination:

- Percentage cap—the adjustment is the lesser of the CPI or the cap, often 3%.

- Dollar cap—the adjustment is the lesser of the full CPI adjustment or a specified dollar amount.

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[122] PERC, "Memorandum re Post Retirement Adjustments," 12.
[123] Bleakney and Pacelli, *Benefit Design in Public Employee Retirement System*, 33
[124] Ibid.
[125] Winklevoss and McGill, *Public Pension Plans*, 145.
[126] PERC, *Funding COLAs*, 14.
[127] Winklevoss and McGill, *Public Pension Plans*, 143. The modified index-based method of adjustment is sometimes referred to as a "Diet COLA."

- Proportional—the adjustment is for some fraction of the full CPI adjustment, usually one-half. (This was the approach used in Act 38.)

- Deductible—the adjustment is for the CPI increase above a given percentage, often 2%. Under this approach, using the 2% offset, the adjustment for a year when the CPI increased 5% would be a 3% benefit increase.

- Partial—the adjustment would apply only to a stated amount of the benefit. For instance, the CPI adjustment may be limited to the first $12,000 of the annual benefit.

- Conditional—The COLA is given only if it is deemed to be affordable, in accordance with some stated rule or as determined by the system's board.

- Variable—The COLA formula may vary so as to give those who have been on retirement a longer period a more generous adjustment than more recent retirees.

- Limited eligibility—Some retirees, such as those below age 60, may be excluded from the COLA.

- Simple or compound—This is the same concept as discussed above in connection with percentage increase.

Pennsylvania has used the proportional approach in its last three COLAs to arrive at the ad hoc percentage adjustments. Of the systems using automatic COLAs, 38 base their adjustments on the CPI, but all use some modification. The most commonly used modification is the percentage cap, which is used in 35 of these systems, either alone or in combination with other limitations.

The purchasing power target method seeks to bring the retirees up to a specified level of the purchasing power of the original benefit.

> Under this approach to a COLA, the current benefit of retired persons is compared with the benefit that would be payable if the benefit had been adjusted each year according to the increase in the cost of living . . . The ratio of the current benefit to the indexed benefit is a measure of the purchasing power of the current benefit. The COLA is geared to restore purchasing power to a certain level, such as 75%, for all persons receiving benefits.[128]

[128] Bleakney and Pacelli, *Benefit Design in Public Employee Retirement Systems*, 34.

This method may be most useful in order to provide a purchasing power floor for long-term retirees, as both of the statewide public employee retirement systems in California do. The most recent Pennsylvania COLAs have been calculated to provide all retirees with at least 50% of the purchasing power of their initial benefit. A variant of this approach restores an equal proportion of the purchasing power lost since retirement, so that if a recent cohort of retirees has lost 10% of the benefit's original purchasing power, while an earlier cohort has lost 50%, the adjustment will grant the former cohort a 5% increase and the latter 25%, thereby restoring to each cohort half the purchasing power lost since retirement. This is also a method that directs a larger proportion of the adjustment to older retirees than other methods.[129]

Yield-Based COLAs. Yield adjusted COLAs tie the grant or the amount of the COLA to the investment performance of the system or other actuarial gains. This may be implemented as a conditional benefit, where an otherwise applicable COLA may be withheld or reduced because the funding is not considered prudently available for it.

A yield adjusted implementation method common in public pension plans is the "thirteenth check." Here investment yield in excess of a conservative yield level is accumulated and distributed to the retirees at the end of the year. Winklevoss and McGill summarize its advantages and disadvantages as follows:

> The strength of this method is its flexibility. No advance commitments are made and supplements are granted on the basis of realized experience. It has a number of disadvantages. It is not easily understood by participants; it offers no assurance as to the declaration or size of future supplements; and a portion of the funds for the supplements comes from investment earnings on the contributions of active employees, which, it could be argued, should be credited to their individual accounts. Active employees might also argue with some validity that the excess earnings should be applied to the liquidation of unfunded actuarial liabilities (for past service benefit credits or retroactive benefit liberalizations).[130]

Yield-based COLAs based on an artificially low yield require that the fund attain yields higher than the assumed rate to maintain the same level of actuarial soundness. Lowering the assumed rate in order to support a yield-based COLA would require higher employer contributions. A further disadvantage is that a yield-based COLA puts a conflicting pressure on the system's asset management goals, which would otherwise focus on maximizing long-term yield. A system

[129] Ibid., 34, 35.
[130] Winkelvoss and McGill, *Public Pension Plans*, 146-47.

with a yield-based COLA may alter the portfolio toward investments that ensure consistent short-term gains so as to always produce a yield for the COLA, a change that is likely to lower long-term yield.

Because yield-based funding may be preferable to the current practice, which provides no advance-funding scheme, three yield-based alternatives to funding COLAs or other benefit enhancements are included among the recommendations in Chapter 9. The first relies on the use of conservative actuarial assumptions; the second finances the benefit enhancement from a reserve fund created by accumulating amounts in excess of a given funded ratio; the third adds an amount to the benefits when investment yields exceed a predetermined level.

Funding. Included in the consideration for the COLA should be the selection of an appropriate funding plan.[131] In the case of an automatic COLA, once the COLA is instituted, the future costs of the COLA can be added into the normal cost of the system, although the costs for prior members become part of the UAL and must be amortized.

Where a system uses ad hoc adjustments, as Pennsylvania's do, the costs of the COLA may be added into the UAL and amortized over a given period by lump sum appropriations from the General Fund.[132]

Intergenerational equity calls for amortizing a COLA UAL over a period no greater than the average life span of the retirees receiving the COLA. The shorter the amortization period, the lower the total cost and the less overlap between amortizations (requiring payments for more than one COLA simultaneously), but the higher the amount needed to pay for the designated COLA in any particular year. The practice in the COLAs enacted from 1968 through 1998 was to amortize over 20 years, either on a level dollar or a level percentage of payroll basis. Because of the mentioned advantages of a shorter amortization period, Act 38 moved to a level dollar amortization over 10 years. Stretching the amortization period may alleviate the immediate pressure on

[131] Full actuarial funding is considered the most appropriate funding method, and this discussion will therefore be limited to variations on this approach. PERC, *Funding COLAs*, 7. This report will not deal with "pay as you go funding," which is considered unprofessional and has given rise to "numerous funding problems." Ibid. Excess actuarial funding is similar in concept to yield-based COLAs in using reserves generated above a conservative investment return assumption. Such a system either raises employer contributions if the conservative rate assumption becomes the system's assumption, or requires higher than otherwise assumed yields if COLAs are paid from the excess over the conservative assumption. If the COLA assumption is not used as the system's assumption, the intelligibility of the system's reporting is impaired because the reporting must make reference to two different investment yield assumptions.

[132] In the case of PSERS, about one-half of the cost is assumed by the school districts.

employer contributions, if that is considered to outweigh the disadvantages in terms of higher overall cost and, if future COLAs are anticipated, the piling up of simultaneous amortizations.

Extended amortization periods may conflict with the consensus on proper accounting practices as set forth by the Governmental Accounting Standards Board (GASB). In 2006, GASB will begin implementation of a standard that shortens the recommended amortization period for UAL for accounting and disclosure purposes from 40 to 30 years. The new standard further requires that "when the components of the [UAL] are separately amortized over different periods, . . . the resulting equivalent single amortization period for all components combined [may] not exceed the maximum acceptable amortization period." Under this standard, Act 40, which extended certain UAL amortization periods for PSERS and SERS from the present 10 years to 30 years "would produce employer contribution rates that are less than the GASB minimum in certain years."[133] A mismatch between funding policy and the GASB accounting standard methodology would result in the development of an accrued cost known as a "net pension obligation" (NPO). The effect of an NPO would depend on the size of the obligation compared to the overall assets and liabilities of the Commonwealth. In the opinion of Aon Consulting, if the pension funding ratios stay at a relatively high level, it is not likely that any adverse effects will be felt.

An alternative funding method for COLAs is prefunding. Under this method the COLA is paid for by setting aside contributions earmarked for that purpose. Prefunding may be full or partial and may involve contributions from employers, employees, or both. Employee representatives believe that employee prefunding is compatible only with an automatic COLA, as they consider it most unfair to collect contributions for a COLA that may not be forthcoming. *Funding COLAs* recommends that prefunding of future COLAs be instituted by an increase in the employer contribution at a level that would fund 25% of the COLA. The amount of this contribution would be set initially at 0.3% of employee payroll, which percentage would be annually adjusted in the light of actuarial experience.[134]

Applicability. When enacting a COLA, consideration must be given to defining the class of persons who will benefit. Of course, the broader the beneficiary class, the more expensive the COLA. At the same time, considerations of fairness demand equal treatment of similarly situated groups, and distinctions that have no "rational relationship" to a permissible state interest could be vulnerable to legal challenge.

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[133] PERC, "Actuarial Note re Change in Amortization Period" (Harrisburg: PERC, July 16, 2003), 3, 4. The note analyzes Document No. 5599, which coincides with Act 40 as to amortization periods.

[134] PERC, *Funding COLAs*, 30-32.

PERC has identified the following classes of potential benefit recipients:

Retirement benefit recipients: Normal retirement benefit recipients with long service; normal retirement benefit recipients with short service; early retirement benefit recipients; and persons with vested rights to a deferred retirement benefit.

Disability benefit recipients: Service connected disability benefit recipients and nonservice connected disability recipients.

Survivor benefit recipients: Surviving spouse benefit recipients; surviving child benefit recipients; and other designated survivor benefit recipients.[135]

Another possible ground of distinction is between beneficiary classes with higher or lower benefit multipliers. For instance, members of SERS class A (benefit multiplier of 2.0%) may be granted a more generous COLA than members of class AA (benefit multiplier of 2.5%). This approach may follow from the suggestion above that the existing benefit be considered in the structuring of COLAs.

A COLA structure that ties eligibility into the funding of the program, is an optional benefit tier, under which an employee may elect to receive a reduced benefit in return for a guarantee of inflation protection. The advantages and disadvantages of this are listed in Chapter 9 as the "optional form of automatic COLA."

The General Assembly's power to give a COLA to survivor benefit recipients is constrained by Article III, § 26 of the Pennsylvania Constitution, which prohibits legislation authorizing "extra compensation" to public officers and employees, except for "legislation authorizing the increase of the retirement allowances or pensions of *members of a retirement or pension system* now in effect or hereafter legally constituted by the Commonwealth . . . after the termination of the services of said member." This language has been interpreted to exclude survivor beneficiaries from COLAs.[136] While there is no Pennsylvania case authority directly relevant to the issue, this position is confirmed by the failure of public ratification of a proposed constitutional amendment that would have explicitly permitted increases in retirement benefits to surviving spouses.[137]

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[135] Ibid., 3.

[136] Ibid., 4.

[137] 1981 Joint Resolution No. 2, § 1(1) approved by the General Assembly on second passage. The vote on popular ratification on November 3, 1981, was 618,857 in favor, 928,699 opposed.

In any event, each COLA amendment to the retirement codes has included a provision barring a beneficiary or survivor annuitant from eligibility for any COLA enacted after the death of the retiree.

Pennsylvania History

There have been nine amendments to each of the retirement codes providing for COLAs to retirees. The terms of these COLA provisions and their respective costs are summarized in table 15 (PSERS) and table 16 (SERS).

Table 15
History of Cost-of-Living Adjustments for PSERS

Statute[1]	Benefit Formula		Cost[3] ($ in millions)	Amortization as Percentage of Payroll[4] (%)	Funding Technique and Period
	Date of Retirement[2]	Increase (%)			
Act of June 28, 1967 (P.L.129, No.34), eff. July 1, 1967	1933	150	64.6	0.37	Level dollar payments over 20 years
	Adjusted downward each year from 1934 to 1964.				
	1964	6			
Act of June 23, 1970 (P.L.429, No.143), eff. Jan. 1, 1969	1965	4	Not available	Not available	Level dollar payments over 20 years
	1966	1			

Table 15--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of October 2, 1975 (P.L.298, No.96), adding 24 Pa.C.S. Part IV (§ 8101 et seq.) (Public School Employees' Retirement Code), § 8348, eff. July 1, 1974	7/1/71–6/30/73	5	326.6	0.85	Level dollar payments over 20 years
	7/1/70–6/30/71	10			
	7/1/69–6/30/70	15			
	7/1/68–6/30/69	20			
	7/1/67–6/30/68	25			
	Prior to 7/1/67	30			
Act of December 18, 1979 (P.L.566, No.130), amending 24 Pa.C.S. § 8348, eff. July 1, 1979	Increase applies to first $1,000 of monthly benefit only		633.3	1.69	Level dollar payments over 20 years
	7/1/77–6/30/78	5			
	7/1/76–6/30/77	10			
	7/1/75–6/30/76	13			
	7/1/74–6/30/75	20			
	3/1/74–6/30/74	27			
	Prior to 3/1/74	31			
Act of June 29, 1984 (P.L.450, No.95), adding 24 Pa.C.S. § 8348.1, eff. July 1, 1984	$1 × years of service + $2 × years retired + 2% of first $1,000 of monthly benefit		336.9	0.71	Level dollar payments over 20 years[5]

Table 15--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of October 21, 1988 (P.L.844, No.112), adding 24 Pa.C.S. § 8348.2, eff. Jan. 1, 1989	$2 × years of service + $0.50 × years retired		412.9	0.65	Level dollar payment over 20 years[6]
Act of April 29, 1994 (P.L.159, No.29), adding 24 Pa.C.S. § 8348.3, eff. July 1, 1994	Increase applies to first $3,000 of monthly benefit only		499.0	0.53	Before 1/1/02—level percentage payments after 20 years; from 1/1/02—level dollar payments over 10 years
	7/1/91–6/30/92	1.5			
	7/1/90–6/30/91	2.8			
	7/1/89–6/30/90	5.3			
	7/2/84–6/30/89	7.9			
	7/1/69–7/1/84[7]	7.9% + 0.25% × yrs on retirement			
	Prior to 7/1/69[8]	7.9% + 0.25% × yrs on retirement from 7/1/69–7/1/89 + 0.50% × years on retirement before 6/30/69			

Table 15--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of June 18, 1998 (P.L.685, No.88), adding 24 Pa.C.S. § 8348.5, eff. July 1, 1998	7/1/96–6/30/97	1.86	956.8	0.83	Before 1/1/02—level percentage payments over 20 years; from 1/1/02—level dollar payments over 10 years
	7/1/95–6/30/96	3.59			
	7/1/94–6/30/95	4.95			
	7/1/93–6/30/94	6.42			
	7/1/92–6/30/93	7.97			
	7/1/79–6/30/92	10.00			
	7/1/69–6/30/79	20.00			
	Prior to 6/30/69	25.00			
Act of April 23, 2002 (P.L.272, No.38), adding 24 Pa.C.S. § 8348.6, eff. July 1, 2002	7/2/88–7/1/90	8.0	1,102.5	1.92	Level dollar payments over 10 years
	7/2/83–7/1/88	10.0			
	7/2/80–7/1/83	15.0			
	Prior to 7/1/80	25.0			

Table 15--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of April 23, 2002 (P.L.272, No.38, adding 24 Pa.C.S. § 8348.7, eff. July 1, 2003	7/2/01–7/1/02	2.27	Included with 2002 COLA	Included with 2002 COLA	Level dollar payments over 10 years
	7/2/00–7/1/01	3.08			
	7/2/99–7/1/00	4.87			
	7/2/98–7/1/99	6.35			
	7/2/94–7/1/98	7.50			
	7/2/90–7/1/94	9.00			

1. Effective date is the initial date the adjustment went into effect, not the effective date of the statute.

2. Where applicable.

3. Increase in unfunded actuarial accrued liability.

4. First year amortization.

5. Unamortized balance reamortized to become level dollar payments for 20 years effective July 1, 1991. See act of August 5, 1991 (P.L.183, No.23).

6. Unamortized balance reamortized to become level dollar payments for 20 years effective July 1, 1991. See act of August 5, 1991 (P.L.183, No.23).

7. To qualify for the amounts over the 7.9% increase, annuitant must have at least 20 eligibility points.

8. To qualify for the amounts over the 7.9% increase, annuitant must have at least 20 eligibility points.

SOURCE: Pennsylvania General Assembly, Special Joint Committee of the General Assembly to Review Retirement Cost-of-Living Supplements and Funding Sources, *1981-82 Report* (Harrisburg: Pennsylvania General Assembly, September 1982), 15, 16; PERC, *Funding COLAs*, 16; PERC, *2002 Annual Report* (Harrisburg, February 2003), 17.

Table 16
History of Cost-of-Living Adjustments for SERS

Statute[1]	Benefit Formula		Cost[3] ($ in millions)	Amortization as Percentage of Payroll[4] (%)	Funding Technique and Period
	Date of Retirement[2]	Increase (%)			
Act of July 31, 1968 (P.L.695, No.230), eff. July 1, 1968	1933	150	15.1	0.13	Level dollar payments over 20 years
	Adjusted downward each year from 1934 to 1966				
	1966	1			
Act of March 1, 1974 (P.L.125, No.31), adding 71 Pa.C.S. Part XXV (§ 5101 et seq.) (State Employees' Retirement Code), § 5708, eff. July 1, 1974	7/1/71–6/30/72	5	110.0	0.52	Level dollar payments over 20 years
	7/1/70–6/30/71	10			
	7/1/69–6/30/70	15			
	7/1/68–6/30/69	20			
	7/1/67–6/30/68	25			
	Prior to 7/1/67	30			
Act of October 7, 1975 (P.L.348, No.101), amending 71 Pa.C.S. § 5708, eff. January 1, 1975	7/1/72–2/28/74	5	--	--	Included in cost of 1974 COLA

Table 16--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of December 18, 1979 (P.L.566, No.130), amending 71 Pa.C.S. § 5708, eff. July 1, 1979	Increase applies to first $1,000 of monthly benefit only		255.7	0.95	Level dollar payments over 20 years
	7/1/77–6/30/78	5			
	7/1/76–6/30/77	10			
	7/1/75–6/30/76	13			
	7/1/74–6/30/75	20			
	3/1/74–6/30/74	27			
	Prior to 3/1/74	31			
Act of June 29, 1984 (P.L.450, No.95), adding 71 Pa.C.S. § 5708.1, eff. July 1, 1984	$1 × years of service + $2 × years retired + 2% of first $1,000 of monthly benefit		183.5	0.60	Level dollar payments over 20 years[5]
Act of October 21, 1988 (P.L.844, No.112), adding 71 Pa.C.S. § 5708.2, eff. January 1, 1989	$2 × years of service + $0.50 × years retired		243.4	0.66	Level dollar payment over 20 years[6]

Table 16--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of April 29, 1994 (P.L.159, No.29), adding 71 Pa.C.S. § 5708.3, eff. July 1, 1994	Increase applies to first $3,000 of monthly benefit only		224.9	0.53	Before 1/1/02—level percentage payments after 20 years; from 1/1/02—level dollar payments over 10 years
	7/1/91–6/30/92	1.5			
	7/1/90–6/30/91	2.8			
	7/1/89–6/30/90	5.3			
	7/2/84–6/30/89	7.9			
	7/1/69–7/1/84[7]	7.9% + 0.25% × yrs on retirement			
	Prior to 7/1/69[8]	7.9% + 0.25% × yrs on retirement from 7/1/69–7/1/89 + 0.50% × years on retirement before 6/30/69			

Table 16--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of June 18, 1998 (P.L.685, No.88), adding 71 Pa.C.S. § 5708.5, eff. July 1, 1998	7/1/96–6/30/97	1.86	478.0	0.82	Before 1/1/02—level percentage payments over 20 years; from 1/1/02—level dollar payments over 10 years
	7/1/95–6/30/96	3.59			
	7/1/94–6/30/95	4.95			
	7/1/93–6/30/94	6.42			
	7/1/92–6/30/93	7.97			
	7/1/79–6/30/92	10.00			
	7/1/69–6/30/79	20.00			
	Prior to 6/30/69	25.00			
Act of April 23, 2002 (P.L.272, No.38), adding 71 Pa.C.S. § 5708.6, eff. July 1, 2002	7/2/88–7/1/90	8.0	652.3	1.91	Equal dollar payments over 10 years
	7/2/83–7/1/88	10.0			
	7/2/80–7/1/83	15.0			
	Prior to 7/1/80	25.0			

Table 16--(continued)

Statute	Benefit Formula		Cost ($ in millions)	Amortization as Percentage of Payroll (%)	Funding Technique and Period
	Date of Retirement	Increase (%)			
Act of April 23, 2002 (P.L.272, No.38, adding 71 Pa.C.S. § 5708.7, eff. July 1, 2003	7/2/01–7/1/02	2.27	Included with 2002 COLA	Included with 2002 COLA	Equal dollar payments over 10 years
	7/2/00–7/1/01	3.08			
	7/2/99–7/1/00	4.87			
	7/2/98–7/1/99	6.35			
	7/2/94–7/1/98	7.50			
	7/2/90–7/1/94	9.00			

1. Effective date is the initial date the adjustment went into effect, not the effective date of the statute.

2. Where applicable.

3. Increase in unfunded actuarial accrued liability.

4. First year amortization.

5. Unamortized balance reamortized to become level dollar payments for 20 years effective July 1, 1991. See act of August 5, 1991 (P.L.183, No.23).

6. Unamortized balance reamortized to become level dollar payments for 20 years effective July 1, 1991. See act of August 5, 1991 (P.L.183, No.23).

7. To qualify for the amounts over the 7.9% increase, annuitant must have at least 20 eligibility points.

8. To qualify for the amounts over the 7.9% increase, annuitant must have at least 20 eligibility points.

SOURCE: Pennsylvania General Assembly, Special Joint Committee of the General Assembly to Review Retirement Cost-of-Living Supplements and Funding Sources, *1981-82 Report*, 15, 16; PERC, *Funding COLAs*, 16; PERC, *2002 Annual Report*, 17.

Proposed Amendments. The provisions of proposed amendments to the retirement codes introduced in the 2001-02 and 2003 sessions of the General Assembly are charted in table 17.

Table 17
Legislation Relating to Cost-of-Living Adjustments

Bill	Coverage	COLA Type	Formula	Funding	Eligibility Conditions and Exclusions
2002 Act 38 (2001 HB 27) 24 Pa.C.S. § 8348.6; 71 Pa.C.S. § 5708.6	PSERS SERS	Ad hoc	Percentage varies by retirement date	Equal dollar annual installments over ten years	A, B1, C1, D1, E1, I
2002 Act 38 (2001 HB 27) 2002 Act 234 (2001 SB 315) 24 Pa.C.S. § 8348.7; 71 Pa.C.S. § 5708.7	PSERS SERS	Ad hoc	Percentage varies by retirement date	Equal dollar annual installments over ten years	A, B1, C1, D2, E1, F, I
2001 SB 383	PSERS SERS	--	--	After 1998, level dollar annual installments over ten years	
2001 SB 387 2003 SB 694	PSERS SERS	--	--	--	Removes B
2001 SB 388 2001 HB 1525 2001 HB 1533	PSERS SERS	Ad hoc	Varies by retirement date	Annual installments increasing by 5% per year over 20 years	A, B1, C1, D2, E1, I
2001 SB 973 2001 HB 1443 (P.N.1706) 2003 SB 334	PSERS SERS	Automatic	3% unless adjusted by relevant board based on fiscal impact on fund	--	E2, G, I

Table 17--(continued)

Bill	Coverage	COLA Type	Formula	Funding	Eligibility Conditions and Exclusions
2001 SB 1151	PSERS SERS	Automatic	25% of monthly annuity on commence-ment date	Equal dollar annual installments over ten years	A, C1, D3, E1, I
2001 SB 1170 2001 HB 2034	PSERS	Automatic	Greater of 25% of monthly annuity as of June 30, 2001 or amount calculated by board to preserve purchasing power of benefit as of retirement	In amount determined by the actuary to fully find the increase	A, B1, C2, D3, I
2002 SB 1399	PSERS	Ad hoc	Percentage varies by retirement date	Equal dollar annual installments over 20 years	A, B2, C3, I
2002 SB 1399	PSERS	Ad hoc	--	Equal dollar annual installments over 20 years	H
2002 SB 1508 2003 SB 360	PSERS SERS	Automatic	CPI–All Urban Consumers (regional)	Equal dollar annual installments over ten years	A, B1, C1, I

Table 17--(continued)

Bill	Coverage	COLA Type	Formula	Funding	Eligibility Conditions and Exclusions
2001 HB 1874	PSERS SERS	Automatic	3% unless board determines the increase would prevent full funding	--	E2, G, I
2001 HB 2035	PSERS	Automatic	Present: amount calculated by board to preserve purchasing power of benefit as of retirement. Future: increase in CPI–Urban Wage Earners up to 3%.	In amount determined by the actuary to fully find the increase	A, B1, C1, I
2001 HB 2128	SERS	Automatic	Greater of 25% of monthly annuity as of June 30, 2001 or amount calculated by board to preserve purchasing power of benefit as of retirement	In amount determined by the actuary to fully find the increase	A, B1, C2, D3, I

Table 17--(continued)

Bill	Coverage	COLA Type	Formula	Funding	Eligibility Conditions and Exclusions
2002 HB 2461	PSERS SERS	Automatic	Present: 25% of gross monthly annuity payable as of commence-ment date. Future: increase in CPI–Urban Workers.	Equal dollar annual installments over ten years	A, B1, C1, I

Eligibility Conditions and Exclusions:

A. Annuitant may refuse COLA by filing written notice to applicable board.

B1. COLA is not payable to survivor or beneficiary of an annuitant who dies before the commencement date.

B2. COLA is not payable to survivors or beneficiaries.

C1. Annuitant must be receiving a superannuation, withdrawal, or disability annuity as of the commencement date.

C2. Annuitant must be receiving a superannuation, withdrawal, or disability annuity as of January 1 prior to the commencement date.

C3. Annuitant must be receiving a superannuation, withdrawal, or disability annuity as of one year prior to commencement date.

D1. Most recent effective date of retirement must be prior to July 2, 1990.

D2. Most recent effective date of retirement must be more than one year prior to commencement date.

D3. Most recent effective date of retirement must be prior to commencement date.

E1. Annuitant must not have received a withdrawal annuity prior to the July 1 coincident with or after attainment of superannuation age.

E2. Annuitant must not have received a withdrawal annuity prior to attainment of superannuation age.

F. None of the annuitant's credited service may be as a class T-D, class D-4 or class AA member.

G. Annuity must be in effect for at least 24 consecutive months.

H. Membership in class T-E, as established by the legislation. The class includes new members hired after the effective date and active members who elect to join the class. For class T-E members, statutory interest is reduced when the rate of return falls below the assumed rate, but only such members are eligible to receive COLAs.

I. Payable under terms of option plan in effect on commencement date or on December 31 preceding commencement date.

CHAPTER 7
EARLY RETIREMENT INCENTIVE PROGRAMS

Early Retirement Incentive Programs (ERIPs) are designed to induce employees to elect early retirement on favorable terms. Employers often use ERIPs for workforce restructuring and to achieve payroll savings through workforce reductions. While ERIPS are often instituted to reduce costs, it is difficult for public employers to maintain the kinds of controls needed to accomplish that objective, especially when multiple employers are involved, as is the case for PSERS and SERS.

Policy Considerations

Public entities contend with many obstacles to developing and maintaining successful ERIPs. Governments must adapt their policies and functions to meet the needs of their constituents, which may require policies inconsistent with those that would maximize the success of the ERIP. Certain responsibilities must be fulfilled whether or not an agency wishes to reduce payroll—roads must be repaired, police officers must be on duty, taxes must be collected. Reductions of functions can impinge upon accepted public policies. For example, many school districts are attempting to alleviate overcrowded classrooms. An ERIP can exacerbate overcrowding if too many eligible teachers elect early retirement.

On the other hand, public organizations can benefit from use of ERIPs. In most cases, employers select goals that are tied to financial considerations, most notably reduced payroll expenditure through early retirements. An ERIP can allow a government or school district to restructure its workforce without layoffs and furloughs. ERIPs can also play a part in a strategic plan to help attain new goals and objectives. New employees brought in as replacements can lead to professional renewal, seed new ideas from outside the organization, and ease the implementation of reforms.[138]

[138] Frank V. Auriemma, Bruce S. Cooper and Stuart C. Smith, *Graying Teachers, A Report on State Pensions Systems and School District Early Retirement Incentives* (Eugene, Ore.: Clearinghouse on Educational Management, University of Oregon, 1992).

ERIPs allow senior teachers to retire in the face of burnout and create job opportunities for younger teachers, thereby enabling a beneficial age mix of public school teachers.[139] ERIPs can yield substantial financial advantages for some local school districts through short-term expenditure reductions. When offered statewide, however, ERIPs cannot take into consideration the demographic or economic conditions in each individual school district, such as the need to retain teachers in districts that struggle to fill positions.[140]

One of the most important cost considerations is the long-term debt that the pension fund assumes to cover the expenses of the ERIP. The increase in inactive (i.e., non-contributing) members equates to a decrease in active, contributing members. Also, early retirees receive annuities for longer periods than members who retire at superannuation. The burden on public pension funds of excessive or unwise use of ERIPS will be felt by taxpayers. "The fact of the matter is that public-sector workers simply cannot expect to work thirty years, retire at age fifty-five, and have a taxpayer-funded pension that will support them for the next thirty years."[141]

In Pennsylvania local school districts may offer early retirement incentives at their discretion. Unless a statewide ERIP is in effect, early retirees are ineligible for full retirement benefits through PSERS when participating in local ERIPs, but they can receive other incentives, such as lump sum payments or continuing health benefits.[142] For example, according to the *Philadelphia Inquirer*, the Quakertown School District offered up to $20,000 per teacher to those with at least 30 years' experience who elected early retirement. The Cheltenham School District expected to save $7.2 million in payroll over six years, or $40,000 per early retiree through early retirement. The savings is expected despite the fact that the district will pay each retiree as much as $9,000 per year for ten years to offset the cost of health insurance.[143]

In offering benefits to employees who elect to retire under an ERIP, the federal Age Discrimination in Employment Act of 1967 (ADEA) must be considered.[144] Erie School District was successfully sued on the grounds that its

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[139] Pennsylvania State Education Association, "Support 30 and Out Legislation," Action Alert, *Pennsylvania State Education Association*: n.d. http://www.capwiz.com/psea/issues/alert/?alertid=117&type=ST.

[140] PERC, *Fiscal Impact of the Early Retirement Incentive for Public School Employees Provided by Act 186 of 1992 and Act 29 of 1984* (Harrisburg: PERC, March, 1996), 7.

[141] Jonathan Barry Forman, "Public Pensions: Choosing Between Defined Benefit and Defined Contribution Plans," 1999 *Detroit College of Law at Michigan State University Law Review* 211 (1999).

[142] Kellie Patrick, "Districts Hoping to Save with Teachers' Retirement," *Philadelphia Inquirer*, March 1, 2003.

[143] Ibid.

[144] Pub.L. 90-202; 29 U.S.C. § 621 et seq. (West 1999).

drug prescription benefit plan allegedly violated ADEA, and it has been suggested that a similar difficulty may apply to ERIPs.[145] The ADEA makes it unlawful for an employer to "discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's age" 29 U.S.C. § 623(a)(1). The act does not apply to "a voluntary early retirement incentive plan consistent with the relevant purpose or purposes of [the ADEA]." § 623(f)(2)(B)(ii). The leading case interpreting this provision held it protected an ERIP if (1) the ERIP was truly voluntary; (2) employees were given a reasonable amount of time to consider their options under the plan and make an informed choice; and (3) the plan did not discriminate arbitrarily on the basis of age, a criterion that is ordinarily satisfied if the plan does not take away benefits from employees who decline to take advantage of it.[146] While under this approach, it would seem that the ADEA would not present a serious problem for a carefully crafted ERIP, detailed attention should be given to this issue before any specific plan is adopted, especially in view of the Equal Employment Opportunity Commission's (EEOC) restrictive interpretation of the ERIP exception.[147]

Design of ERIPs

In designing an ERIP, a number of considerations must be taken into account. The goals, costs, and administrative issues of the ERIP must be identified.

In return for retiring prior to superannuation, employees receive inducements that may include cash payments, enhanced health benefits, or full retirement benefits. Of course, these are in addition to the advantages of retirement itself, such as increased time for leisure or alternative employment and reduced taxes and work-related expenses. Under PSERS and SERS the inducements have been liberalization of eligibility, decreased early retirement reduction factors, and enhanced service credits. Some school districts offer early retirement incentives in the form of cash payments or premium assistance for health benefits.

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[145] Stuart L. Knade (Chief Counsel, Pennsylvania School Boards Association), "Age Discrimination Issues Arising from Retiree Benefits and Early Retirement Incentive Plans" (New Cumberland, Pa: Pennsylvania School Boards Association, 2001). This article commented on *Erie County Retiree's Ass'n v. County of Erie*, 220 F.3d 193 (3d Cir. 2000).

[146] *Auerbach v. Board of Educ. of the Harborfields Cent. School Dist. of Greenlawn*, 136 F.3d 104 (2d. Cir. 1998). But compare *Solon v. Gary Community School Corp.*, 180 F.3d 844 (7th Cir. 1998) (holding an ERIP to violate ADEA where the provision in favor of voluntary ERIPs was waived).

[147] See Knade, "Age Discrimination Issues."

Table 18 shows the advantages and disadvantages of ERIPs that must be addressed when developing an early retirement plan.

Table 18
Advantages and Disadvantages of ERIPs

	Employer	**Employee**
Pros	• Financial savings • Staff reductions/reorganizations • Open career paths • Layoff prevention • Rise in employee morale • Quality employees attracted • New staff with new ideas	• Financial rewards • Career paths open for employees who remain • Ability to pursue retirement plans sooner than expected
Cons	• Financial costs/funding ratios • Lose key employees (limited control over which employees accept)	• Reduced income • Loss of employer-provided benefits • Boredom with retirement • Loss of job satisfaction

SOURCE: National Education Association, *Early Retirement Incentive Programs: Important Considerations for State Education Associations* (West Haven, Conn.: NEA, 1994), 12.

PERC has identified the factors that are important to the economic success of ERIPs:

> To achieve long term savings, the objectives of an ERIP must be identified and agreed upon. The design must be coordinated by all parties involved in the legislative process, and enforceable controls must be placed on the number of replacement employees, when the retiring employees are replaced, and the salary differential. In order to effect long term savings, the number of replacement employees must be limited. When significant numbers of retirees are replaced, the salary differential must be substantial if new savings are to occur. Controls must be placed on replacement employees for periods that often extend beyond one governmental administration, and the overall employee

> complement must be limited. In addition, a conservative funding strategy must be maintained to fund the pension liabilities created.[148]

Two central concepts that are considered when evaluating the cost-effectiveness of an ERIP are the "replacement rate" and the "salary differential" (*Feasibility*, iii). Both factors play significant roles in payroll savings realized through ERIPs. The replacement rate is the percentage of retirees who are replaced, taking into consideration the positions they held and when they are replaced. The salary differential is the difference between the salaries of the early retirees and the salaries of the replacements. The more the two salary points approach each other, the less the amount of payroll savings realized, and the lower the replacement ratio must be in order for any savings to occur. A break-even analysis determines the replacement percentage at which there is neither a net savings nor a net cost. (See Graph A below.) Thus, the design of the ERIP should include monitoring and control of the replacement ratio and the salary differential.

Employers save money with ERIPs during the period between a particular employee's actual retirement and the date at which the employee would otherwise have retired. This savings period is typically three to five years (*Feasibility*, 3). The effectiveness of an ERIP in reducing payroll expenditures is closely related to the length of the period, commonly referred to as the "window," during which the employee is afforded the option to take advantage of the ERIP. Long windows may provide bonuses to employees who would have retired anyway. Short windows may not provide time for a suitable number of employees to elect retirement. Windows that are opened repeatedly may lose effectiveness and establish a new normal retirement entitlement. (*Feasibility*, 7).

Several factors that contribute to the successful outcome of an ERIP ought to be part of the plan's final design. These factors include monitoring and controls over the replacement ratio, the salary differential, and the window of the ERIP. The funding strategy of the ERIP should be consistent with the overall goals of the pension plan. A report by the National Conference of State Legislatures (NCSL) stated, "the consensus appears to be that it is difficult to obtain real savings. . . . Explicit accounting for all costs, including future costs to retirement systems, is essential."[149] However, if periodic ERIPs become an expected benefit, employees will adjust their retirement behaviors accordingly. This may virtually eliminate any savings.

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[148] PERC, *Feasibility of Early Retirement Incentives in the Public Sector* (Harrisburg: PERC, March 1995), 25. Hereafter cited in the text.

[149] Arturo Perez and Ronald Snell, "State Early Retirement Programs in FY 1992 and FY 1993," *State Legislative Report*, NCSL 18, no.5 (Denver: NCSL, March 1993), 6.

Use of ERIPs in Other States

While a number of states have employed ERIPs over the past two decades, there are few studies that closely monitored the outcomes. Some conclusions about states' experiences can be drawn from a 1988 study done by the Texas State Pension Review Board:

> Many states felt that an early retirement incentive program was useful in meeting the initial stated goals of reducing workforce, avoiding layoffs, and providing payroll savings. At the same time, most states indicated disappointment in the long-term reduction of employees and costs. It appears that in some cases the costs were considerably more than the savings, with the costs of the incentives wiping out any financial gains. States which showed some costs savings were those whose enabling legislation either placed restrictions on the number of rehires or included provisions for the cost of the program to be borne by the employer with cost savings certified prior to implementation of the retirement incentive program.[150]

New York and West Virginia are two states that experienced increased net costs rather than savings after ERIPs were authorized. The *New York Times* reported that a New York state ERIP implemented in 1983 was designed to save $50 million but wound up costing $50 million because a higher than anticipated number of positions were refilled. With that experience in mind, New York ERIPs offered in 1990 and 1991 were restricted to employees whose positions were slated for elimination. The ERIP savings were expected to be $120 million, mostly attributed to the stricter eligibility and hiring practices.[151]

West Virginia offered an ERIP in 1988 without enforcing controls on replacing employees. While the plan was designed for a 50% replacement rate, most vacated positions were refilled. The costs of replacing retirees and the increased pension liability led to a 20% or $10 million increase in the state's annual retirement costs.[152]

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[150] Ibid., 6.

[151] Michael deCourcy Hinds, "Early Retirements to Reduce Budgets Cost States Money," *New York Times*, November 16, 1992.

[152] Ibid.

Alaska was able to save $23 million in payroll costs over a five-year period through an ERIP offered in 1989. NCSL attributed the success of the Alaska program to stringent control over which employees could elect early retirement, and early retirement was permitted only after the employing agency could show that payroll savings exceeded retirement costs over a period of five years.[153]

A 1991 report of the National Association of State Budget Officers (NASBO) showed, through a survey of 25 states' ERIPs from the years 1985-1990, that holding positions vacant for a three to five year period was a significant determining factor in the success of ERIPs.[154] The report also showed that costs of ERIPs vary widely from state to state, from several hundred thousand to tens of millions of dollars. Savings due to ERIPs ranged from $1.4 million to $40 million in the first full year. Political pressure can lead to vacated positions being refilled, which can in turn erode savings. Another cost component to ERIPs is in the area of health benefits, which may surge in the years following an ERIP as states pay health benefits for both retirees and replacement employees.[155]

The National Association of State Retirement Administrators (NASRA) published the results of an early retirement survey in January 2002.[156] The survey asked each state's retirement systems' administrators if their states had offered an ERIP during the previous five years as a means of reducing payroll costs. Of the 28 respondents analyzed by NASRA, four states[157] indicated that they were offering ERIPs as a cost reduction tool. The other 24 respondents did not offer ERIPs for purposes of reducing payroll. Pennsylvania was not included in the survey results.

According to the 2002 edition of NASBO's fiscal survey of the states, Michigan was the only state to authorize early retirement to help close budget gaps in fiscal year 2002.[158] However, the 2003 edition of NASBO's survey shows that eight states are using early retirement to "reduce or eliminate budget gaps" in fiscal year 2003.[159]

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[153] Perez and Snell, "State Early Retirement Programs in FY 1992 and FY 1993," 6.

[154] National Association of State Budget Officers (NASBO), "Early Retirement Programs: Recent Experience of States" (Washington, D.C.: NASBO, 1991).

[155] Ibid., 3.

[156] National Association of State Retirement Administrators (NASRA), *Early Retirement Incentive Survey Summary Highlights*, January 2002.

[157] Viz., Colorado, Louisiana, New York, and Ohio.

[158] National Governors Association and NASBO, *The Fiscal Survey of States May 2002* (Washington, D.C.: NGA and NASBO, 2002).

[159] National Governors Association and NASBO, *The Fiscal Survey of States June 2003* (Washington, D.C.: NGA and NASBO, 2003). These states are: California, Connecticut, Illinois, Indiana, Massachusetts, Michigan, New York, and Ohio.

While some states have been able to successfully implement ERIPs, as in the cases of New York and Alaska, the necessary controls over replacing retirees are generally hard to enforce. Ronald Snell of NCSL characterized the adoption of state ERIPs as "a triumph of hope over experience."[160]

Pennsylvania State Employee ERIPs

Enacted Legislation. The Pennsylvania public retirement systems have authorized ERIPs on eight occasions starting with Act 152 of 1982. The terms of the ERIPs are summarized in table 19. PSERS offered all eight ERIPs. Act 95 of 1984 was the first of seven ERIPs offered through SERS. Starting in 1984, ERIPs for PSERS and SERS were granted simultaneously. The eligibility provisions of these acts are summarized in table 18. The predominant eligibility formula has been "30 and out" which is the rule that permits retirement at an unreduced benefit when 30 eligibility points are accrued, regardless of age. PSERS established a 30 and out rule with Act 91 of 1986. Prior to Act 23 of 1991 (P.L.183), SERS maintained two-tiered pension benefits: full annuity available at age 53 with 30 years of service; and reduced annuity at ages 50 through 53 with 30 years of service. Act 23, also known as the "Mellow Bill" after its prime sponsor, Senator Robert J. Mellow, changed the early retirement provision for SERS to a 30 and Out eligibility. The Mellow Bill also offered a 10% increase in service credits for class A and class C early retirees aged 55 and older who had at least ten eligibility points in the SERS system. For PSERS members the Mellow Bill simply continued 30 and out.

In effect, there was a continuous early retirement window from July 1, 1985, (authorized by Act 95 of 1984) to July 1, 1997, because enabling legislation extended the window as each of the acts succeeding Act 95 (Acts 91 of 1986; 69 of 1987; 112 of 1988; 23 of 1991) expired. The most recent ERIP was authorized by Act 41 of 1998 and opened the early retirement window from April 2, 1998, to July 10, 1998, and again from April 1, 1999, to June 30, 1999. No ERIPs have been authorized for SERS and PSERS members since the window established by Act 41 of 1998 closed on June 30, 1999.

As has been mentioned, PERC has commented that the effectiveness of an ERIP diminishes as the length of the window increases (*Feasibility*, 7). With the retirement window continuously open from 1985 to 1997 and again for parts of

[160] Hinds, "Early Retirements."

1998 and 1999, a new normal retirement pattern was established. Rather than an incentive to retire, the long window resulted in benefit liberalization, in effect providing bonuses to employees who would have retired anyway.[161]

Table 19
ERIPs Authorized for PSERS and SERS Members

Act	Window	System	Eligibility
Act 152 of 1982 (P.L.534)	6/1/82-8/31/82	PSERS	Full Annuity: Age 55 and 25 eligibility points Reduced Annuity: Age 50-55 and 25 eligibility points
Act 95 of 1984 (P.L.450)	7/1/85-6/30/96	PSERS	Full Annuity: Age 55 and 25 eligibility points Reduced Annuity: Age 50-55 and 25 eligibility points
		SERS	Full Annuity: Age 53 and 30 eligibility points Reduced Annuity: Age 50-53 and 30 eligibility points
Act 91 of 1986 (P.L.435)	7/1/86-6/30/87	PSERS	Full Annuity: 30 eligibility points regardless of age
		SERS	Full Annuity: Age 53 and 30 eligibility points Reduced Annuity: Age 50-53 and 30 eligibility points
Act 69 of 1987 (P.L.354)	7/1/87-6/30/89	PSERS	Full Annuity: 30 eligibility points regardless of age
		SERS	Full Annuity: Age 53 and 30 eligibility points Reduced Annuity: Age 50-53 and 30 eligibility points

[161] Ibid., 1.

Table 19--(continued)

Act	Window	System	Eligibility
Act 112 of 1988 (P.L.844)	7/1/87-9/30/91	PSERS	Full Annuity: 30 eligibility points regardless of age
		SERS	Full Annuity: Age 53 and 30 eligibility points Reduced Annuity: Age 50-53 and 30 eligibility points
Act 23 of 1991 (P.L.183)	7/1/87-6/30/93	PSERS	Full Annuity: 30 eligibility points regardless of age
	10/1/91-6/30/93 2/1/91-12/31/91	SERS	Full Annuity: 30 eligibility points regardless of age Age 55 with 10 eligibility points receives an additional 10 percent of service
Act 29 of 1994 (P.L.159)	7/1/93-7/1/97	PSERS	Full Annuity: 30 eligibility points regardless of age
		SERS	Full Annuity: 30 eligibility points regardless of age
Act 41 of 1998 (P.L.229)	4/2/98-7/10/98 and 4/1/99-6/30/99	PSERS	Full Annuity: 30 eligibility points regardless of age
	7/1/98-6/30/99	SERS	Full Annuity: 30 eligibility points regardless of age

SOURCE: Compiled from listed statutes by JSGC staff.

Proposed Legislation. The General Assembly has considered 21 bills authorizing early retirement for PSERS and SERS members since the closing of the ERIP established by Act 41 of 1998. Only SB 309 of 1999 was approved by both chambers. The bill was subsequently vetoed by Governor Thomas J. Ridge on September 27, 1999.[162] In the veto message, Governor Ridge reasoned that certain provisions contained in the bill would have allowed retirees to continue to receive pension payments even if they were reemployed in some capacity by the school districts from which they retired. No further action was taken on the bill.

As of this writing, there are six pieces of legislation under consideration in the House and Senate. Of these, House Bill 101 (P.N.119) and House Bill 1358 (P.N.1677) would apply to PSERS, not SERS members, while the other four would apply to both systems. House Bill 101 applies a rule of 34 eligibility points for the first of five windows, followed by 33 points, 32 points, 31 points and 30 points for each succeeding window. House Bill 1358 applies a rule of 30 points for the first two of five windows, followed by 32 points, 31 points and 30 points for the succeeding three windows. In both bills, the successive windows roughly coincide with the second quarter of the years 2003 through 2007.

Senate Bill 56 (P.N.56) provides for 30 and out eligibility for members of both systems. Members of PSERS may elect early retirement if they accrue 30 eligibility points between April 1 and June 30, 2004. SERS members may elect early retirement if they accrue 30 eligibility points July 1, 1999, and June 30, 2004. House Bill 130 also provides 30 and out eligibility for members of both systems. PSERS members may elect early retirement if they accrue 30 eligibility points between April 1 and June 30, 2004. SERS members may elect early retirement if they accrue 30 eligibility points between July 1, 2003, and July 1, 2005.

Senate Bill 130 (P.N.126) and Senate Bill 359 (P.N.372) would create permanent early retirement provisions. These two bills would allow PSERS members to retire early if they met the 30 and out eligibility requirement between May 15 and July 15 of any given year and would allow any SERS member to elect unreduced retirement benefits at any time after accumulating 30 eligibility points.

[162] Veto No. 2 of 1999 (P.L. 1195).

Cost Effect of Pennsylvania ERIPs

Pennsylvania has conducted several analyses of ERIPs in an effort to measure their savings and costs. Act 95 of 1984 required the Office of Administration and SERS to report to the Governor and General Assembly the actuarial costs and salary savings of the ERIP that was offered from July 1, 1985 to June 30, 1986.[163] The report analyzed the costs and savings effects of the 921 employees who elected early retirement. The report showed that the net cost of the ERIP was $12.4 million. While the payroll savings were estimated to be $18.9 million, the actuarial cost was estimated at $31.3 million.[164]

Act 95 also required a similar report covering the same ERIP from the Department of Education and PSERS.[165] There were 1,205 PSERS members who elected early retirement; of these open positions, 924 were replaced by the time of the report's publication. This report showed a first year savings of $20.7 million and assumed that "the employing units will continue to experience additional significant salary and benefits savings in future years as a result of lower levels of compensation for replacement employees and unfilled 'vacant' positions." The first year cost was estimated at $1.9 million, a 0.04% increase in the employer contribution rate. The total cost of the ERIP was reported as $37 million in additional actuarial costs attributed to the program.[166]

PERC performed a benefit/cost analysis of Act 23 of 1991.[167] PERC analyzed 6,225 positions (93% of the total 6,684 positions affected by the ERIP) and found that the incentive produced a three-year budgetary savings of $112.3 million and an anticipated expenditure of $310.6 million over the 20-year amortization period. The fiscal impact was a $198 million net cost. This analysis of Act 23 also showed how payroll savings are affected when vacated positions are refilled. Following implementation of Act 23, there was an increase of $118.3 million in pension liability and retirees were replaced at a rate of 72%. Given these conditions, the present value of the increased pension liability exceeded savings by $6 million. A 69% replacement rate would have been the breakeven

[163] Commonwealth of Pennsylvania, Office of Administration, *Report on the Special Early Retirement Provisions of Act 1984-95 for Fiscal Year 1985-86* (Harrisburg: OA, December 1986).

[164] Actuarial cost is defined as the difference between the present values of the annuities calculated under the special and regular retirement provisions.

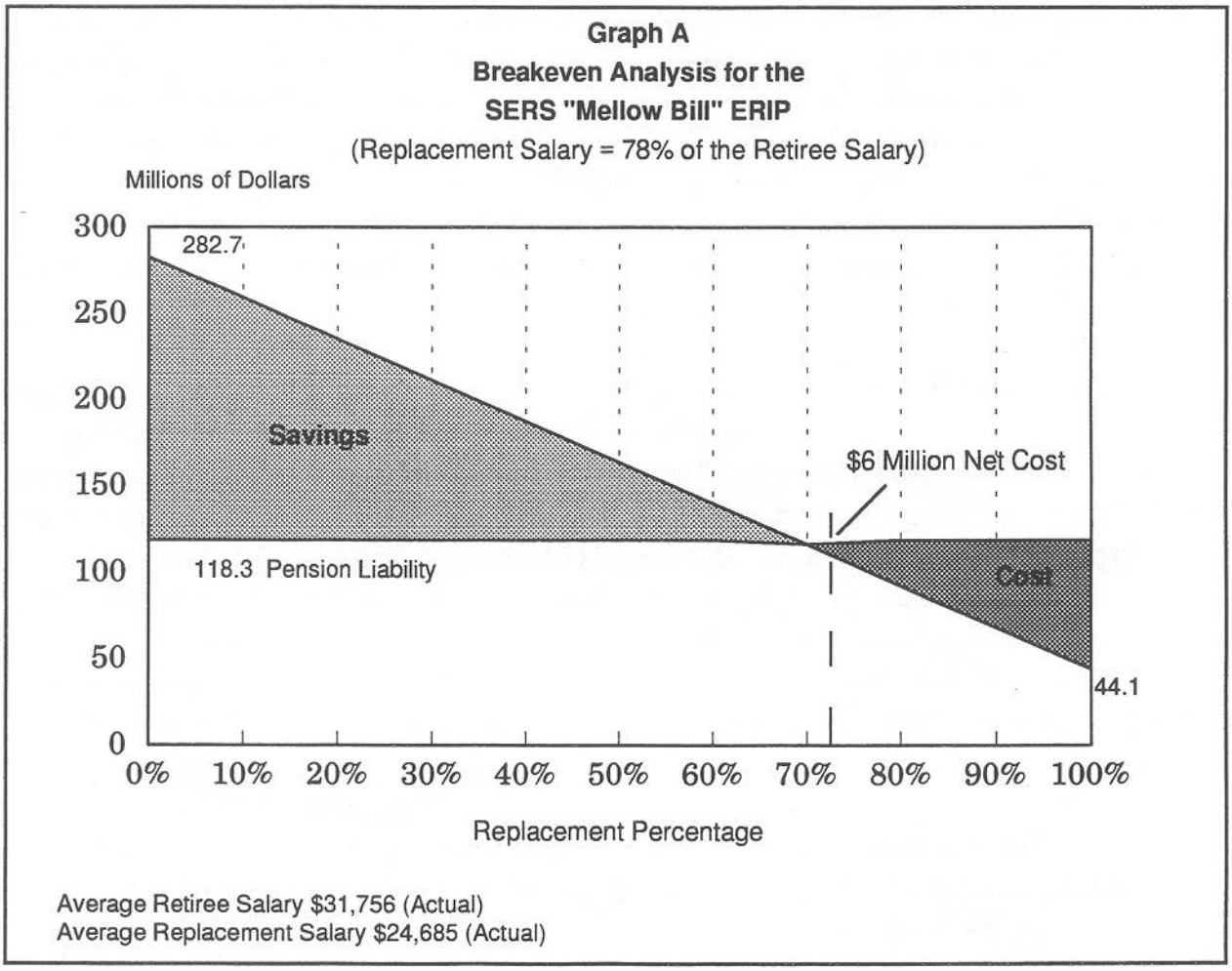
[165] Commonwealth of Pennsylvania, Department of Education and PSERS, *Report on Act 95 of 1984* (Harrisburg: PDE, January 2, 1987).

[166] Ibid., 3.

[167] PERC, *Feasibility of Early Retirement Incentives in the Public Sector*, 17-19.

point of costs and savings. If no positions had been refilled the ERIP would have provided the Commonwealth a net savings of $164.4 million. If all positions would have been refilled the net cost would have been $74.2 million. See Graph A.

The *New York Times* reported that many of the state employees who elected early retirement under Act 23 were nurses, professors, engineers and others in crucial positions.[168] Many state agencies rehired the retirees as paid consultants, which meant that the retirees received payments for their services as well as retirement benefits.



SOURCE: PERC, *Feasibility of Early Retirement Incentives in the Pubic Sector*, 20.

[168] Hinds, "Early Retirements."

In 1996, PERC analyzed the two ERIPs offered to school employees in the early 1990s under Act 186 of 1992 and Act 29 of 1994. Despite an initial salary savings of $189.2 million, the ERIPs together will have resulted in a net cost to the Commonwealth of $68 million over their then applicable amortization period of 20 years. Slightly less than half of the nearly 15,000 eligible employees elected early retirement and 93% of the vacated positions were filled within 2.8 years.

State governments and school districts that seek to reduce payroll often choose to implement ERIPs to do so, largely because they obviate the need for layoffs or terminations. Senator Robert J. Mellow said, referring to the 1991 ERIP he sponsored, "We had to find our own innovative ways to control costs and be humane in downsizing government."[169]

After implementation, strong controls over replacement rates are necessary or net savings are unlikely to be realized. These controls may seem realistic in the private sector but are considerably more difficult to achieve in the public sector because neither the General Assembly nor the Governor can control the policies of their successors. It is widely accepted that pension funds will be increasingly burdened as more and more workers of the baby boom generation reach superannuation. Options that state legislators might find prudent include enforcement of strict controls and close monitoring of savings and costs as part of all ERIPs. Or it might be more advisable to place greater limitations on early retirement to prolong employee contributions and reduce the period when benefits are received.

[169] Ibid.

CHAPTER 8
DEFINED CONTRIBUTION PLANS

For many years, there has been much attention in the public pension sector to the issue of whether to adopt the defined contribution (DC) form of retirement plan, either as a supplement to or in place of the defined benefit (DB) form. Interest in DC as the predominant plan form has arisen largely because DC seems to allow for greater stability of employer contributions than the DB form.

The recent study published by PERC[170] on this issue includes much pertinent information and analysis. This chapter adds some comments based on other sources and includes an evaluation of both structures by Aon Consulting. As will be apparent, further analysis must be done before a competent decision can be reached regarding a restructuring of the Pennsylvania public retirement systems to fundamentally expand their DC component.

Distinctions between DB and DC Plan Structures

Retirement plans allocate *contributions* (whether from the employer, the employee, or both) for the payment of employee *benefits*. The core definitional distinction between the DB and DC plans is a reversal between the two italicized terms. In a DB plan, such as PSERS and SERS, the benefit is set by the plan, which undertakes to provide for whatever amounts are necessary to fund that benefit. The benefit is not tied explicitly to the level of contributions that fund the plan or the investment earnings on the plan contributions.

In a DC plan, the amount of the contribution is set by the plan, and the employee receives whatever benefit can be funded from those contributions. Each employee commonly has his or her own account composed of the contributions to the plan. Depending on the terms of the particular plan, the contributions may be made by the employer only, the employee only, or both. The account also includes any adjustments for returns generated by the investment of the contributions, either positive or negative. At the time a person

[170] PERC, *Selected Issues Related to Governmental Defined Benefit and Defined Contribution Plans* (Harrisburg: PERC, December 2002).

retires or terminates employment, he or she is typically paid the entire account balance in a single sum. The individual is then responsible for managing the money into retirement.

The practical as well as theoretical differences between the two approaches have been well summarized by PERC in its recent report on this issue, as shown in table 20.

Table 20
Comparison of Defined Benefit and Defined Contribution Approaches

Topic	Defined Benefit	Defined Contribution
Form of Benefit	Benefit is determined by a formula that usually produces a percentage of salary to be provided in the form of a life-time annuity. Other equivalent benefit forms, other than lump-sum payments, may be available.	Benefit is determined by the balance in the employee's individual account and provided as a lump-sum payment. Other equivalent forms of payment may be available.
Benefit Portability	Limited portability of benefits; may be service purchase authorizations or reciprocity between systems, such as the systems for State and school employees in PA. May impede recruitment of younger, mobile employees.	Benefit is fully portable. May increase labor costs due to increased employee turnover. Recruitment of younger, mobile employees may be facilitated.
Benefit Risk	Benefit is fixed by a formula and guaranteed by the employer. Predictable amount of benefit makes retirement planning easier.	Benefit is variable and is impacted by: economic environment before and at retirement, the frequency of cash-out elections made by employee upon change of employers, and the quality of employee investment choices. Variable benefit makes retirement planning more difficult.

Table 20--(continued)

Topic	Defined Benefit	Defined Contribution
Investment Risk	Employer makes investment decisions and assumes all investment risk. Favorable earnings decrease the employer contribution requirements, while unfavorable earnings increase the employer contribution requirements.	Employee makes investment decisions and assumes all investment risk. Favorable earnings increase the benefit amount, while unfavorable earnings decrease the benefit amount.
Funding Risk	Employer assumes future funding risk and is responsible for funding any unfunded liability that may occur. The unfunded liability may be transferred to future taxpayers if deferred funding is elected. Unfunded liabilities may raise employee concerns about benefit security.	Employer assumes no future funding risk. Funding obligation fully satisfied concurrently with payroll, precluding the occurrence of unfunded liabilities and the associated employee concerns about benefit security.
Design Flexibility	Preretirement disability and death benefits may be included. Cost-of-living adjustments may be provided to retired employees. Purchases of service may be authorized.	Preretirement benefits limited to monies accumulated in employee's individual account. No potential for cost-of-living adjustments or service purchase authorizations.
Personnel Management	Early retirement incentives easily implemented to reduce personnel complement. Retains (and is more beneficial to) experienced, long-term employees.	Complement reduction through early retirement incentives is not feasible. Attracts (and is more beneficial to) younger, mobile employees.
Administration	Complex administration due to greater degree of regulation and actuarial calculations. Long-term budget projections difficult due to variations in funding requirements.	Simple administration, with complexity increasing as investment allocation flexibility increases. Long-term budget projections are facilitated by predictable funding requirements.

Table 20--(continued)

Topic	Defined Benefit	Defined Contribution
Benefit Accrual	Back-loaded. Benefit accrual rate greatest in years immediately before retirement. Favors long-term employees.	Front-loaded. Benefit accrual rate greatest in initial years of employment. Favors short-term employees.
Benefit Distribution	Benefit is only available upon retirement.	Benefits may be accessed pre-retirement under certain circumstances as loans or actual disbursements.
Employee Comprehension	Benefit formula is abstract concept and difficult for employees to understand or appreciate, particularly in early years of employment.	Account balance is easily understood and appreciated by employees throughout their careers.

SOURCE: PERC, *Selected Issues Relating to Governmental DB and DC Pension Plans*, 4, 5.

We elaborate briefly on some of these contrasts below.

Perhaps the major advantage of DC to the employer is that it is fully funded by definition. Under DC, the employer can set a consistent level of contributions; there are no fluctuations in contributions, such as are forecast for PSERS and SERS, unless the employer decides to change them.[171] The risk of loss from poor investment performance is borne by the employees, which improves funding stability but arguably undermines the main purpose of a retirement plan for employees: providing retirement security.[172] The main advantages for employees are improved portability between employers and generally higher benefits for younger employees.

[171] Forman, "Public Pensions," 193-94; Bleakney and Pacelli, *Benefit Design in Public Employee Retirement Systems*, 46.

[172] Gerald W. McEntee, "Others' Views: The Public Interest and the Switch to DC Plans," *Pensions & Investments*, June 23, 1997, 12 ff.

The choice between the two approaches depends to some extent on the employer's workforce policy:

> Generally, defined benefit supports goals such as providing secure retirement income, retaining long-term employees, and compensating employees for limited cash compensation. Generally, defined contribution plans support goals such as portability, flexibility, and shifting risk and reward of investments to the employees.[173]

Many public retirement systems were originally structured as DC plans, but converted to DB, largely because DB plans were seen as better able to cope with sustained inflation.[174] Beginning in the mid-1980s, the private sector saw a marked shift from DB to DC, motivated by the expense and risk imposed by DB plans, and also by more favorable tax and regulatory treatment of DC plans under federal law.[175] For much of the 1990s, public plans seemed poised to follow the same trend. As the market downturn of 2000-02 threw into sharp relief the risk to the employees implicit in DC plans and federal policy changed to treat DB plans more favorably, DB plans again became more attractive to employees.[176] At the same time budgetary difficulties in most states from 2001 to the present show the advantage to public employers inherent in the DC structure. In any event, DB plans still heavily predominate in the public sector.[177]

Policy Issues

Benefit Adequacy. DC plans may not provide a benefit as adequate as DB plans with the same employer contribution. While DC plans give employees more control over the investment of their retirement accounts, experts believe that the investment performance of employees under DC plans is impaired because employees lack financial expertise and tend to invest too conservatively,

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[173] Jennifer D. Harris, *Beyond the Basics of DB and DC: The Policy and Purpose of Public Retirement Plans* (Public Retirement Institute, September 1999), 4.

[174] Winklevoss and McGill, *Public Pension Plans*, 161-62.

[175] Dallas L. Salisbury (President and CEO of Employee Benefit Research Institute (EBRI)), "Statement before the Committee on Ways and Means Subcommittee on Oversight United States House of Representatives," June 20, 2002; Gerald L. Katz, "Renewed Interest in Traditional Defined Benefit Plans," *Journal of Pension Benefits* 9 (Winter 2002): 42.

[176] Katz, op. cit. 42.

[177] Bleakney and Pacelli, *Benefit Design in Public Employee Retirement Systems*, 45; Forman, "Public Pensions,"191.

especially at the end of their careers.[178] Due to the different levels of investment expertise among employees, a DC plan will likely create undesirable variability in the adequacy of the retirement benefit.[179]

Because of the "high probability that the aggregate investment earnings of the individual member accounts in the DC plan will be lower than the investment earnings of the DB plan over the working career of the members" PERC assumed that DC returns would be between one to three percentage points lower than the 8.5% return assumed for the DB plan. Furthermore, a DC plan cannot use demographic assumptions relating to longevity and turnover to reduce funding requirements, since each DC account must be funded on an individual basis; this difficulty alone may require the combined employer and employee funding to be 21% to 43% higher than the amount needed to pay for an equivalent DB benefit.[180]

Portability. DB plans are generally designed to be less favorable to workers who frequently change jobs and more favorable to long-term employees. The DC plan handles portability by simply making the cash balance available to the departing employee for rollover or reinvestment in the new employee's plan. In DB plans, the employee must buy credit in the new employer's plan, if permitted by that plan. If the benefits are vested, the DB employee may also leave his or her contributions in the old employer's plan until retirement, but between cessation of that employment and retirement, the deductions will only grow at an often below market interest rate (4% in PSERS and SERS). If either the DB or DC employee leaves before the term of service required for vesting, no retirement benefit is accrued during those years at work, although in contributory plans like PSERS and SERS, the employee contributions are returned.[181]

The DB benefit formula also favors employees with many years of service by projecting the employee's final average salary—usually the highest career salary—over all the years of employment. Consequently, an employee who stays with the same employer throughout his or her career will earn a benefit considerably greater than one who worked the same number of years for four or five different employers under otherwise equivalent DB plans.[182]

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[178] Forman, "Public Pensions," 201; Susan J. Stabile, "The Behavior of Defined Contribution Plan Participants," *New York University Law Review* 77 (April 2002): 88-90.

[179] Bleakney and Pacelli, *Benefit Design in Public Employee Retirement Systems*, 47.

[180] PERC, *Selected Issues Relating to Governmental DB and DC Pension Plans*, 12, 13, 65.

[181] Forman, "Public Pensions," 196, 197; Harris, *Beyond the Basics of DB and DC*, 13; Texas House Committee on Pensions and Investments, "Interim Report 2000," 17.

[182] Forman, "Public Pensions," 195, 197. In his example, the effect of splitting employment among five employers instead of one is to reduce the annual benefit from $49,000 to $27,000.

Portability issues in DB plans can be mitigated by short vesting periods, buy-back rules, and reciprocity agreements,[183] but portability remains a significant advantage of the DC approach. How significant depends in some part on how mobile the workforce is. It is widely assumed that employees are more mobile than they used to be, and it is argued on that premise that DC is more suitable to the current economic environment.[184] However, some studies have failed to find a substantial increase in worker mobility in recent decades.[185]

Leakage. Because the employee has greater control over retirement savings in a DC plan, some have raised concerns that employees may withdraw amounts from the plan, thereby leaving themselves with less after retirement, a problem known as "leakage." Employees under DC plans often fail to roll over the lump sum payment upon changing jobs or they take advantage of borrowing options that are more prevalent in DC than in DB plans. Leakage may thus compound the problem of benefit inadequacy under a DC structure.[186]

Older and Longer Service Employees. DB plans based on final average pay are designed to focus the majority of payouts toward long service employees who stay with the employer until retirement age. In contrast, DC plans tend to distribute a greater proportion of their payouts to shorter service employees regardless of their age. In some defined benefit plans, including SERS and PSERS, service caps may limit additional benefit accruals once those caps are reached. For SERS and PSERS, those caps limit the annual benefit selected to no more than 100% of the final highest pay of the employee. Under the SERS plan, actuarial increases and supplemental benefits are provided to prevent any great loss of benefits to employees who are older or have many years of service.

Longevity Risk. The risk that an employee will outlive his or her retirement benefits and be left with insufficient assets to maintain a decent standard of living is referred to as "longevity risk." DB responds this risk better than DC because DB enables pooling of mortality risk and pays most of the benefit out as an annuity over the lifetime of the retiree and his or her beneficiaries, if any. In a DC plan, the benefit is received as a lump sum, which the retiree must manage for the rest of his or her life. The best alternative for such a retiree to avoid longevity risk is to purchase an annuity, but the retiree must bear its cost individually, as well as the risk that the provider of the annuity will become insolvent.

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[183] Harris, *Beyond the Basics of DB and DC*, 13; Texas House Committee on Pensions and Investment, "Interim Report 2000," 17, 18.

[184] Salisbury, "Statement before Ways and Means Committee," passim.

[185] Texas House Committee on Pensions and Investment, "Interim Report 2000," 18.

[186] Forman, "Public Pensions," 202, 203; Harris, *Beyond the Basics of DB and DC*, 18. Note, however, that chapter 3 identifies public DB plans that permit employee borrowing.

Administration. The sources we have identified take different positions regarding the comparison of the relative burdens and costs of the two types of plans. It appears that in the private sector, a DB plan is more costly than a DC plan of similar size. This is less obviously true of large public retirement plans, where economies of scale can make administration of a DB plan relatively inexpensive and the burdensome regulations that federal law places on private DB plans do not fully apply.[187] The employer bears more of the administrative costs under DB plans, while the employee bears these costs under a DC plan. Administrative costs under either type of plan include actuarial valuations and investment management.[188] The DC plan is usually considered easier for employees to understand, because it is similar to a savings account, whereas the employee can understand a DB plan only by grasping a complex benefit formula within an arrangement unique to the employment relationship.[189] However, the DC employee may not understand the investment alternatives appendant to the DC structure, whereas competent investment services are provided for the employee in a DB plan. Because the employee must direct the investment of his or her DC account, the employer's costs to educate employees about the retirement plan may be higher under a DC plan.

Transition from a DB to a DC or Hybrid Plan. The transition from a DB plan to one described in this chapter has been described as arduous.[190] PERC has identified 43 issues that should be considered before adopting DC beyond the existing voluntary deferred compensation plan; these are listed under the broad headings of workforce management, design, IRS qualification, plan administration, and other.[191]

Pennsylvania is similar to many other states in that existing employees may not be required to switch to a DC plan, as this would violate the Contracts Clause of the United States and Pennsylvania Constitutions. At most, legislation can require new employees to join a DC plan from the effective date of the legislation, as was done in Michigan (for state employees) and West Virginia (for public school employees).[192] The DB plan would be phased out, but would remain in effect for its members, except for those who elected to join the DC plan. Hence, it could be several years before significant stabilization of employer contributions was realized, and stabilization may never occur if benefit changes continue to be enacted.

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[187] Forman, "Public Pensions," 203; Texas House Committee on Pensions and Investment "Interim Report 2000," 17.

[188] Harris, *Beyond the Basics of DB and DC*, 17-19.

[189] Forman, "Public Pensions," 203; Harris, *Beyond the Basics of DB and DC*, 19.

[190] Forman, "Public Pensions," 207.

[191] PERC, *Selected Issues Relating to Governmental DB and DC Pension Plans*, 41-47.

[192] In West Virginia, the funding ratio of the teachers' retirement system was 11% in 1991, when the switch to DC was mandated. Harris, *Beyond the Basics of DB and DC*, 8.

Assuming an employer-paid DC plan is desired and eliminating the possibilities that would be invalidated under the Contracts Clause if adopted for PSERS or SERS, the major alternative strategies for implementation are: 1) keep the DB plan and either add a supplemental DC plan or allow additional voluntary contributions to the current plans; 2) offer both a DB plan and a new DC plan as elective alternatives (i.e., employees can choose one or the other but not both); or 3) close entry to the DB plan and add a new DC or hybrid plan.

Supplemental DC Plans. In Pennsylvania, as in many other states, state employees may take advantage of a voluntary DC plan, known as "deferred compensation" as a supplement to SERS. This plan is constructed and administered pursuant to IRC § 457 and is entirely funded by employee contributions. The deferred compensation program is described in more detail in chapter 2. Many Pennsylvania school districts use IRC § 403(b) tax sheltered retirement plans to perform a similar function.

DC Plans in Other States

Sixteen states have adopted DC plans (usually in addition to IRC § 457 plans) as a primary or supplemental plan. These have been summarized by PERC in table 21.

The PERC table identifies 21 plans. Nine of these are pure DC plans, of which four are mandatory for employees and five are optional.[193] Optional plans are likely to be better accepted by employees than mandatory plans. For example, the international president of AFSCME opposed Michigan's adoption of a mandatory DC plan.[194] However, optional plans permit adverse selection from the employer's point of view: employees who think they will leave after a short time will choose the DC plan, while those who plan to make state or school service their career will choose DB. Adverse selection can make a retirement plan where choice between DB and DC is permitted more expensive than a plan where no choice is allowed.[195]

As mentioned, Michigan has transitioned to a mandatory DC plan for its state employees; those hired on or after March 31, 1997, are enrolled in the DC program and are ineligible for the DB plan. Existing members of the DB plan were given an opportunity to elect the DC plan or continue in the DB plan. The

[193] PERC, *Selected Issues Relating to Governmental DB and DC Pension Plans*, 34.
[194] McEntee, "Others' Views."
[195] Texas House Committee on Pensions and Investment, "Interim Report 2000," 32.

Table 21
Statewide Defined Contribution Plans for Public Employees

				Plan Type				Membership Provisions			
State	**System**	**Plan**	**Effective Date**	**Primary (P) or Supplemental (S)**	**Pure DC**	**Hybrid**	**Other**	**Mandatory for Most Employees**	**Mandatory for New Hires Only**	**Optional Participation**	**Remarks**
Alaska	Division of Retirement and Benefits	Alaska Supplemental Annuity Plan		S	X						Plan participation is optional for certain state employees and mandatory for employees employed by a subset of 15 employers. All other state employees participate in one of Alaska's four defined benefit plans.
California	California Public Employees' Retirement System	Supplemental Contribution Program Fund		S		X				X	
Colorado	Public Employees' Retirement Association of Colorado	Public Employees' Retirement Association of Colorado		P		X	X	X			Members may choose between the higher of a formula based defined benefit or money purchase benefit based upon life expectancy and total employee contributions.
Florida	Florida Retirement System	FRS Investment Plan	6/1/02	S	X					X	Employees choose between traditional DB and new DC plan.
Idaho	Public Employee Retirement System of Idaho	Choice Plan	7/1/01	S		X				X	Funded through additional, voluntary employee contributions.

Table 21--(continued)

				Plan Type				Membership Provisions			
State	**System**	**Plan**	**Effective Date**	**Primary (P) or Supple-mental (S)**	**Pure DC**	**Hybrid**	**Other**	**Manda-tory for Most Employees**	**Manda-tory for New Hires Only**	**Optional Partici-pation**	**Remarks**
Indiana	Public Employees' Retirement Fund	Public Employees' Retirement Fund	1945	P		X		X			Employer financed DB component and a member's annuity DC component funded through contributions made by the employee or by the employer on behalf of the employee.
Indiana	Indiana State Teachers' Retirement Fund	Indiana State Teachers' Retirement Fund		P		X		X			Employer financed DB component and a member's annuity DC component funded through contributions made by the employee
Michigan	State Employees' Retirement System	State Employees' Retirement System	4/1/97	P	X				X		Mandatory membership for employees hired since 4/1/97; optional for all others
Montana	Montana Public Employees' Retirement System	Defined Contribution Retirement Plan	7/1/02	S	X					X	
Nebraska	Nebraska Public Employees' Retirement System	State Employees' Retirement System	1/1/64	P	X			X			
New Hampshire	New Hampshire Retirement System	New Hampshire Retirement System		S		X					Permits employees to make additional employee contributions to a DC component as supplement to DB plan benefits

Table 21--(continued)

				Plan Type				Membership Provisions			
State	System	Plan	Effective Date	Primary (P) or Supple-mental (S)	Pure DC	Hybrid	Other	Manda-tory for Most Employees	Manda-tory for New Hires Only	Optional Partici-pation	Remarks
Ohio	Public Employees' Retirement System	Defined Contribution Plan	7/1/01	P	X					X	Open to new employees and current non-vested members (less than 5 years service)
Ohio	Public Employees' Retirement System	Combined Defined Benefit/ Defined Contribution Plan	7/1/03	P		X				X	Open to new hires and current non-vested members; combines DB participation with DC component
Ohio	State Teachers' Retirement System of Ohio	STRS Ohio Defined Contribution Plan	7/1/01	P	X					X	Open to new employees and current non-vested members (less than 5 years service)
Ohio	State Teachers' Retirement System of Ohio	STRS Ohio Combined Plan	1/1/03	P		X				X	Open to new hires and current non-vested members; combines DB participation with DC component
Oregon	Oregon Public Employees' Retirement System	Variable Annuity Program		S		X				X	Members may elect to have up to 75% of employee contributions committed to a DC component of the DB plan.
South Carolina	South Carolina Retirement System	South Carolina State Optional Retirement Plan	7/1/01	S	X					X	Eligible participants include: All full-time public school employees hired after 6/30/01; all other state and higher education employees hired after 6/30/02

Table 21--(continued)

				Plan Type				Membership Provisions			
State	**System**	**Plan**	**Effective Date**	**Primary (P) or Supple-mental (S)**	**Pure DC**	**Hybrid**	**Other**	**Manda-tory for Most Employees**	**Manda-tory for New Hires Only**	**Optional Partici-pation**	**Remarks**
Washington	Department of Retirement Systems	Public Employees' Retirement System Plan 3	3/1/02	P		X	X		X		Washington state and teacher retirement systems employ multi-tiered benefit structures based upon dates of hire and employee type. Plan 3 is a hybrid plan composed of a DC component funded by employee contributions and a DB component funded by employer contributions
Washington	Department of Retirement Systems	Teachers' Retirement System Plan 3	3/1/02	P		X	X		X		Washington state and teacher retirement systems employ multi-tiered benefit structures based upon dates of hire and employee type. Plan 3 is a hybrid plan composed of a DC component funded by employee contributions and a DB component funded by employer contributions
West Virginia	Consolidated Public Retirement Board	Teacher's Defined Contribution Plan	7/1/91	P	X				X		Optional participation for employees hired prior to 7/1/91
Wisconsin	Wisconsin Department of Employee Trust Funds	Wisconsin Retirement System		P		X	X	X			Employees are entitled to the higher of a formula based benefit or money purchase benefit; employees may also make additional employee contributions to a DC component of the DB plan

SOURCE: PERC, *Selected Issues Relating to Governmental DB and DC Pension Plans*, 36-38.

employer must contribute an amount equal to 4% of the employee's salary to the DC plan. The employee may make contributions to the plan in any amount, and contributions up to 3% of salary are matched by the employer. The employee is immediately vested in his or her own contributions and is fully vested in the employer contributions at four years of service. Savings from the change from DB to DC are earmarked to be paid into the employees' health insurance reserve. Distributions from the DC plan are tax-exempt.[196]

The remaining twelve plans are hybrid DC plans. Seven are combinations of two plans whereby "the employer's contribution funds a DB plan benefit and the employee's contribution funds a DC benefit."[197] Colorado uses a money purchase option plan, under which "a retiring member's pension is the greater of a DB pension or a DC pension based on the member's age at retirement and the member's account value at retirement" (34). Wisconsin "offers a money purchase option plus an option permitting a member to make additional contributions to the member's account (a combined DB and DC plan option)" (35). And there are three other hybrid plans that operate on slightly different principles (35).[198]

The two-plan variant of the hybrid approach is illustrated by the Indiana state and school employee retirement plans. The employer-funded DB plan provides a pension with a benefit multiplier of 1.1% per year of service. The DC component is funded by an employer contribution of 3% of salary. For the state plan, the state picks up this contribution; for schools, the pick-up issue is decided by the individual school districts. The employee may make voluntary additional contributions of up to 10% of salary, so that up to 13% of salary may be contributed to the plan. Members are given investment options including guaranteed interest, bond fund, international equity fund, S & P 500 index fund, small capitalization equity fund, and (in the state plan) a money market fund. Upon retirement, options permit a variety of proportions of cash payout, deferrals, rollovers, and monthly benefits.[199]

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[196] Mich. Comp. Laws Ann. §§ 38.50—38.69 (LexisNexis 2001 and Supp. 2003).

[197] PERC, *Selected Issues Relating to Governmental DB and DC Pension Plans*, 34. Parenthetical references in the text are to this source.

[198] Some sources that describe "innovative" hybrid alternatives do not explain how they affect the issues mentioned in this chapter. See Forman, "Public Pensions," 205-07; Harris, *Beyond the Basics of DB and DC*, 6-9.

[199] Indiana State Teachers' Retirement Fund (ISTRF), *Active Member's Handbook* (revised August 2001) (Indianapolis: ISTRF, 2001), 7,8; ISTRF, *Retiring Member's Handbook* (revised August 2001) (Indianapolis: ISTRF, 2001, 4-8; Public Employee Retirement Fund of Indiana, *2002 Member Handbook* (Indianapolis: PERFI, 2002?), 15-22.

Another variant of the two plans approach is presented by the Public Employees' Retirement System of Washington. Members may elect between a pure DB plan (Plan 2) and a combination DB and DC plan (Plan 3). Plan 2 has a benefit multiplier of 2% and a variable member contribution rate, which is currently 0.65% of salary, although the twenty-year weighted average of the employee contribution is 4.35%. The DB component of Plan 3 has a benefit multiplier of 1% and is funded by employer contributions. The DC component of the hybrid plan is funded by employee contributions, as elected by the employee among six contribution options. The mandatory minimum contribution is 5%. Two options permit an employee to increase the contribution percentage as the employee ages. The maximum contribution option is 15%. Employees in the pure DB plan may elect to join the hybrid in January of any year. New employees are deemed to elect the hybrid plan unless they decide otherwise. The DC component offers both a plan-administered and a self-directed investment program; an employee may contribute to only one of these at any time, but may change to the other at any time. If the investment performance of Plan 2 and 3 funds averages more than 10% annually over a four-year period, half the amount over the 10% floor is contributed to the DC employee accounts.[200]

Comparative Advantages

The remainder of this chapter is closely based on the summary of the relative advantages and disadvantages of the DB and DC structures prepared by Aon Consulting.[201] Because this overview does not arrive at a policy conclusion regarding a change toward adoption of a DC or hybrid plan, this report does not include any recommendation regarding the issue.

Neither type of program is necessarily more or less expensive or better than the other. Both programs have good points that help to enhance a retiree's post employment situation and the employer's financial stability and ability to attract employees. Similarly, both programs have drawbacks for the sponsoring employers and participants.

[200] State of Washington, Department of Retirement Systems, *PERS Plan 3 Member Handbook*, (updated June 2003); ibid., "Comparison Chart of PERS Plan 2 and PERS Plan 3."

[201] Aon Consulting, *Report on Plan Costs*, 22-24.

Defined Benefit Approach

- Most efficient vehicle to target a specific retirement income level. In contrast, a DC plan will always either fall short or exceed the target for any individual.

- Best way to manage longevity risk for employees. DB plans deliver a benefit over the lifetime of the employee. In DC programs, retirees will either overspend and run short of income in retirement or under-spend and sacrifice current living standards unnecessarily.

- Best way to manage investment return risk. One reason insurance companies and pension plans exist is that institutions such as corporations are better able to absorb short-term fluctuations in experience. In a DC plan, an investment market crash or other unforeseen event might cripple an individual's standard of living in retirement because he or she does not have sufficient time or ability to replace the lost funds. A healthy, well-managed institution, however, has many years to allow markets to correct themselves. It also has the productivity of many employees who generate income, a portion of which can be used to help replace lost amounts over a long period.

- Most efficient use of employer contributions. A well run, professionally managed DB trust fund will:

    - Minimize transactions, thus reducing expenses and allowing contributions to go toward the intended purpose—providing retirement income.

    - Maximize returns. Professionally managed funds with a long-time horizon and predictable cash flow optimize investment results.

    - Minimize manager expenses. The size of the pension fund and defined asset allocation policies allow for bargaining leverage to negotiate lower investment fees.

Defined Contribution Approach

- Has employee communication advantages. Employees can see their account grow and may be more impressed with the size of an account than the size of a monthly benefit (even if they are of equivalent value).

- Theoretically limits employer cost to scheduled contributions. In theory, the employer cost does not go up if poor investment returns reduce the account balances. However, certain cautions are in order:

    - The sponsor has a fiduciary responsibility when selecting investment funds. After the poor market returns of 2000-02, a number of lawsuits have been brought against employers for the selection of underperforming funds.

    - The current program provides a generous benefit for participants; nevertheless, pressure to provide additional benefits has arisen. If that expectation persists, employers may face pressure to make additional contributions for retirees and active participants.

Many different structures are available for a quality retirement program. Any switch to a more DC-oriented approach will result in a structure more favorable to some employees and less favorable to others. Any such change should be evaluated thoroughly as to its impact on the respective systems, the employers and the employees. A precipitous change without careful analysis of possible pitfalls could expose taxpayers to greater costs and liabilities.

CHAPTER 9
RECOMMENDATIONS

The following recommendations are based on those submitted to the Joint State Government Commission by Aon Consulting.[202] These are divided into two sets. The first group provides ideas for possible approaches to allow the system costs to stabilize. The second provides ideas for possible approaches to stabilize costs while providing possible future benefit increases, including post-retirement cost of living increases, retirement incentive programs, and other changes.

Reducing the Volatility of Employer Contributions

Adoption of the Normal Cost Rate as the Employer Contribution Floor. The current pattern of contributions and benefit adjustments exposes the plan to volatility by minimizing any excess or deficit of plan assets to plan accrued liabilities. This prevents the plan from building up any surplus that can be used to defray periods of poor return and allows employers to over budget for other expenses when the pension costs are below the normal cost.

For example, for FY 2003-04 employers belonging to the SERS group collectively were expected to contribute about 1.04% of covered payroll. Covered payroll is about 18.5% of plan assets. The full 8.64% normal cost equals about 1.60% of the actuarial value of plan assets. It follows that contributing the normal cost for one year would have bought protection from an asset loss of 1.60%.

Using the normal cost as the presumptive contribution floor would:

- Avoid the "sticker shock" employers get when their contribution increases sharply.

- Reduce the number of years in which costs would exceed the normal cost rate.

[202] Aon Consulting, *Report on Plan Costs*, 9-21.

- Avoid committing to programs that are not affordable when pension costs return to normal levels.

Reductions to Respond to Overfunding. Despite adoption of a presumptive normal cost funding floor, reductions in employer contributions can be permitted where the system becomes markedly overfunded. However, such reductions must be measured, and the possibility that the decreases may be temporary must be acknowledged. Several possible alternative strategies are:

- Contribute the normal cost plus an amortization of any unfunded actuarial liability. A reduction would be permitted if the plan were in a surplus position exceeding a certain funded ratio.

- Permit contributions below normal cost if plan assets exceed the present value of future benefits.

- Model the required contribution rates for the next five years based on a severe investment return scenario to produce a theoretically reasonable worst case. These results can be used as a guideline to determine whether the systems should reduce the employer contribution rates and by how much. For example, the current funded levels and strategy might call for a 1% decrease in rates. However, the five-year return model might show that any reductions would need to be reversed in the case of a market downturn and that reducing rates currently would cause a higher rate in the future. Consideration of the reasonably pessimistic model could result in a decision to fix the employer contribution rate so as to make cost reductions more gradual.

Recognition of Investment Experience. The retirement systems use an actuarial asset valuation method designed to phase in the impact of year-to-year investment returns that differ from the assumed 8.50%. The method currently mandated by statute is deferred recognition over a five-year period. Under it, asset losses must be offset by higher pension contributions unless offsetting asset gains occur in that period. This method is not the only one theoretically available to the programs and should be evaluated on a regular basis to ensure that it is serving the intended purposes. A different method may result in a higher current cost but more level costs in subsequent years. Alternative actuarial valuation methods include the following:

- Deferred Recognition—a portion of investment experience is recognized each year. (This is the method presently used by both systems, but a recognition period longer than five years can be adopted.)

- Blend Methods—a mix of market and book values.

- Write-up Methods—a preliminary asset value is generated based on assumed returns. An adjustment may be made based on various approaches.

- Average Market Value—market values from multiple years are averaged.

Note, however, that the asset method does not change the overall cost level, but merely the timing of outlays to meet costs.

Risk Reduction through Annuities. A major contributing factor to the volatility in investment returns is the large size of plan assets relative to the normal cost. The systems can decrease their exposure to loss (but also their potential returns) through the purchase of annuities for retired or terminated employees. This will decrease the leverage of the assets over liabilities and reduce any duration mismatch. Annuity prices in today's market are based on an interest rate somewhat lower than the 8.50% return used for pension funding. Passing off risk will therefore incur a cost. Different annuity arrangements can lead to PSERS' and SERS' retaining a portion of future returns even after purchase. This allows the programs to pass off the downside investment risk and retain participation in any upside, although premiums for annuities that permit participation in investment gains will be higher than for annuities that do not. However, it may be argued that a plan as large as PSERS or SERS should be able to weather the risks of variable market returns without incurring the cost of purchasing annuities. A key factor would be determination of the point at which the impact of adverse experience outweighs the cost of protection.

End of Career Pay Increases. All system retirement benefits are calculated based on the final three-year average pay. As a result, if an individual transfers to a new position, or otherwise receives a substantial pay increase in the last several years of his or her career, it materially increases the pension benefit. The pension then disproportionately exceeds the contributions the employee has been making over his or her career, throwing the program out of actuarial balance. Of course, there are many legitimate reasons for late career pay increases, such as general pay raises, seniority increases, and promotions. But in some systems, specially granted pay increases become an institutionalized form of pension bonus. The nature of the program results in all employers paying a larger contribution, even though their employees may not have received the larger pension. The systems should educate employers who exhibit this type of behavior of the consequences to the overall system.

Outside Influences on Retention and Retirement. Occasionally federal, state, or private programs affect the likelihood of employment changes. Such changes in the job market may result in higher or lower termination and retirement rates. Policy makers must be aware of the programs and the possible difficulties they may cause.

Aging of the Population. The large baby boom generation is nearing its retirement years. The ages of plan participants and likelihood of retirement are factored into the actuarial calculations and so will not necessarily cause any plan cost changes by themselves. However, individual employers may face a smaller pool of workers or a workforce with an older average age. These conditions may result in employers' providing greater incentives for employees to stay at work beyond the expected retirement ages. This will cause a deviation from the current retirement rates, which will affect overall benefit size, pay levels, and retirement ages. The ages of these employees will impact the long-term costs of the programs. Plan provisions may be changed to encourage older employers to stay in service, resulting in higher payments and associated costs. At the same time, later retirement ages may help reduce costs. Policymakers need to study these effects carefully and build their conclusions about them into the long-term cost of the pension program.

Responding to Diverse Conditions. Different economic and demographic conditions exist in different parts of Pennsylvania. To the extent these differences affect payroll and retention, they should be monitored and evaluated. Adjustment of contribution rates to reflect such variations should be considered if the variations are large and seem likely to persist.

Providing Future Benefit Increases

Most pension funding approaches rely on the principle that program benefits for an individual should be paid for as the employee works for that employer. The goal is to have a "fully paid" pension at the time the employee retires in order to tie employer costs to the employees who will receive the benefit of those costs, minimize cross-generational wealth transfers, and keep changes in the size of the employer's payroll from affecting its ability to provide promised benefits.

Plan design changes create an outside shock to the retirement system. Some plan changes, such as COLAs and ERIPs, have been implemented or considered on a regular basis. If it is likely that certain changes will be made in

the future, including them in the overall plan design may be desirable, as actuaries can then incorporate those features into their actuarial analysis and thereby keep the plans in better balance.

Plan changes that affect only the timing and size of benefits tied to future years of service do not destabilize the cost of the plan. However, plan changes can also be made that increase "past service benefits," meaning benefits for service that has already taken place. In such cases, plan costs are no longer related to the payroll of the existing workforce, and a mismatch is created between plan costs and the workforce that supports them. The mismatch can make plan costs more variable and independent of workforce changes. In extreme cases, excessive past service benefits can cripple the ability of an employer to function by burdening the employer with costs associated with former employees. It is therefore necessary to consider strategies to control the cost of past service benefits before that cost becomes unsupportable.

A number of alternative approaches would permit past service benefit changes without causing volatility in plan costs. All provide for higher contributions than those under existing plan provisions and current assumptions.

Use of Conservative Actuarial Assumptions. One approach is to make the actuarial assumptions that drive the funding strategy more conservative. This will increase employer costs, allowing actuarial gains to accumulate. The plan amendments would then be paid for with those actuarial gains.

- *Pros:*
    - Allows prefunding of plan amendments.
    - Reduces risk of underfunding the plan when amendments are made.
- *Cons:*
    - Requires employers to fund as yet unknown benefits.
    - Creates a difficulty in justifying actual amounts being paid in for current benefits.
    - Creates an implicit promise to increase benefits in the future, thus potentially limiting the ability to use those gains for other purposes.

- Fails to counteract basic problem of employer cost swings. If the existing contribution strategy remains, employers will still see lower contributions after favorable years and higher contributions after plan changes occur.

Creation of a Reserve Fund. This approach uses any one of several approaches to create a reserve that can be earmarked for benefit enhancements. This may be done by segregating a portion of periodic experience gains from the cost calculations, funding beyond a target funded ratio, or adding a given percentage over the employer contribution. Using the targeted funded ratio variation, once actuarial gains and plan contributions cause a funded ratio that exceeds the level (for example, plan assets exceeding 110% of plan liabilities), a portion of any future gains is assigned to the reserve. The reserve would be part of the overall pension trust, but would be ignored when considering future employer contribution amounts. Any plan changes would then be "paid for" out of this reserve fund. The actuarial value of the plan amendment must be less than the value of the reserve.

- *Pros:*
  - Reduces employer cost volatility by not allowing for a full reduction in payments when gains occur.
  - Allows past service changes to be made without impacting underlying plan costs and causing volatility in those costs.
  - Encourages restraint on the generosity of plan changes by tying them to the size of the reserve.
  - Creates a closer link between the service period the increase is for and the contributions.
- *Cons:*
  - Creates a difficulty in justifying the actual amounts being paid in for current benefits.
  - Creates an implicit promise to increase benefits in the future, thus potentially limiting the ability to use those gains for other purposes.
  - Creates a temptation to siphon off assets from the reserve to use for regular cost payments.

Automatic Cost of Living Adjustment – Investment Contingent Form. One sometimes costly past service amendment is the provision of cost of living increases to current retirees. One approach to making this manageable is to provide that a supplemental amount is automatically added to retiree benefits when investment returns exceed a certain level on a year-by-year or cumulative basis. If investment results are below a certain level, the supplement is decreased or eliminated. However, a guaranteed benefit is provided, regardless of investment returns.

- *Pros:*
    - Allows programs to prospectively escape the pressure to enact future cost of living increases.
    - Plan funding levels realistically reflect the plan provisions.
    - No artificial structures need be created to build up extra reserves.
    - Allows retirees to share in any gains that occur within the program.
- *Cons:*
    - Emphasis on short-term returns may hamper ability to invest appropriately and result in lawsuits based on alleged breach of fiduciary duty.
    - Pension decreases are typically difficult for retirees to anticipate and manage. This may lead to pressure to not allow the automatic decrease mechanism to function.
    - Pension increases or decreases may not be tied to periods when inflation is shifting in the same way. In some historical periods, reductions in benefits from asset losses have coincided with rising inflation.
    - The automatic COLA may change expectations among program participants.

Automatic Cost of Living Adjustment – Optional Form. Alternatively, the problem of funding an automatic COLA can be addressed by creating a new option under the programs. Employees can elect to receive a reduced benefit in return for the guarantee that the benefit will automatically increase with changes in a measure of the cost of living. Annual caps can be put in place to control plan costs and risk. This will not create hardship for those who make this election.

The Aon Consulting *Report on Program Benchmarking* supports the conclusion that even after inflation-adjusting existing program benefits, a full service retiree would have sufficient income to meet the target income levels.

- *Pros:*
    - Allows programs to prospectively escape the pressure to enact future cost of living increases.
    - Plan funding levels will realistically reflect the plan provisions.
    - No artificial structures need be created to build up extra reserves.
    - Employee and employer payments over the working lifetime of the employee pay for their entire benefit. There is no shift of costs to future generations.
- *Cons:*
    - The automatic COLA may create a shift in expectations among program participants.
    - This strategy does not remove pressure from prior retirees for increases.

Enhanced Early Retirement Benefits. From time to time a special early retirement incentive may be considered. These types of programs provide a window of time in which an employee can retire and receive a larger pension benefit. To be an effective incentive to retire the offers must be somewhat lucrative; as a result, the cost of these programs can be significant. If a program is offered with enough frequency, it is reasonable to assume it is a de facto part of the plan. If so, it should be funded as the employees work by including the ERIP within the normal cost, thereby avoiding cost swings. If the incentive is offered only intermittently, the economic tradeoff between the cost of the program and the expected benefit must be established. This will allow the "true" cost to be known to employers who may be inclined to offer this type of program. The stresses to the plan related to the aging of the baby boom generation, which were noted above, may work against the need or desire to provide these programs.

Policy Considerations

There is always intense competition in the public sector for the use of available funds. Allocation to the retirement fund is only one of several deserving options. In addition, board members may be criticized if they are too aggressive or too conservative in the assumptions and methods used to determine pension contributions. Policymakers must weigh these issues before acting on any changes in strategy or approach.

Any change in plan provisions, benefit levels, or contribution strategy may represent a shift in overall policy, entailing many considerations. Several of the issues other employers have contended with are:

- Which generation of workers and taxpayers should benefit from a strong investment market or pay the cost of a weak investment market?

- Should current employers enjoy a reduced contribution requirement because of investment results outside of their control?

- Should the payments of the given true cost be restructured such that employers are required to pay more than they currently must under the systems' current economic and demographic assumptions?

- Historically, many government employees have accepted lower pay scales than those in the private sector in return for higher benefits. Ideally, an employer should use a total compensation approach to determine the competitiveness of its pay and benefit practices. To fully compare the compensation of an employee, all the terms and conditions of employment other than pay and pension benefits should be taken into account as well, such as health benefits, life insurance, and leave policies. Such a valuation is outside the scope of this report.

Conclusion

Both the SERS and the PSERS are prefunded pension programs. Retirement benefits are determined, and actuarial calculations are used to determine the level of contribution needed to keep the programs well funded. The employer has some discretion in how costs are determined and when they are realized by the use of assumptions about future events and actuarial methods.

Strong investment results in the late 1990s put the programs in a well-funded situation and allowed for a significant reduction in employer costs. The difficult investment markets of 2000-02, combined with benefit increases, have resulted in much higher projected employer costs for PSERS and SERS than just two years ago.

Investment returns, employer contribution strategy, and plan changes have all combined to make the cost of the plan subject to possible substantial future increases. These factors can be controlled to avoid placing excessive future burdens on the system employers. A combination of changing the contribution strategy and managing benefit provisions can be used to allow future increases to benefits without destabilizing the pension funding rates.

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GLOSSARY

Accrued Liability

The difference between the present value of future plan benefits and the present value of future normal cost. It is the portion of the present value of future plan benefits attributable to service accrued as of the valuation dates. Sometimes referred to as "actuarial accrued liability."

Act 9

Pennsylvania General Assembly act of May 17, 2001 (P.L.26, No.9).

Act 38

Pennsylvania General Assembly act of April 23, 2002 (P.L.272, No.38).

Act 40

Pennsylvania General Assembly act of December 10, 2003 (P.L.228, No.40).

Actuarial Equivalent

A series of payments is called an actuarial equivalent of another series of payments if the two series have the same actuarial present value.

Actuarial Value of Assets

The value of current plan assets recognized for valuation purposes. For PSERS and SERS this is based on a smoothed market value that recognizes investment gains and losses over a period of five years.

Amortization

Paying off an interest-bearing liability by means of periodic payments of interest and principal, as opposed to paying it off with a lump sum payment.

Benefit Limitation

The highest amount a retiree may receive from the system.

Benefit Multiplier

The percentage per year of service that is multiplied by the final average salary to determine the annual benefit amount. Also known as the accrual rate.

CAFR

Comprehensive Annual Financial Report

COLA

Cost-of-living adjustment

Consumer Price Index (CPI)

The standard measure of price inflation, determined by the Bureau of Labor Statistics of the federal Department of Labor.

Early Retirement Incentive Program (ERIP)

A program that offers employees an incentive, such as full retirement benefits, to elect retirement before superannuation.

Defined Benefit Plan (DB)

A retirement program under which the employer guarantees a level of retirement benefits, as determined by formula, to employees who meet certain eligibility requirements.

Defined Contribution Plan (DC)

A retirement program under which the amount of the retirement benefit depends on the amount contributed to the plan by the employer, the employee, or both, and the investment return on those contributions.

Employee Contribution

The percentage of salary deducted from the employees' paychecks and allocated to the retirement funds.

Employer Contribution

The percentage of payroll the employer contributes to the retirement fund. The employer contribution is equal to the sum of the normal cost and the amortization of unfunded actuarial liability.

Entry Age Normal Method

The actuarial method PSERS and SERS use to calculate the amount of money needed to provide retirement benefits.

Experience Gain (Loss)

A measure of the difference between actual experience and that expected based upon a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method used.

Final Average Salary Period

The salary factor used to determine the annual benefit amount.

Fully Funded

The fund has sufficient assets to support its net liabilities for the benefits of all active and retired members at a given time; having a funded ratio of 100% or higher.

Funded Ratio

The ratio of the actuarial value of plan assets to the actuarial value of its liabilities.

IRC

The federal Internal Revenue Code of 1986.

JSGC

Joint State Government Commission

Normal Cost

The annual cost assumed, under the actuarial funding method, for current and subsequent plan years.

PERC

Public Employees Retirement Commission

Present Value

The amount of funds presently required to provide a payment or series of payments in the future. The present value is determined by discounting the future payments at a predetermined rate of interest, taking into account the probability of payment.

PSERS

Public School Employees Retirement System

Replacement Ratio

The portion of pre-retirement income, expressed as a percentage, needed to produce an equivalent standard of living after retirement.

SERS

State Employees Retirement System

Smoothing

An accounting technique by which investment gains or losses are realized over a specified period of time rather than all at once so as to reduce their impact at any particular moment. PSERS and SERS use a 5-year smoothing technique.

Unfunded Accrued Liability (UAL)

The difference between the actuarial accrued liability and valuation assets.

Vesting Period

The length of employment required before an employee may qualify for retirement benefits.

APPENDIX A

2002 Senate Resolution No. 286

PRINTER'S NO. 2338

THE GENERAL ASSEMBLY OF PENNSYLVANIA

SENATE RESOLUTION

No. 286 Session of 2002

INTRODUCED BY MOWERY, GERLACH, TOMLINSON, COSTA, KUKOVICH, ROBBINS, WENGER, M. WHITE, ORIE, BOSCOLA, EARLL, ERICKSON, KITCHEN, LEMMOND, D. WHITE, CONTI AND SCHWARTZ, OCTOBER 24, 2002

REFERRED TO FINANCE, OCTOBER 24, 2002

A RESOLUTION

Directing the Joint State Government Commission to study and recommend potential changes to the current funding and benefits structure of the Commonwealth's two mandatory governmental pension plans, including the need, design and funding of any future cost-of-living adjustments.

WHEREAS, The Commonwealth of Pennsylvania maintains two governmental defined benefit Statewide pension plans: the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS); and

WHEREAS, Nearly all full-time and part-time public school employees are required to join PSERS, and most full-time and part-time State employees are required to join SERS; and

WHEREAS, Both systems are financed through separate employer and employee contributions and investment earnings, with each system's employer contribution rates being variable, based upon actuarial experience, and the investment returns of each system and their respective employee contribution rates being fixed by statute; and

WHEREAS, The employer contribution rate for PSERS is funded in part by the taxpayers of this Commonwealth, with the remainder being funded by local taxpayers through either property or earned income taxes levied by school taxing authorities; and

WHEREAS, The employer contribution rate for SERS is funded by the taxpayers of this Commonwealth; and

WHEREAS, Because of excellent investment returns prior to year 2000, the PSERS employer contribution rate decreased from 20.04% of payroll in fiscal year 1985-1986 to 1.15% in fiscal year 2002-2003, and the SERS employer contribution rate decreased from 18.09% of payroll in fiscal year 1983-1984 to 0.00% in fiscal year 2002-2003; and

WHEREAS, These substantial decreases in the respective employer contribution rates for both systems have resulted in hundreds of millions of dollars in savings to both State and local taxpayers; and

WHEREAS, Both systems' employer contribution rates are well below their current actuarial valuations employer normal costs of 7.20% of payroll for PSERS and 8.64% of payroll for SERS; and

WHEREAS, Both PSERS and SERS, as of their last actuarial valuation dates, have assets in excess of their actuarial accrued liabilities in the amount of 114.4% and 116.3% respectively and thus both systems are financially sound and have secured the pension benefits payable to their members; and

WHEREAS, In addition to the current financial strength of the systems, the pension benefits payable to the members of both systems are fully guaranteed by the Commonwealth of Pennsylvania; and

WHEREAS, Because of the current downturn in the financial

markets, both systems have recently experienced investment returns less than their current actuarial investment earnings assumption of 8.5%; and

WHEREAS, Consistent with the design of a defined benefit plan, the risk of this investment underperformance is borne by the employers of both systems and ultimately the State and local taxpayers who fund them; and

WHEREAS, The recent investment underperformance incurred by both systems will result in increases to the respective employer contribution rates of each system from their current record lows; and

WHEREAS, Concerns have been expressed about the impact these pending employer contribution rate increases will have on the employers of each system and ultimately the State and local taxpayers who fund them; and

WHEREAS, Concerns have also been expressed about the impact these pending employer contribution rate increases will have on the ability of the General Assembly to either enhance the existing benefits of the members of both systems or grant new benefits, including the need, design and funding of any future cost-of-living adjustments; therefore be it

RESOLVED, That, due to the importance and complexity of the issues surrounding the pension benefits for State and public school employees and to maintain the current financial strength of both the Public School Employees' Retirement System and the State Employees' Retirement System, the Senate direct the Joint State Government Commission to study and make any recommendations concerning the current funding and benefits structure of the Public School Employees' Retirement System and the State Employees' Retirement System, including the need,

design and funding of any future cost-of-living adjustments; and be it further

RESOLVED, That upon the Joint State Government Commission's request, the Public School Employees' Retirement System, the State Employees' Retirement System and the Public Employee Retirement Commission are directed to provide all relevant information and staff assistance to the Joint State Government Commission in response to the issues studied under this resolution; and be it further

RESOLVED, That the Joint State Government Commission report its findings and any recommendations concerning the funding and benefits structure of the Public School Employees' Retirement System, and the State Employees' Retirement System to the General Assembly by December 31, 2003.

APPENDIX B

Selected Benefit Adequacy Tables

PSERS-TC
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
25	0%	Pension Plan Benefits	52.4%	52.4%	52.4%	52.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**52.4%**	**52.4%**	**52.4%**	**52.4%**	**52.4%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	84.2%	77.7%	72.5%	68.5%	
		Percent of Target	**101.4%**	**102.3%**	97.9%	93.9%	
	3%	Pension Plan Benefits	52.4%	52.4%	52.4%	52.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.8%	16.8%	16.8%	16.8%	
		Company-Sponsored Benefits	**69.2%**	**69.2%**	**69.2%**	**69.2%**	**69.2%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	101.0%	94.6%	89.3%	85.4%	
		Percent of Target	**121.7%**	**124.4%**	**120.7%**	**117.0%**	
	6%	Pension Plan Benefits	52.4%	52.4%	52.4%	52.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	33.7%	33.7%	33.7%	33.7%	
		Company-Sponsored Benefits	**86.1%**	**86.1%**	**86.1%**	**86.1%**	**86.1%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	117.9%	111.4%	106.2%	102.2%	
		Percent of Target	**142.0%**	**146.6%**	**143.5%**	**140.0%**	

PSERS-TC
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
30	0%	Pension Plan Benefits	45.3%	45.3%	45.3%	45.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**45.3%**	**45.3%**	**45.3%**	**45.3%**	**45.3%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	77.4%	71.1%	65.6%	61.9%	
		Percent of Target	93.2%	93.5%	88.7%	84.7%	
	3%	Pension Plan Benefits	45.3%	45.3%	45.3%	45.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	13.0%	13.0%	13.0%	13.0%	
		Company-Sponsored Benefits	**58.3%**	**58.3%**	**58.3%**	**58.3%**	**58.3%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	90.4%	84.0%	78.6%	74.9%	
		Percent of Target	**108.9%**	**110.6%**	**106.3%**	**102.5%**	
	6%	Pension Plan Benefits	45.3%	45.3%	45.3%	45.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	26.0%	26.0%	26.0%	26.0%	
		Company-Sponsored Benefits	**71.3%**	**71.3%**	**71.3%**	**71.3%**	**71.3%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	103.4%	97.0%	91.6%	87.9%	
		Percent of Target	**124.6%**	**127.7%**	**123.8%**	**120.3%**	

PSERS-TC
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
35	0%	Pension Plan Benefits	38.2%	38.2%	38.2%	38.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**38.2%**	**38.2%**	**38.2%**	**38.2%**	**38.2%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	70.7%	64.4%	58.9%	55.2%	
		Percent of Target	85.2%	84.7%	79.6%	75.6%	
	3%	Pension Plan Benefits	38.2%	38.2%	38.2%	38.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.8%	9.8%	9.8%	9.8%	
		Company-Sponsored Benefits	**48.0%**	**48.0%**	**48.0%**	**48.0%**	**48.0%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	80.5%	74.2%	68.7%	65.0%	
		Percent of Target	97.0%	97.6%	92.8%	89.0%	
	6%	Pension Plan Benefits	38.2%	38.2%	38.2%	38.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.6%	19.6%	19.6%	19.6%	
		Company-Sponsored Benefits	**57.8%**	**57.8%**	**57.8%**	**57.8%**	**57.8%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	90.3%	84.0%	78.5%	74.8%	
		Percent of Target	**108.8%**	**110.6%**	**106.1%**	**102.5%**	

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Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
40	0%	Pension Plan Benefits	31.1%	31.1%	31.1%	31.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**31.1%**	**31.1%**	**31.1%**	**31.1%**	**31.1%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	64.0%	57.8%	52.1%	48.5%	
		Percent of Target	77.2%	76.1%	70.5%	66.4%	
	3%	Pension Plan Benefits	31.1%	31.1%	31.1%	31.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.2%	7.2%	7.2%	7.2%	
		Company-Sponsored Benefits	**38.3%**	**38.3%**	**38.3%**	**38.3%**	**38.3%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	71.2%	65.0%	59.3%	55.7%	
		Percent of Target	85.8%	85.5%	80.1%	76.3%	
	6%	Pension Plan Benefits	31.1%	31.1%	31.1%	31.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	14.3%	14.3%	14.3%	14.3%	
		Company-Sponsored Benefits	**45.5%**	**45.5%**	**45.5%**	**45.5%**	**45.5%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	78.4%	72.1%	66.5%	62.8%	
		Percent of Target	94.4%	94.9%	89.8%	86.1%	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
25	0%	Pension Plan Benefits	57.9%	57.9%	57.9%	57.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**57.9%**	**57.9%**	**57.9%**	**57.9%**	**57.9%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	105.2%	95.4%	87.7%	81.7%	
		Percent of Target	**126.8%**	**125.5%**	**116.9%**	**108.9%**	
	3%	Pension Plan Benefits	57.9%	57.9%	57.9%	57.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	21.6%	21.6%	21.6%	21.6%	
		Company-Sponsored Benefits	**79.5%**	**79.5%**	**79.5%**	**79.5%**	**79.5%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	126.8%	117.0%	109.3%	103.3%	
		Percent of Target	**152.8%**	**154.0%**	**145.7%**	**137.8%**	
	6%	Pension Plan Benefits	57.9%	57.9%	57.9%	57.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	43.2%	43.2%	43.2%	43.2%	
		Company-Sponsored Benefits	**101.1%**	**101.1%**	**101.1%**	**101.1%**	**101.1%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	148.4%	138.6%	130.9%	124.9%	
		Percent of Target	**178.8%**	**182.4%**	**174.5%**	**166.6%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
30	0%	Pension Plan Benefits	50.7%	50.7%	50.7%	50.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**50.7%**	**50.7%**	**50.7%**	**50.7%**	**50.7%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	98.4%	88.7%	80.8%	75.0%	
		Percent of Target	**118.5%**	**116.7%**	**107.7%**	**100.1%**	
	3%	Pension Plan Benefits	50.7%	50.7%	50.7%	50.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.8%	16.8%	16.8%	16.8%	
		Company-Sponsored Benefits	**67.5%**	**67.5%**	**67.5%**	**67.5%**	**67.5%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	115.2%	105.6%	97.7%	91.9%	
		Percent of Target	**138.8%**	**138.9%**	**130.2%**	**122.5%**	
	6%	Pension Plan Benefits	50.7%	50.7%	50.7%	50.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	33.7%	33.7%	33.7%	33.7%	
		Company-Sponsored Benefits	**84.3%**	**84.3%**	**84.3%**	**84.3%**	**84.3%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	132.1%	122.4%	114.5%	108.7%	
		Percent of Target	**159.1%**	**161.1%**	**152.7%**	**145.0%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
35	0%	Pension Plan Benefits	43.4%	43.4%	43.4%	43.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**43.4%**	**43.4%**	**43.4%**	**43.4%**	**43.4%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	91.6%	82.1%	74.0%	68.4%	
		Percent of Target	**110.4%**	**108.0%**	98.6%	91.2%	
	3%	Pension Plan Benefits	43.4%	43.4%	43.4%	43.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.9%	12.9%	12.9%	12.9%	
		Company-Sponsored Benefits	**56.3%**	**56.3%**	**56.3%**	**56.3%**	**56.3%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	104.5%	95.0%	86.9%	81.3%	
		Percent of Target	**125.9%**	**125.0%**	**115.8%**	**108.4%**	
	6%	Pension Plan Benefits	43.4%	43.4%	43.4%	43.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	25.8%	25.8%	25.8%	25.8%	
		Company-Sponsored Benefits	**69.2%**	**69.2%**	**69.2%**	**69.2%**	**69.2%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	117.4%	107.9%	99.8%	94.2%	
		Percent of Target	**141.5%**	**141.9%**	**133.0%**	**125.6%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
40	0%	Pension Plan Benefits	36.2%	36.2%	36.2%	36.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**36.2%**	**36.2%**	**36.2%**	**36.2%**	**36.2%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	85.0%	75.5%	67.2%	61.8%	
		Percent of Target	**102.4%**	99.4%	89.6%	82.3%	
	3%	Pension Plan Benefits	36.2%	36.2%	36.2%	36.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.6%	9.6%	9.6%	9.6%	
		Company-Sponsored Benefits	**45.8%**	**45.8%**	**45.8%**	**45.8%**	**45.8%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	94.6%	85.1%	76.8%	71.4%	
		Percent of Target	**114.0%**	**112.0%**	**102.4%**	95.2%	
	6%	Pension Plan Benefits	36.2%	36.2%	36.2%	36.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.2%	19.2%	19.2%	19.2%	
		Company-Sponsored Benefits	**55.4%**	**55.4%**	**55.4%**	**55.4%**	**55.4%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	104.2%	94.8%	86.5%	81.0%	
		Percent of Target	**125.6%**	**124.7%**	**115.3%**	**108.0%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
25	0%	Pension Plan Benefits	65.4%	65.4%	65.4%	65.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**65.4%**	**65.4%**	**65.4%**	**65.4%**	**65.4%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	97.3%	90.8%	85.5%	81.6%	
		Percent of Target	**117.2%**	**119.5%**	**115.6%**	**111.8%**	
	3%	Pension Plan Benefits	65.4%	65.4%	65.4%	65.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.8%	16.8%	16.8%	16.8%	
		Company-Sponsored Benefits	**82.3%**	**82.3%**	**82.3%**	**82.3%**	**82.3%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	114.1%	107.7%	102.4%	98.5%	
		Percent of Target	**137.5%**	**141.7%**	**138.4%**	**134.9%**	
	6%	Pension Plan Benefits	65.4%	65.4%	65.4%	65.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	33.7%	33.7%	33.7%	33.7%	
		Company-Sponsored Benefits	**99.1%**	**99.1%**	**99.1%**	**99.1%**	**99.1%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	131.0%	124.5%	119.2%	115.3%	
		Percent of Target	**157.8%**	**163.8%**	**161.1%**	**158.0%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
30	0%	Pension Plan Benefits	56.6%	56.6%	56.6%	56.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**56.6%**	**56.6%**	**56.6%**	**56.6%**	**56.6%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	88.7%	82.4%	77.0%	73.2%	
		Percent of Target	**106.9%**	**108.4%**	**104.0%**	**100.2%**	
	3%	Pension Plan Benefits	56.6%	56.6%	56.6%	56.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	13.0%	13.0%	13.0%	13.0%	
		Company-Sponsored Benefits	**69.6%**	**69.6%**	**69.6%**	**69.6%**	**69.6%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	101.7%	95.4%	90.0%	86.2%	
		Percent of Target	**122.5%**	**125.5%**	**121.6%**	**118.1%**	
	6%	Pension Plan Benefits	56.6%	56.6%	56.6%	56.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	26.0%	26.0%	26.0%	26.0%	
		Company-Sponsored Benefits	**82.6%**	**82.6%**	**82.6%**	**82.6%**	**82.6%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	114.7%	108.4%	103.0%	99.2%	
		Percent of Target	**138.2%**	**142.6%**	**139.1%**	**135.9%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
35	0%	Pension Plan Benefits	47.8%	47.8%	47.8%	47.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**47.8%**	**47.8%**	**47.8%**	**47.8%**	**47.8%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	80.2%	74.0%	68.4%	64.7%	
		Percent of Target	96.7%	97.3%	92.5%	88.7%	
	3%	Pension Plan Benefits	47.8%	47.8%	47.8%	47.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.8%	9.8%	9.8%	9.8%	
		Company-Sponsored Benefits	**57.6%**	**57.6%**	**57.6%**	**57.6%**	**57.6%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	90.0%	83.8%	78.2%	74.5%	
		Percent of Target	**108.5%**	**110.2%**	**105.7%**	**102.1%**	
	6%	Pension Plan Benefits	47.8%	47.8%	47.8%	47.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.6%	19.6%	19.6%	19.6%	
		Company-Sponsored Benefits	**67.4%**	**67.4%**	**67.4%**	**67.4%**	**67.4%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	99.9%	93.6%	88.0%	84.4%	
		Percent of Target	**120.3%**	**123.1%**	**119.0%**	**115.6%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
40	0%	Pension Plan Benefits	38.9%	38.9%	38.9%	38.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**38.9%**	**38.9%**	**38.9%**	**38.9%**	**38.9%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	71.8%	65.6%	59.9%	56.3%	
		Percent of Target	86.5%	86.3%	81.0%	77.1%	
	3%	Pension Plan Benefits	38.9%	38.9%	38.9%	38.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.2%	7.2%	7.2%	7.2%	
		Company-Sponsored Benefits	**46.1%**	**46.1%**	**46.1%**	**46.1%**	**46.1%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	79.0%	72.8%	67.1%	63.5%	
		Percent of Target	95.2%	95.7%	90.7%	86.9%	
	6%	Pension Plan Benefits	38.9%	38.9%	38.9%	38.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	14.3%	14.3%	14.3%	14.3%	
		Company-Sponsored Benefits	**53.3%**	**53.3%**	**53.3%**	**53.3%**	**53.3%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	86.2%	79.9%	74.3%	70.6%	
		Percent of Target	**103.8%**	**105.2%**	**100.4%**	96.7%	

PSERS-TD
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
25	0%	Pension Plan Benefits	72.4%	72.4%	72.4%	72.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**72.4%**	**72.4%**	**72.4%**	**72.4%**	**72.4%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	119.7%	109.9%	102.1%	96.2%	
		Percent of Target	**144.2%**	**144.6%**	**136.2%**	**128.2%**	
	3%	Pension Plan Benefits	72.4%	72.4%	72.4%	72.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	21.6%	21.6%	21.6%	21.6%	
		Company-Sponsored Benefits	**94.0%**	**94.0%**	**94.0%**	**94.0%**	**94.0%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	141.3%	131.5%	123.8%	117.8%	
		Percent of Target	**170.2%**	**173.0%**	**165.0%**	**157.1%**	
	6%	Pension Plan Benefits	72.4%	72.4%	72.4%	72.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	43.2%	43.2%	43.2%	43.2%	
		Company-Sponsored Benefits	**115.6%**	**115.6%**	**115.6%**	**115.6%**	**115.6%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	162.9%	153.1%	145.4%	139.4%	
		Percent of Target	**196.3%**	**201.4%**	**193.8%**	**185.9%**	

PSERS-TD
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
30	0%	Pension Plan Benefits	63.3%	63.3%	63.3%	63.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**63.3%**	**63.3%**	**63.3%**	**63.3%**	**63.3%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	111.0%	101.4%	93.5%	87.7%	
		Percent of Target	**133.8%**	**133.4%**	**124.6%**	**116.9%**	
	3%	Pension Plan Benefits	63.3%	63.3%	63.3%	63.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.8%	16.8%	16.8%	16.8%	
		Company-Sponsored Benefits	**80.2%**	**80.2%**	**80.2%**	**80.2%**	**80.2%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	127.9%	118.2%	110.3%	104.6%	
		Percent of Target	**154.1%**	**155.6%**	**147.1%**	**139.4%**	
	6%	Pension Plan Benefits	63.3%	63.3%	63.3%	63.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	33.7%	33.7%	33.7%	33.7%	
		Company-Sponsored Benefits	**97.0%**	**97.0%**	**97.0%**	**97.0%**	**97.0%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	144.7%	135.1%	127.2%	121.4%	
		Percent of Target	**174.4%**	**177.7%**	**169.6%**	**161.9%**	

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Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
35	0%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**54.3%**	**54.3%**	**54.3%**	**54.3%**	**54.3%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	102.5%	92.9%	84.8%	79.3%	
		Percent of Target	**123.5%**	**122.3%**	**113.1%**	**105.7%**	
	3%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.9%	12.9%	12.9%	12.9%	
		Company-Sponsored Benefits	**67.2%**	**67.2%**	**67.2%**	**67.2%**	**67.2%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	115.4%	105.8%	97.7%	92.2%	
		Percent of Target	**139.0%**	**139.3%**	**130.3%**	**122.9%**	
	6%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	25.8%	25.8%	25.8%	25.8%	
		Company-Sponsored Benefits	**80.1%**	**80.1%**	**80.1%**	**80.1%**	**80.1%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	128.3%	118.7%	110.6%	105.0%	
		Percent of Target	**154.5%**	**156.2%**	**147.5%**	**140.1%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
40	0%	Pension Plan Benefits	45.2%	45.2%	45.2%	45.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**45.2%**	**45.2%**	**45.2%**	**45.2%**	**45.2%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	94.0%	84.6%	76.3%	70.8%	
		Percent of Target	**113.3%**	**111.3%**	**101.7%**	94.4%	
	3%	Pension Plan Benefits	45.2%	45.2%	45.2%	45.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.6%	9.6%	9.6%	9.6%	
		Company-Sponsored Benefits	**54.8%**	**54.8%**	**54.8%**	**54.8%**	**54.8%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	103.6%	94.2%	85.9%	80.4%	
		Percent of Target	**124.9%**	**123.9%**	**114.5%**	**107.2%**	
	6%	Pension Plan Benefits	45.2%	45.2%	45.2%	45.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.2%	19.2%	19.2%	19.2%	
		Company-Sponsored Benefits	**64.5%**	**64.5%**	**64.5%**	**64.5%**	**64.5%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	113.3%	103.8%	95.5%	90.0%	
		Percent of Target	**136.5%**	**136.6%**	**127.3%**	**120.1%**	

SERS-AA General
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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 60)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
25	0%	Pension Plan Benefits	61.0%	61.0%	61.0%	61.0%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**61.0%**	**61.0%**	**61.0%**	**61.0%**	**61.0%**
		Social Security Benefits(age 65)	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	108.3%	98.5%	90.8%	84.8%	
		Percent of Target	**130.5%**	**129.6%**	**122.7%**	**116.2%**	
	3%	Pension Plan Benefits	61.0%	61.0%	61.0%	61.0%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	14.7%	14.7%	14.7%	14.7%	
		Company-Sponsored Benefits	**75.7%**	**75.7%**	**75.7%**	**75.7%**	**75.7%**
		Social Security Benefits(age 65)	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	123.0%	113.2%	105.5%	99.5%	
		Percent of Target	**148.2%**	**148.9%**	**142.5%**	**136.3%**	
	6%	Pension Plan Benefits	61.0%	61.0%	61.0%	61.0%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	29.4%	29.4%	29.4%	29.4%	
		Company-Sponsored Benefits	**90.4%**	**90.4%**	**90.4%**	**90.4%**	**90.4%**
		Social Security Benefits(age 65)	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	137.7%	127.9%	120.1%	114.2%	
		Percent of Target	**165.9%**	**168.2%**	**162.4%**	**156.4%**	

SERS-AA General
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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 60)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
30	0%	Pension Plan Benefits	52.3%	52.3%	52.3%	52.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**52.3%**	**52.3%**	**52.3%**	**52.3%**	**52.3%**
		Social Security Benefits(age 65)	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	100.0%	90.3%	82.4%	76.7%	
		Percent of Target	**120.5%**	**118.9%**	**111.4%**	**105.0%**	
	3%	Pension Plan Benefits	52.3%	52.3%	52.3%	52.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	11.3%	11.3%	11.3%	11.3%	
		Company-Sponsored Benefits	**63.6%**	**63.6%**	**63.6%**	**63.6%**	**63.6%**
		Social Security Benefits(age 65)	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	111.3%	101.7%	93.8%	88.0%	
		Percent of Target	**134.1%**	**133.8%**	**126.7%**	**120.5%**	
	6%	Pension Plan Benefits	52.3%	52.3%	52.3%	52.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	22.7%	22.7%	22.7%	22.7%	
		Company-Sponsored Benefits	**74.9%**	**74.9%**	**74.9%**	**74.9%**	**74.9%**
		Social Security Benefits(age 65)	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	122.7%	113.0%	105.1%	99.3%	
		Percent of Target	**147.8%**	**148.7%**	**142.0%**	**136.1%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 60)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
35	0%	Pension Plan Benefits	43.6%	43.6%	43.6%	43.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**43.6%**	**43.6%**	**43.6%**	**43.6%**	**43.6%**
		Social Security Benefits(age 65)	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	91.8%	82.2%	74.1%	68.6%	
		Percent of Target	**110.6%**	**108.2%**	**100.2%**	93.9%	
	3%	Pension Plan Benefits	43.6%	43.6%	43.6%	43.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	8.6%	8.6%	8.6%	8.6%	
		Company-Sponsored Benefits	**52.1%**	**52.1%**	**52.1%**	**52.1%**	**52.1%**
		Social Security Benefits(age 65)	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	100.3%	90.8%	82.7%	77.1%	
		Percent of Target	**120.9%**	**119.5%**	**111.7%**	**105.6%**	
	6%	Pension Plan Benefits	43.6%	43.6%	43.6%	43.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	17.1%	17.1%	17.1%	17.1%	
		Company-Sponsored Benefits	**60.7%**	**60.7%**	**60.7%**	**60.7%**	**60.7%**
		Social Security Benefits(age 65)	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	108.9%	99.3%	91.2%	85.7%	
		Percent of Target	**131.2%**	**130.7%**	**123.3%**	**117.3%**	

SERS-AA General
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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 60)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
40	0%	Pension Plan Benefits	34.9%	34.9%	34.9%	34.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**34.9%**	**34.9%**	**34.9%**	**34.9%**	**34.9%**
		Social Security Benefits(age 65)	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	83.6%	74.2%	65.9%	60.4%	
		Percent of Target	**100.8%**	97.6%	89.0%	82.8%	
	3%	Pension Plan Benefits	34.9%	34.9%	34.9%	34.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.3%	6.3%	6.3%	6.3%	
		Company-Sponsored Benefits	**41.1%**	**41.1%**	**41.1%**	**41.1%**	**41.1%**
		Social Security Benefits(age 65)	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	89.9%	80.4%	72.1%	66.7%	
		Percent of Target	**108.3%**	**105.8%**	97.5%	91.3%	
	6%	Pension Plan Benefits	34.9%	34.9%	34.9%	34.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.5%	12.5%	12.5%	12.5%	
		Company-Sponsored Benefits	**47.4%**	**47.4%**	**47.4%**	**47.4%**	**47.4%**
		Social Security Benefits(age 65)	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	96.1%	86.7%	78.4%	72.9%	
		Percent of Target	**115.8%**	**114.1%**	**105.9%**	99.9%	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
25	0%	Pension Plan Benefits	65.4%	65.4%	65.4%	65.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**65.4%**	**65.4%**	**65.4%**	**65.4%**	**65.4%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	97.3%	90.8%	85.5%	81.6%	
		Percent of Target	**117.2%**	**119.5%**	**115.6%**	**111.8%**	
	3%	Pension Plan Benefits	65.4%	65.4%	65.4%	65.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.8%	16.8%	16.8%	16.8%	
		Company-Sponsored Benefits	**82.3%**	**82.3%**	**82.3%**	**82.3%**	**82.3%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	114.1%	107.7%	102.4%	98.5%	
		Percent of Target	**137.5%**	**141.7%**	**138.4%**	**134.9%**	
	6%	Pension Plan Benefits	65.4%	65.4%	65.4%	65.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	33.7%	33.7%	33.7%	33.7%	
		Company-Sponsored Benefits	**99.1%**	**99.1%**	**99.1%**	**99.1%**	**99.1%**
		Social Security Benefits	31.8%	25.4%	20.1%	16.2%	
		Total - All Benefits	131.0%	124.5%	119.2%	115.3%	
		Percent of Target	**157.8%**	**163.8%**	**161.1%**	**158.0%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
30	0%	Pension Plan Benefits	56.6%	56.6%	56.6%	56.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**56.6%**	**56.6%**	**56.6%**	**56.6%**	**56.6%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	88.7%	82.4%	77.0%	73.2%	
		Percent of Target	**106.9%**	**108.4%**	**104.0%**	**100.2%**	
	3%	Pension Plan Benefits	56.6%	56.6%	56.6%	56.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	13.0%	13.0%	13.0%	13.0%	
		Company-Sponsored Benefits	**69.6%**	**69.6%**	**69.6%**	**69.6%**	**69.6%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	101.7%	95.4%	90.0%	86.2%	
		Percent of Target	**122.5%**	**125.5%**	**121.6%**	**118.1%**	
	6%	Pension Plan Benefits	56.6%	56.6%	56.6%	56.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	26.0%	26.0%	26.0%	26.0%	
		Company-Sponsored Benefits	**82.6%**	**82.6%**	**82.6%**	**82.6%**	**82.6%**
		Social Security Benefits	32.1%	25.8%	20.4%	16.6%	
		Total - All Benefits	114.7%	108.4%	103.0%	99.2%	
		Percent of Target	**138.2%**	**142.6%**	**139.1%**	**135.9%**	

SERS-AA General
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
35	0%	Pension Plan Benefits	47.8%	47.8%	47.8%	47.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**47.8%**	**47.8%**	**47.8%**	**47.8%**	**47.8%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	80.2%	74.0%	68.4%	64.7%	
		Percent of Target	96.7%	97.3%	92.5%	88.7%	
	3%	Pension Plan Benefits	47.8%	47.8%	47.8%	47.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.8%	9.8%	9.8%	9.8%	
		Company-Sponsored Benefits	**57.6%**	**57.6%**	**57.6%**	**57.6%**	**57.6%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	90.0%	83.8%	78.2%	74.5%	
		Percent of Target	**108.5%**	**110.2%**	**105.7%**	**102.1%**	
	6%	Pension Plan Benefits	47.8%	47.8%	47.8%	47.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.6%	19.6%	19.6%	19.6%	
		Company-Sponsored Benefits	**67.4%**	**67.4%**	**67.4%**	**67.4%**	**67.4%**
		Social Security Benefits	32.5%	26.2%	20.7%	17.0%	
		Total - All Benefits	99.9%	93.6%	88.0%	84.4%	
		Percent of Target	**120.3%**	**123.1%**	**119.0%**	**115.6%**	

SERS-AA General
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 74%	$80,000 73%	Average Ratio
40	0%	Pension Plan Benefits	38.9%	38.9%	38.9%	38.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**38.9%**	**38.9%**	**38.9%**	**38.9%**	**38.9%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	71.8%	65.6%	59.9%	56.3%	
		Percent of Target	86.5%	86.3%	81.0%	77.1%	
	3%	Pension Plan Benefits	38.9%	38.9%	38.9%	38.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.2%	7.2%	7.2%	7.2%	
		Company-Sponsored Benefits	**46.1%**	**46.1%**	**46.1%**	**46.1%**	**46.1%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	79.0%	72.8%	67.1%	63.5%	
		Percent of Target	95.2%	95.7%	90.7%	86.9%	
	6%	Pension Plan Benefits	38.9%	38.9%	38.9%	38.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	14.3%	14.3%	14.3%	14.3%	
		Company-Sponsored Benefits	**53.3%**	**53.3%**	**53.3%**	**53.3%**	**53.3%**
		Social Security Benefits	32.9%	26.7%	21.0%	17.4%	
		Total - All Benefits	86.2%	79.9%	74.3%	70.6%	
		Percent of Target	**103.8%**	**105.2%**	**100.4%**	96.7%	

SERS-AA General
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
25	0%	Pension Plan Benefits	72.4%	72.4%	72.4%	72.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**72.4%**	**72.4%**	**72.4%**	**72.4%**	**72.4%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	119.7%	109.9%	102.1%	96.2%	
		Percent of Target	**144.2%**	**144.6%**	**136.2%**	**128.2%**	
	3%	Pension Plan Benefits	72.4%	72.4%	72.4%	72.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	21.6%	21.6%	21.6%	21.6%	
		Company-Sponsored Benefits	**94.0%**	**94.0%**	**94.0%**	**94.0%**	**94.0%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	141.3%	131.5%	123.8%	117.8%	
		Percent of Target	**170.2%**	**173.0%**	**165.0%**	**157.1%**	
	6%	Pension Plan Benefits	72.4%	72.4%	72.4%	72.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	43.2%	43.2%	43.2%	43.2%	
		Company-Sponsored Benefits	**115.6%**	**115.6%**	**115.6%**	**115.6%**	**115.6%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	162.9%	153.1%	145.4%	139.4%	
		Percent of Target	**196.3%**	**201.4%**	**193.8%**	**185.9%**	

SERS-AA General
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
30	0%	Pension Plan Benefits	63.3%	63.3%	63.3%	63.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**63.3%**	**63.3%**	**63.3%**	**63.3%**	**63.3%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	111.0%	101.4%	93.5%	87.7%	
		Percent of Target	**133.8%**	**133.4%**	**124.6%**	**116.9%**	
	3%	Pension Plan Benefits	63.3%	63.3%	63.3%	63.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.8%	16.8%	16.8%	16.8%	
		Company-Sponsored Benefits	**80.2%**	**80.2%**	**80.2%**	**80.2%**	**80.2%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	127.9%	118.2%	110.3%	104.6%	
		Percent of Target	**154.1%**	**155.6%**	**147.1%**	**139.4%**	
	6%	Pension Plan Benefits	63.3%	63.3%	63.3%	63.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	33.7%	33.7%	33.7%	33.7%	
		Company-Sponsored Benefits	**97.0%**	**97.0%**	**97.0%**	**97.0%**	**97.0%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	144.7%	135.1%	127.2%	121.4%	
		Percent of Target	**174.4%**	**177.7%**	**169.6%**	**161.9%**	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
35	0%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**54.3%**	**54.3%**	**54.3%**	**54.3%**	**54.3%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	102.5%	92.9%	84.8%	79.3%	
		Percent of Target	**123.5%**	**122.3%**	**113.1%**	**105.7%**	
	3%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.9%	12.9%	12.9%	12.9%	
		Company-Sponsored Benefits	**67.2%**	**67.2%**	**67.2%**	**67.2%**	**67.2%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	115.4%	105.8%	97.7%	92.2%	
		Percent of Target	**139.0%**	**139.3%**	**130.3%**	**122.9%**	
	6%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	25.8%	25.8%	25.8%	25.8%	
		Company-Sponsored Benefits	**80.1%**	**80.1%**	**80.1%**	**80.1%**	**80.1%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	128.3%	118.7%	110.6%	105.0%	
		Percent of Target	**154.5%**	**156.2%**	**147.5%**	**140.1%**	

SERS-AA General
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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
40	0%	Pension Plan Benefits	45.2%	45.2%	45.2%	45.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**45.2%**	**45.2%**	**45.2%**	**45.2%**	**45.2%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	94.0%	84.6%	76.3%	70.8%	
		Percent of Target	**113.3%**	**111.3%**	**101.7%**	94.4%	
	3%	Pension Plan Benefits	45.2%	45.2%	45.2%	45.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.6%	9.6%	9.6%	9.6%	
		Company-Sponsored Benefits	**54.8%**	**54.8%**	**54.8%**	**54.8%**	**54.8%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	103.6%	94.2%	85.9%	80.4%	
		Percent of Target	**124.9%**	**123.9%**	**114.5%**	**107.2%**	
	6%	Pension Plan Benefits	45.2%	45.2%	45.2%	45.2%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.2%	19.2%	19.2%	19.2%	
		Company-Sponsored Benefits	**64.5%**	**64.5%**	**64.5%**	**64.5%**	**64.5%**
		Social Security Benefits	48.8%	39.3%	31.0%	25.6%	
		Total - All Benefits	113.3%	103.8%	95.5%	90.0%	
		Percent of Target	**136.5%**	**136.6%**	**127.3%**	**120.1%**	

SERS-AA Capitol Police, Park Rangers
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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 50)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
25	0%	Pension Plan Benefits	40.5%	40.5%	40.5%	40.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**40.5%**	**40.5%**	**40.5%**	**40.5%**	**40.5%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	87.8%	78.0%	70.3%	64.3%	
		Percent of Target	**105.8%**	**102.6%**	93.7%	85.7%	
	3%	Pension Plan Benefits	40.5%	40.5%	40.5%	40.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.9%	7.9%	7.9%	7.9%	
		Company-Sponsored Benefits	**48.4%**	**48.4%**	**48.4%**	**48.4%**	**48.4%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	95.7%	85.9%	78.2%	72.2%	
		Percent of Target	**115.3%**	**113.0%**	**104.3%**	96.3%	
	6%	Pension Plan Benefits	40.5%	40.5%	40.5%	40.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	15.8%	15.8%	15.8%	15.8%	
		Company-Sponsored Benefits	**56.3%**	**56.3%**	**56.3%**	**56.3%**	**56.3%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	103.6%	93.8%	86.1%	80.1%	
		Percent of Target	**124.8%**	**123.4%**	**114.8%**	**106.8%**	

SERS-AA Capitol Police, Park Rangers
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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 50)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
30	0%	Pension Plan Benefits	32.4%	32.4%	32.4%	32.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**32.4%**	**32.4%**	**32.4%**	**32.4%**	**32.4%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	80.1%	70.5%	62.6%	56.8%	
		Percent of Target	96.5%	92.8%	83.5%	75.7%	
	3%	Pension Plan Benefits	32.4%	32.4%	32.4%	32.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.1%	6.1%	6.1%	6.1%	
		Company-Sponsored Benefits	**38.5%**	**38.5%**	**38.5%**	**38.5%**	**38.5%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	86.2%	76.6%	68.7%	62.9%	
		Percent of Target	**103.8%**	**100.8%**	91.6%	83.8%	
	6%	Pension Plan Benefits	32.4%	32.4%	32.4%	32.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.2%	12.2%	12.2%	12.2%	
		Company-Sponsored Benefits	**44.6%**	**44.6%**	**44.6%**	**44.6%**	**44.6%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	92.3%	82.7%	74.8%	69.0%	
		Percent of Target	**111.2%**	**108.8%**	99.7%	92.0%	

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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 50)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
35	0%	Pension Plan Benefits	7.3%	7.3%	7.3%	7.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**7.3%**	**7.3%**	**7.3%**	**7.3%**	**7.3%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	55.5%	46.0%	37.9%	32.3%	
		Percent of Target	66.9%	60.5%	50.5%	43.1%	
	3%	Pension Plan Benefits	7.3%	7.3%	7.3%	7.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	4.6%	4.6%	4.6%	4.6%	
		Company-Sponsored Benefits	**11.9%**	**11.9%**	**11.9%**	**11.9%**	**11.9%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	60.1%	50.6%	42.5%	36.9%	
		Percent of Target	72.4%	66.6%	56.6%	49.2%	
	6%	Pension Plan Benefits	7.3%	7.3%	7.3%	7.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.2%	9.2%	9.2%	9.2%	
		Company-Sponsored Benefits	**16.5%**	**16.5%**	**16.5%**	**16.5%**	**16.5%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	64.7%	55.2%	47.1%	41.5%	
		Percent of Target	77.9%	72.6%	62.8%	55.3%	

SERS-AA Capitol Police, Park Rangers
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Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 55)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
25	0%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	97.7%	87.9%	80.2%	74.2%	
		Percent of Target	**117.7%**	**115.6%**	**106.9%**	98.9%	
	3%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	10.6%	10.6%	10.6%	10.6%	
		Company-Sponsored Benefits	**61.0%**	**61.0%**	**61.0%**	**61.0%**	**61.0%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	108.3%	98.5%	90.8%	84.8%	
		Percent of Target	**130.5%**	**129.6%**	**121.1%**	**113.1%**	
	6%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	21.3%	21.3%	21.3%	21.3%	
		Company-Sponsored Benefits	**71.6%**	**71.6%**	**71.6%**	**71.6%**	**71.6%**
		Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	118.9%	109.1%	101.4%	95.4%	
		Percent of Target	**143.3%**	**143.6%**	**135.3%**	**127.3%**	

SERS-AA Capitol Police, Park Rangers
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 55)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
30	0%	Pension Plan Benefits	42.0%	42.0%	42.0%	42.0%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**42.0%**	**42.0%**	**42.0%**	**42.0%**	**42.0%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	89.7%	80.1%	72.2%	66.4%	
		Percent of Target	**108.0%**	**105.4%**	96.2%	88.5%	
	3%	Pension Plan Benefits	42.0%	42.0%	42.0%	42.0%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	8.2%	8.2%	8.2%	8.2%	
		Company-Sponsored Benefits	**50.2%**	**50.2%**	**50.2%**	**50.2%**	**50.2%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	97.9%	88.3%	80.4%	74.6%	
		Percent of Target	**117.9%**	**116.2%**	**107.2%**	99.4%	
	6%	Pension Plan Benefits	42.0%	42.0%	42.0%	42.0%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.4%	16.4%	16.4%	16.4%	
		Company-Sponsored Benefits	**58.4%**	**58.4%**	**58.4%**	**58.4%**	**58.4%**
		Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	106.1%	96.5%	88.6%	82.8%	
		Percent of Target	**127.8%**	**127.0%**	**118.1%**	**110.4%**	

SERS-AA Capitol Police, Park Rangers
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 55)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
35	0%	Pension Plan Benefits	33.6%	33.6%	33.6%	33.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**33.6%**	**33.6%**	**33.6%**	**33.6%**	**33.6%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	81.8%	72.3%	64.2%	58.6%	
		Percent of Target	98.5%	95.1%	85.6%	78.1%	
	3%	Pension Plan Benefits	33.6%	33.6%	33.6%	33.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.2%	6.2%	6.2%	6.2%	
		Company-Sponsored Benefits	**39.8%**	**39.8%**	**39.8%**	**39.8%**	**39.8%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	88.0%	78.5%	70.4%	64.8%	
		Percent of Target	**106.0%**	**103.3%**	93.8%	86.4%	
	6%	Pension Plan Benefits	33.6%	33.6%	33.6%	33.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.4%	12.4%	12.4%	12.4%	
		Company-Sponsored Benefits	**46.0%**	**46.0%**	**46.0%**	**46.0%**	**46.0%**
		Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	94.2%	84.7%	76.6%	71.0%	
		Percent of Target	**113.5%**	**111.4%**	**102.1%**	94.6%	

SERS-A State Police
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 50)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
25	0%	Pension Plan Benefits	48.6%	48.6%	48.6%	48.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**48.6%**	**48.6%**	**48.6%**	**48.6%**	**48.6%**
		*Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	95.9%	86.1%	78.4%	72.4%	
		Percent of Target	**115.5%**	**113.3%**	**104.5%**	96.5%	
	3%	Pension Plan Benefits	48.6%	48.6%	48.6%	48.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.9%	7.9%	7.9%	7.9%	
		Company-Sponsored Benefits	**56.5%**	**56.5%**	**56.5%**	**56.5%**	**56.5%**
		*Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	103.8%	94.0%	86.3%	80.3%	
		Percent of Target	**125.0%**	**123.7%**	**115.1%**	**107.1%**	
	6%	Pension Plan Benefits	48.6%	48.6%	48.6%	48.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	15.8%	15.8%	15.8%	15.8%	
		Company-Sponsored Benefits	**64.4%**	**64.4%**	**64.4%**	**64.4%**	**64.4%**
		*Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	111.7%	101.9%	94.2%	88.2%	
		Percent of Target	**134.6%**	**134.1%**	**125.6%**	**117.6%**	

* State Police are permitted to opt out of Social Security, and a substantial proportion of them have done so. The State Police tables in appendix B have assumed employee participation in Social Security. No adjustment is made to account for officers that may only have Social Security coverage after their period of employment as a State Police officer has ended. Individuals who have less than 35 years of participation in Social Security may receive a lower benefit. On average, for this group, we estimate that the replacement ratio to be expected from Social Security would be lower by approximately 10 percentage points (e.g., instead of a 30% replacement ratio the retiree could expect a 20% replacement ratio).

SERS-A State Police
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 50)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
30	0%	Pension Plan Benefits	32.4%	32.4%	32.4%	32.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**32.4%**	**32.4%**	**32.4%**	**32.4%**	**32.4%**
		*Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	80.1%	70.5%	62.6%	56.8%	
		Percent of Target	96.5%	92.8%	83.5%	75.7%	
	3%	Pension Plan Benefits	32.4%	32.4%	32.4%	32.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.1%	6.1%	6.1%	6.1%	
		Company-Sponsored Benefits	**38.5%**	**38.5%**	**38.5%**	**38.5%**	**38.5%**
		*Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	86.2%	76.6%	68.7%	62.9%	
		Percent of Target	**103.8%**	**100.8%**	91.6%	83.8%	
	6%	Pension Plan Benefits	32.4%	32.4%	32.4%	32.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.2%	12.2%	12.2%	12.2%	
		Company-Sponsored Benefits	**44.6%**	**44.6%**	**44.6%**	**44.6%**	**44.6%**
		*Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	92.3%	82.7%	74.8%	69.0%	
		Percent of Target	**111.2%**	**108.8%**	99.7%	92.0%	

* State Police are permitted to opt out of Social Security, and a substantial proportion of them have done so. The State Police tables in appendix B have assumed employee participation in Social Security. No adjustment is made to account for officers that may only have Social Security coverage after their period of employment as a State Police officer has ended. Individuals who have less than 35 years of participation in Social Security may receive a lower benefit. On average, for this group, we estimate that the replacement ratio to be expected from Social Security would be lower by approximately 10 percentage points (e.g., instead of a 30% replacement ratio the retiree could expect a 20% replacement ratio).

SERS-A State Police
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 50)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
35	0%	Pension Plan Benefits	19.4%	19.4%	19.4%	19.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**19.4%**	**19.4%**	**19.4%**	**19.4%**	**19.4%**
		*Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	67.6%	58.1%	50.0%	44.4%	
		Percent of Target	81.5%	76.5%	66.7%	59.3%	
	3%	Pension Plan Benefits	19.4%	19.4%	19.4%	19.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	4.6%	4.6%	4.6%	4.6%	
		Company-Sponsored Benefits	**24.0%**	**24.0%**	**24.0%**	**24.0%**	**24.0%**
		*Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	72.2%	62.7%	54.6%	49.0%	
		Percent of Target	87.0%	82.5%	72.8%	65.4%	
	6%	Pension Plan Benefits	19.4%	19.4%	19.4%	19.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.2%	9.2%	9.2%	9.2%	
		Company-Sponsored Benefits	**28.6%**	**28.6%**	**28.6%**	**28.6%**	**28.6%**
		*Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	76.8%	67.3%	59.2%	53.6%	
		Percent of Target	92.6%	88.6%	79.0%	71.5%	

* State Police are permitted to opt out of Social Security, and a substantial proportion of them have done so. The State Police tables in appendix B have assumed employee participation in Social Security. No adjustment is made to account for officers that may only have Social Security coverage after their period of employment as a State Police officer has ended. Individuals who have less than 35 years of participation in Social Security may receive a lower benefit. On average, for this group, we estimate that the replacement ratio to be expected from Social Security would be lower by approximately 10 percentage points (e.g., instead of a 30% replacement ratio the retiree could expect a 20% replacement ratio).

SERS-A State Police
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 55)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
25	0%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**
		*Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	97.7%	87.9%	80.2%	74.2%	
		Percent of Target	**117.7%**	**115.6%**	**106.9%**	98.9%	
	3%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	10.6%	10.6%	10.6%	10.6%	
		Company-Sponsored Benefits	**61.0%**	**61.0%**	**61.0%**	**61.0%**	**61.0%**
		*Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	108.3%	98.5%	90.8%	84.8%	
		Percent of Target	**130.5%**	**129.6%**	**121.1%**	**113.1%**	
	6%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	21.3%	21.3%	21.3%	21.3%	
		Company-Sponsored Benefits	**71.6%**	**71.6%**	**71.6%**	**71.6%**	**71.6%**
		*Social Security Benefits	47.3%	37.5%	29.8%	23.8%	
		Total - All Benefits	118.9%	109.1%	101.4%	95.4%	
		Percent of Target	**143.3%**	**143.6%**	**135.3%**	**127.3%**	

* State Police are permitted to opt out of Social Security, and a substantial proportion of them have done so. The State Police tables in appendix B have assumed employee participation in Social Security. No adjustment is made to account for officers that may only have Social Security coverage after their period of employment as a State Police officer has ended. Individuals who have less than 35 years of participation in Social Security may receive a lower benefit. On average, for this group, we estimate that the replacement ratio to be expected from Social Security would be lower by approximately 10 percentage points (e.g., instead of a 30% replacement ratio the retiree could expect a 20% replacement ratio).

SERS-A State Police
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 55)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
30	0%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**50.4%**	**50.4%**	**50.4%**	**50.4%**	**50.4%**
		*Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	98.1%	88.5%	80.6%	74.8%	
		Percent of Target	**118.2%**	**116.4%**	**107.4%**	99.7%	
	3%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	8.2%	8.2%	8.2%	8.2%	
		Company-Sponsored Benefits	**58.6%**	**58.6%**	**58.6%**	**58.6%**	**58.6%**
		*Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	106.3%	96.7%	88.8%	83.0%	
		Percent of Target	**128.0%**	**127.2%**	**118.4%**	**110.6%**	
	6%	Pension Plan Benefits	50.4%	50.4%	50.4%	50.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	16.4%	16.4%	16.4%	16.4%	
		Company-Sponsored Benefits	**66.8%**	**66.8%**	**66.8%**	**66.8%**	**66.8%**
		*Social Security Benefits	47.7%	38.1%	30.2%	24.4%	
		Total - All Benefits	114.5%	104.9%	97.0%	91.2%	
		Percent of Target	**137.9%**	**138.0%**	**129.3%**	**121.6%**	

* State Police are permitted to opt out of Social Security, and a substantial proportion of them have done so. The State Police tables in appendix B have assumed employee participation in Social Security. No adjustment is made to account for officers that may only have Social Security coverage after their period of employment as a State Police officer has ended. Individuals who have less than 35 years of participation in Social Security may receive a lower benefit. On average, for this group, we estimate that the replacement ratio to be expected from Social Security would be lower by approximately 10 percentage points (e.g., instead of a 30% replacement ratio the retiree could expect a 20% replacement ratio).

SERS-A State Police
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner)
(Retirement Age: 55)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$20,000 83%	$40,000 76%	$60,000 75%	$80,000 75%	Average Ratio
35	0%	Pension Plan Benefits	33.6%	33.6%	33.6%	33.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**33.6%**	**33.6%**	**33.6%**	**33.6%**	**33.6%**
		*Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	81.8%	72.3%	64.2%	58.6%	
		Percent of Target	98.5%	95.1%	85.6%	78.1%	
	3%	Pension Plan Benefits	33.6%	33.6%	33.6%	33.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.2%	6.2%	6.2%	6.2%	
		Company-Sponsored Benefits	**39.8%**	**39.8%**	**39.8%**	**39.8%**	**39.8%**
		*Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	88.0%	78.5%	70.4%	64.8%	
		Percent of Target	**106.0%**	**103.3%**	93.8%	86.4%	
	6%	Pension Plan Benefits	33.6%	33.6%	33.6%	33.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.4%	12.4%	12.4%	12.4%	
		Company-Sponsored Benefits	**46.0%**	**46.0%**	**46.0%**	**46.0%**	**46.0%**
		*Social Security Benefits	48.2%	38.7%	30.6%	25.0%	
		Total - All Benefits	94.2%	84.7%	76.6%	71.0%	
		Percent of Target	**113.5%**	**111.4%**	**102.1%**	94.6%	

* State Police are permitted to opt out of Social Security, and a substantial proportion of them have done so. The State Police tables in appendix B have assumed employee participation in Social Security. No adjustment is made to account for officers that may only have Social Security coverage after their period of employment as a State Police officer has ended. Individuals who have less than 35 years of participation in Social Security may receive a lower benefit. On average, for this group, we estimate that the replacement ratio to be expected from Social Security would be lower by approximately 10 percentage points (e.g., instead of a 30% replacement ratio the retiree could expect a 20% replacement ratio).

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)

Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration

(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 74%	$80,000 73%	$90,000 76%	$150,000 85%	Average Ratio
35	0%	Pension Plan Benefits	57.3%	57.3%	57.3%	57.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**57.3%**	**57.3%**	**57.3%**	**57.3%**	**57.3%**
		Social Security Benefits	20.7%	17.0%	15.1%	9.1%	
		Total - All Benefits	78.0%	74.3%	72.4%	66.4%	
		Percent of Target	**105.4%**	**101.8%**	95.3%	78.1%	
	3%	Pension Plan Benefits	57.3%	57.3%	57.3%	57.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.8%	9.8%	9.8%	9.8%	
		Company-Sponsored Benefits	**67.1%**	**67.1%**	**67.1%**	**67.1%**	**67.1%**
		Social Security Benefits	20.7%	17.0%	15.1%	9.1%	
		Total - All Benefits	87.8%	84.1%	82.2%	76.2%	
		Percent of Target	**118.6%**	**115.2%**	**108.2%**	89.6%	
	6%	Pension Plan Benefits	57.3%	57.3%	57.3%	57.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.6%	19.6%	19.6%	19.6%	
		Company-Sponsored Benefits	**76.9%**	**76.9%**	**76.9%**	**76.9%**	**76.9%**
		Social Security Benefits	20.7%	17.0%	15.1%	9.1%	
		Total - All Benefits	97.6%	93.9%	92.0%	86.0%	
		Percent of Target	**131.9%**	**128.6%**	**121.1%**	**101.2%**	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)

Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration

(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 74%	$80,000 73%	$90,000 76%	$150,000 85%	Average Ratio
40	0%	Pension Plan Benefits	46.7%	46.7%	46.7%	46.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**46.7%**	**46.7%**	**46.7%**	**46.7%**	**46.7%**
		Social Security Benefits	21.0%	17.4%	15.4%	9.3%	
		Total - All Benefits	67.7%	64.1%	62.1%	56.0%	
		Percent of Target	91.5%	87.8%	81.8%	65.8%	
	3%	Pension Plan Benefits	46.7%	46.7%	46.7%	46.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.2%	7.2%	7.2%	7.2%	
		Company-Sponsored Benefits	**53.9%**	**53.9%**	**53.9%**	**53.9%**	**53.9%**
		Social Security Benefits	21.0%	17.4%	15.4%	9.3%	
		Total - All Benefits	74.9%	71.2%	69.3%	63.1%	
		Percent of Target	**101.2%**	97.6%	91.2%	74.3%	
	6%	Pension Plan Benefits	46.7%	46.7%	46.7%	46.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	14.3%	14.3%	14.3%	14.3%	
		Company-Sponsored Benefits	**61.0%**	**61.0%**	**61.0%**	**61.0%**	**61.0%**
		Social Security Benefits	21.0%	17.4%	15.4%	9.3%	
		Total - All Benefits	82.0%	78.4%	76.5%	70.3%	
		Percent of Target	**110.9%**	**107.4%**	**100.6%**	82.7%	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)

Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration

(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 74%	$80,000 73%	$90,000 76%	$150,000 85%	Average Ratio
45	0%	Pension Plan Benefits	36.1%	36.1%	36.1%	36.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**36.1%**	**36.1%**	**36.1%**	**36.1%**	**36.1%**
		Social Security Benefits	22.4%	18.6%	16.5%	9.9%	
		Total - All Benefits	58.5%	54.7%	52.6%	46.0%	
		Percent of Target	79.0%	74.9%	69.2%	54.1%	
	3%	Pension Plan Benefits	36.1%	36.1%	36.1%	36.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	5.0%	5.0%	5.0%	5.0%	
		Company-Sponsored Benefits	**41.1%**	**41.1%**	**41.1%**	**41.1%**	**41.1%**
		Social Security Benefits	22.4%	18.6%	16.5%	9.9%	
		Total - All Benefits	63.5%	59.6%	57.6%	51.0%	
		Percent of Target	85.8%	81.7%	75.8%	60.0%	
	6%	Pension Plan Benefits	36.1%	36.1%	36.1%	36.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	10.0%	10.0%	10.0%	10.0%	
		Company-Sponsored Benefits	**46.1%**	**46.1%**	**46.1%**	**46.1%**	**46.1%**
		Social Security Benefits	22.4%	18.6%	16.5%	9.9%	
		Total - All Benefits	68.4%	64.6%	62.6%	56.0%	
		Percent of Target	92.5%	88.5%	82.3%	65.8%	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)

Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration

(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 74%	$80,000 73%	$90,000 76%	$150,000 85%	Average Ratio
50	0%	Pension Plan Benefits	25.5%	25.5%	25.5%	25.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**25.5%**	**25.5%**	**25.5%**	**25.5%**	**25.5%**
		Social Security Benefits	24.6%	20.3%	18.0%	10.8%	
		Total - All Benefits	50.1%	45.7%	43.5%	36.3%	
		Percent of Target	67.7%	62.6%	57.2%	42.7%	
	3%	Pension Plan Benefits	25.5%	25.5%	25.5%	25.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	3.2%	3.2%	3.2%	3.2%	
		Company-Sponsored Benefits	**28.6%**	**28.6%**	**28.6%**	**28.6%**	**28.6%**
		Social Security Benefits	24.6%	20.3%	18.0%	10.8%	
		Total - All Benefits	53.3%	48.9%	46.7%	39.4%	
		Percent of Target	72.0%	67.0%	61.4%	46.4%	
	6%	Pension Plan Benefits	25.5%	25.5%	25.5%	25.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.3%	6.3%	6.3%	6.3%	
		Company-Sponsored Benefits	**31.8%**	**31.8%**	**31.8%**	**31.8%**	**31.8%**
		Social Security Benefits	24.6%	20.3%	18.0%	10.8%	
		Total - All Benefits	56.4%	52.1%	49.8%	42.6%	
		Percent of Target	76.2%	71.3%	65.6%	50.1%	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)

Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration

(Retirement Age: 62)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 74%	$80,000 73%	$90,000 76%	$150,000 85%	Average Ratio
55	0%	Pension Plan Benefits	14.9%	14.9%	14.9%	14.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**14.9%**	**14.9%**	**14.9%**	**14.9%**	**14.9%**
		Social Security Benefits	24.8%	20.2%	18.0%	10.8%	
		Total - All Benefits	39.7%	35.1%	32.8%	25.6%	
		Percent of Target	53.7%	48.0%	43.2%	30.2%	
	3%	Pension Plan Benefits	14.9%	14.9%	14.9%	14.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	1.7%	1.7%	1.7%	1.7%	
		Company-Sponsored Benefits	**16.5%**	**16.5%**	**16.5%**	**16.5%**	**16.5%**
		Social Security Benefits	24.8%	20.2%	18.0%	10.8%	
		Total - All Benefits	41.4%	36.7%	34.5%	27.3%	
		Percent of Target	55.9%	50.3%	45.4%	32.1%	
	6%	Pension Plan Benefits	14.9%	14.9%	14.9%	14.9%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	3.4%	3.4%	3.4%	3.4%	
		Company-Sponsored Benefits	**18.2%**	**18.2%**	**18.2%**	**18.2%**	**18.2%**
		Social Security Benefits	24.8%	20.2%	18.0%	10.8%	
		Total - All Benefits	43.1%	38.4%	36.2%	29.0%	
		Percent of Target	58.2%	52.6%	47.6%	34.1%	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
35	0%	Pension Plan Benefits	65.1%	65.1%	65.1%	65.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**65.1%**	**65.1%**	**65.1%**	**65.1%**	**65.1%**
		Social Security Benefits	30.6%	25.0%	22.2%	13.3%	
		Total - All Benefits	95.7%	90.1%	87.3%	78.5%	
		Percent of Target	**127.6%**	**120.2%**	**114.9%**	92.3%	
	3%	Pension Plan Benefits	65.1%	65.1%	65.1%	65.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	12.9%	12.9%	12.9%	12.9%	
		Company-Sponsored Benefits	**78.0%**	**78.0%**	**78.0%**	**78.0%**	**78.0%**
		Social Security Benefits	30.6%	25.0%	22.2%	13.3%	
		Total - All Benefits	108.6%	103.0%	100.2%	91.3%	
		Percent of Target	**144.8%**	**137.3%**	**131.9%**	**107.5%**	
	6%	Pension Plan Benefits	65.1%	65.1%	65.1%	65.1%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	25.8%	25.8%	25.8%	25.8%	
		Company-Sponsored Benefits	**90.9%**	**90.9%**	**90.9%**	**90.9%**	**90.9%**
		Social Security Benefits	30.6%	25.0%	22.2%	13.3%	
		Total - All Benefits	121.5%	115.9%	113.1%	104.2%	
		Percent of Target	**162.0%**	**154.5%**	**148.8%**	**122.6%**	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
40	0%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**54.3%**	**54.3%**	**54.3%**	**54.3%**	**54.3%**
		Social Security Benefits	31.0%	25.6%	22.7%	13.6%	
		Total - All Benefits	85.3%	79.8%	77.0%	67.9%	
		Percent of Target	**113.7%**	**106.5%**	**101.3%**	79.9%	
	3%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.6%	9.6%	9.6%	9.6%	
		Company-Sponsored Benefits	**63.9%**	**63.9%**	**63.9%**	**63.9%**	**63.9%**
		Social Security Benefits	31.0%	25.6%	22.7%	13.6%	
		Total - All Benefits	94.9%	89.5%	86.6%	77.5%	
		Percent of Target	**126.6%**	**119.3%**	**114.0%**	91.2%	
	6%	Pension Plan Benefits	54.3%	54.3%	54.3%	54.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	19.2%	19.2%	19.2%	19.2%	
		Company-Sponsored Benefits	**73.5%**	**73.5%**	**73.5%**	**73.5%**	**73.5%**
		Social Security Benefits	31.0%	25.6%	22.7%	13.6%	
		Total - All Benefits	104.5%	99.1%	96.3%	87.2%	
		Percent of Target	**139.4%**	**132.1%**	**126.6%**	**102.5%**	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
45	0%	Pension Plan Benefits	43.4%	43.4%	43.4%	43.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**43.4%**	**43.4%**	**43.4%**	**43.4%**	**43.4%**
		Social Security Benefits	33.2%	27.5%	24.4%	14.7%	
		Total - All Benefits	76.6%	70.9%	67.8%	58.1%	
		Percent of Target	**102.1%**	94.5%	89.3%	68.3%	
	3%	Pension Plan Benefits	43.4%	43.4%	43.4%	43.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.9%	6.9%	6.9%	6.9%	
		Company-Sponsored Benefits	**50.3%**	**50.3%**	**50.3%**	**50.3%**	**50.3%**
		Social Security Benefits	33.2%	27.5%	24.4%	14.7%	
		Total - All Benefits	83.5%	77.8%	74.8%	65.0%	
		Percent of Target	**111.3%**	**103.8%**	98.4%	76.5%	
	6%	Pension Plan Benefits	43.4%	43.4%	43.4%	43.4%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	13.8%	13.8%	13.8%	13.8%	
		Company-Sponsored Benefits	**57.2%**	**57.2%**	**57.2%**	**57.2%**	**57.2%**
		Social Security Benefits	33.2%	27.5%	24.4%	14.7%	
		Total - All Benefits	90.4%	84.7%	81.7%	71.9%	
		Percent of Target	**120.6%**	**113.0%**	**107.5%**	84.6%	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
50	0%	Pension Plan Benefits	32.6%	32.6%	32.6%	32.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**32.6%**	**32.6%**	**32.6%**	**32.6%**	**32.6%**
		Social Security Benefits	35.7%	29.6%	26.3%	15.8%	
		Total - All Benefits	68.3%	62.2%	58.9%	48.4%	
		Percent of Target	91.1%	82.9%	77.5%	56.9%	
	3%	Pension Plan Benefits	32.6%	32.6%	32.6%	32.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	4.7%	4.7%	4.7%	4.7%	
		Company-Sponsored Benefits	**37.2%**	**37.2%**	**37.2%**	**37.2%**	**37.2%**
		Social Security Benefits	35.7%	29.6%	26.3%	15.8%	
		Total - All Benefits	73.0%	66.8%	63.5%	53.0%	
		Percent of Target	97.3%	89.1%	83.6%	62.4%	
	6%	Pension Plan Benefits	32.6%	32.6%	32.6%	32.6%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.3%	9.3%	9.3%	9.3%	
		Company-Sponsored Benefits	**41.9%**	**41.9%**	**41.9%**	**41.9%**	**41.9%**
		Social Security Benefits	35.7%	29.6%	26.3%	15.8%	
		Total - All Benefits	77.6%	71.5%	68.2%	57.7%	
		Percent of Target	**103.5%**	95.3%	89.8%	67.9%	

SERS-D4 Legislators
Plan Design Program Report Card

Retirement Income Replacement Ratios for Non-Highly Compensated (w/limits)
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
55	0%	Pension Plan Benefits	21.7%	21.7%	21.7%	21.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**21.7%**	**21.7%**	**21.7%**	**21.7%**	**21.7%**
		Social Security Benefits	36.3%	29.7%	26.4%	15.9%	
		Total - All Benefits	58.0%	51.4%	48.1%	37.6%	
		Percent of Target	77.3%	68.6%	63.3%	44.2%	
	3%	Pension Plan Benefits	21.7%	21.7%	21.7%	21.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	2.8%	2.8%	2.8%	2.8%	
		Company-Sponsored Benefits	**24.5%**	**24.5%**	**24.5%**	**24.5%**	**24.5%**
		Social Security Benefits	36.3%	29.7%	26.4%	15.9%	
		Total - All Benefits	60.8%	54.3%	51.0%	40.4%	
		Percent of Target	81.1%	72.3%	67.0%	47.5%	
	6%	Pension Plan Benefits	21.7%	21.7%	21.7%	21.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	5.6%	5.6%	5.6%	5.6%	
		Company-Sponsored Benefits	**27.3%**	**27.3%**	**27.3%**	**27.3%**	**27.3%**
		Social Security Benefits	36.3%	29.7%	26.4%	15.9%	
		Total - All Benefits	63.6%	57.1%	53.8%	43.2%	
		Percent of Target	84.8%	76.1%	70.7%	50.8%	

SERS-E1 Judges
Plan Design Program Report Card

Retirement Income Replacement Ratios
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
45	0%	Pension Plan Benefits	50.7%	50.7%	50.7%	50.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**50.7%**	**50.7%**	**50.7%**	**50.7%**	**50.7%**
		Social Security Benefits	33.2%	27.5%	24.4%	14.7%	
		Total - All Benefits	83.8%	78.1%	75.1%	65.3%	
		Percent of Target	**111.8%**	**104.2%**	98.8%	76.8%	
	3%	Pension Plan Benefits	50.7%	50.7%	50.7%	50.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	6.9%	6.9%	6.9%	6.9%	
		Company-Sponsored Benefits	**57.6%**	**57.6%**	**57.6%**	**57.6%**	**57.6%**
		Social Security Benefits	33.2%	27.5%	24.4%	14.7%	
		Total - All Benefits	90.7%	85.0%	82.0%	72.2%	
		Percent of Target	**121.0%**	**113.4%**	**107.9%**	85.0%	
	6%	Pension Plan Benefits	50.7%	50.7%	50.7%	50.7%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	13.8%	13.8%	13.8%	13.8%	
		Company-Sponsored Benefits	**64.5%**	**64.5%**	**64.5%**	**64.5%**	**64.5%**
		Social Security Benefits	33.2%	27.5%	24.4%	14.7%	
		Total - All Benefits	97.7%	92.0%	88.9%	79.1%	
		Percent of Target	**130.2%**	**122.6%**	**117.0%**	93.1%	

SERS-E1 Judges
Plan Design Program Report Card

Retirement Income Replacement Ratios
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 65)

Hire Age	Employee Deferral	Salary Level / Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
50	0%	Pension Plan Benefits	39.8%	39.8%	39.8%	39.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**39.8%**	**39.8%**	**39.8%**	**39.8%**	**39.8%**
		Social Security Benefits	35.7%	29.6%	26.3%	15.8%	
		Total - All Benefits	75.5%	69.4%	66.1%	55.6%	
		Percent of Target	**100.7%**	92.5%	87.0%	65.4%	
	3%	Pension Plan Benefits	39.8%	39.8%	39.8%	39.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	4.7%	4.7%	4.7%	4.7%	
		Company-Sponsored Benefits	**44.5%**	**44.5%**	**44.5%**	**44.5%**	**44.5%**
		Social Security Benefits	35.7%	29.6%	26.3%	15.8%	
		Total - All Benefits	80.2%	74.1%	70.8%	60.3%	
		Percent of Target	**107.0%**	98.8%	93.1%	70.9%	
	6%	Pension Plan Benefits	39.8%	39.8%	39.8%	39.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	9.3%	9.3%	9.3%	9.3%	
		Company-Sponsored Benefits	**49.1%**	**49.1%**	**49.1%**	**49.1%**	**49.1%**
		Social Security Benefits	35.7%	29.6%	26.3%	15.8%	
		Total - All Benefits	84.9%	78.7%	75.5%	64.9%	
		Percent of Target	**113.2%**	**105.0%**	99.3%	76.4%	

SERS-E1 Judges
Plan Design Program Report Card

Retirement Income Replacement Ratios
Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 70)

Hire Age	Employee Deferral	Salary Level Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
45	0%	Pension Plan Benefits	63.8%	63.8%	63.8%	63.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**63.8%**	**63.8%**	**63.8%**	**63.8%**	**63.8%**
		Social Security Benefits	53.5%	44.1%	39.2%	23.5%	
		Total - All Benefits	117.3%	107.9%	103.0%	87.3%	
		Percent of Target	**156.4%**	**143.9%**	**135.5%**	**102.7%**	
	3%	Pension Plan Benefits	63.8%	63.8%	63.8%	63.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	11.0%	11.0%	11.0%	11.0%	
		Company-Sponsored Benefits	**74.8%**	**74.8%**	**74.8%**	**74.8%**	**74.8%**
		Social Security Benefits	53.5%	44.1%	39.2%	23.5%	
		Total - All Benefits	128.3%	118.9%	114.0%	98.3%	
		Percent of Target	**171.0%**	**158.5%**	**150.0%**	**115.6%**	
	6%	Pension Plan Benefits	63.8%	63.8%	63.8%	63.8%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	22.0%	22.0%	22.0%	22.0%	
		Company-Sponsored Benefits	**85.7%**	**85.7%**	**85.7%**	**85.7%**	**85.7%**
		Social Security Benefits	53.5%	44.1%	39.2%	23.5%	
		Total - All Benefits	139.2%	129.9%	125.0%	109.3%	
		Percent of Target	**185.7%**	**173.2%**	**164.4%**	**128.6%**	

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Plan Design Program Report Card

Retirement Income Replacement Ratios

Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 70)

Hire Age	Employee Deferral	Salary Level Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
50	0%	Pension Plan Benefits	52.5%	52.5%	52.5%	52.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**52.5%**	**52.5%**	**52.5%**	**52.5%**	**52.5%**
		Social Security Benefits	55.5%	46.0%	40.9%	24.5%	
		Total - All Benefits	108.0%	98.6%	93.4%	77.1%	
		Percent of Target	**144.1%**	**131.4%**	**123.0%**	90.7%	
	3%	Pension Plan Benefits	52.5%	52.5%	52.5%	52.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.0%	7.0%	7.0%	7.0%	
		Company-Sponsored Benefits	**59.5%**	**59.5%**	**59.5%**	**59.5%**	**59.5%**
		Social Security Benefits	55.5%	46.0%	40.9%	24.5%	
		Total - All Benefits	115.0%	105.6%	100.4%	84.1%	
		Percent of Target	**153.4%**	**140.7%**	**132.2%**	98.9%	
	6%	Pension Plan Benefits	52.5%	52.5%	52.5%	52.5%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	14.0%	14.0%	14.0%	14.0%	
		Company-Sponsored Benefits	**66.5%**	**66.5%**	**66.5%**	**66.5%**	**66.5%**
		Social Security Benefits	55.5%	46.0%	40.9%	24.5%	
		Total - All Benefits	122.0%	112.5%	107.4%	91.1%	
		Percent of Target	**162.7%**	**150.1%**	**141.4%**	**107.1%**	

SERS-E1 Judges
Plan Design Program Report Card

Retirement Income Replacement Ratios

Baseline Study Group (Married, One Wage-Earner) - No Social Security Integration
(Retirement Age: 70)

Hire Age	Employee Deferral	Salary Level Target Ratio	$60,000 75%	$80,000 75%	$90,000 76%	$150,000 85%	Average Ratio
55	0%	Pension Plan Benefits	41.3%	41.3%	41.3%	41.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	0.0%	0.0%	0.0%	0.0%	
		Company-Sponsored Benefits	**41.3%**	**41.3%**	**41.3%**	**41.3%**	**41.3%**
		Social Security Benefits	56.5%	46.9%	41.7%	25.0%	
		Total - All Benefits	97.8%	88.2%	83.0%	66.3%	
		Percent of Target	**130.4%**	**117.6%**	**109.2%**	78.0%	
	3%	Pension Plan Benefits	41.3%	41.3%	41.3%	41.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	3.7%	3.7%	3.7%	3.7%	
		Company-Sponsored Benefits	**45.0%**	**45.0%**	**45.0%**	**45.0%**	**45.0%**
		Social Security Benefits	56.5%	46.9%	41.7%	25.0%	
		Total - All Benefits	101.5%	91.9%	86.7%	70.0%	
		Percent of Target	**135.3%**	**122.5%**	**114.0%**	82.3%	
	6%	Pension Plan Benefits	41.3%	41.3%	41.3%	41.3%	
		Savings Plan Benefits -- Employer	0.0%	0.0%	0.0%	0.0%	
		Savings Plan Benefits -- Employee	7.4%	7.4%	7.4%	7.4%	
		Company-Sponsored Benefits	**48.7%**	**48.7%**	**48.7%**	**48.7%**	**48.7%**
		Social Security Benefits	56.5%	46.9%	41.7%	25.0%	
		Total - All Benefits	105.2%	95.6%	90.3%	73.7%	
		Percent of Target	**140.3%**	**127.4%**	**118.9%**	86.7%	

APPENDIX C

State Public Defined Benefit Retirement Systems:
Qualifications and Funding

Appendix C
State Public Defined Benefit Retirement Systems: Qualifications and Funding

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Employees' Ret. Sys. of **Ala.**	State, local	60/10; 25 YOS	No early ret.	N/A	Yes	5%	10 yrs.	Entry age normal	1.07
Teachers' Ret. Sys. of **Ala.**	Teacher	60/10; 25 YOS	No early ret.	N/A	Yes	5%	10 yrs.	Entry age normal	0.92
Public Employees' Ret. Sys. of **Alaska**	State, local	60/5; 30 YOS	55/5	6%/yr.	No	6.75%	5 yrs.	Projected unit credit	1.21
Teachers' Ret. Sys. of **Alaska**	Teacher	60/8; 20 YOS	50/15; 55/8	Actuarial reduction	Varies depending on sch. dist.	8.65%	8 yrs.	Projected unit credit	1.08
Ariz. State Ret. Sys.	State, local, teacher	65; 62/10; R80	50/5	Table	Yes	Annually determined (currently 5.7%)	10 yrs.	Projected unit credit	1.36
Ark. Public Employees' Ret. Sys.	State, local	65/5; 28 YOS	55/5; 25 YOS	6%/yr.	Yes	None	5 yrs.	Entry age normal	1.00
Ark. Teacher Ret. Sys.	Teacher	60/5; 28 YOS	25 YOS	5%/yr.	Yes	6%	5 yrs.	Entry age normal	0.89
Public Employees' Ret. Sys. of **Cal.**	State, local	50/5 (benefit multiplier increases to age 63)	N/A	N/A	Yes, with exceptions	5% of monthly earnings over $513 if covered by Soc. Sec.	5 yrs.	Entry age normal	1.27
State Teachers' Ret. Sys. of **Cal.**	Teacher	60/5	55/5; 50/30	Varies based on age and election by employee	No	8%	5 yrs.	Entry age normal	1.21
Public Employees' Ret. Ass'n of **Colo.**	State, local, teacher	50/30; 60/20; 65/5; 55/5; R80	50/25; 55/20; 60/5	3% to 6%/yr. depending on age	No, with exceptions	8%	5 yrs.	Entry age normal	1.07

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
State Employees' Ret. Sys. of **Conn.**	State	60/25; 62/5	55/10	3%/yr.	Yes	2%	5 yrs.	Projected unit credit	0.72
Conn. Teachers' Ret. Sys.	Teacher	60/20; 35 YOS	55/20; 60/10; 25 YOS	Tables adopted by regulation	No	7%	10 yrs.	Entry age normal	1.01
State Employees' Pension Plan of **Del.**	State, teacher	62/5; 60/15; 30 YOS	55/15; 25 YOS	2.4%/yr.	Yes	3% above $6,000	5 yrs.	Entry age normal	1.12
Fla. Ret. Sys.	State, local, teacher	62/6; 30 YOS	6 YOS	5%/yr.	Yes	None	6 yrs.	Entry age normal	1.40
Employees' Ret. Sys. of **Ga**.	State	60/10; 30 YOS	25 YOS	7%/yr.	Yes	1.25%	10 yrs.	Entry age normal	1.34
Teachers Ret. Sys. of **Ga.**	Teacher	60/10; 30 YOS	25 YOS	7%/yr.	Yes	5%	10 yrs.	Entry age normal	1.20
Employees' Ret. Sys. of the State of **Haw.**	State, local, teacher	62/10; 55/30	55/20	6%/yr.	Yes	None	10 yrs.	Entry age normal	0.83
Public Employee Ret. Sys. of **Idaho**	State, teacher, local	65/5; R90	55/5	3%/yr. up to 5 yrs. plus 5.75%/yr. for add'l yrs. or under age 60	Yes	60% of employer contribution rate	5 yrs.	Entry age normal	0.95
State Employees' Ret. Sys. of **Ill.**	State	60/8; 35 YOS; R85	55/25	6%/yr.	Yes, with exceptions	4%	8 yrs.	Projected unit credit	0.64
Teachers' Ret. Sys. of the State of **Ill.**	Teacher	55/35; 60/10; 62/5	55/20	6%/yr.	No	9%	5 yrs.	Projected unit credit	0.60

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Public Employees' Retire. Fund of **Ind.** (hybrid)	State, local	65/10; 60/15; 55/R85	50/15	1.2%/yr. if within 5 yrs. of normal ret.; otherwise 5%/yr.	Yes	Up to 10% into DC component	10 yrs.	Entry age normal	1.11
Ind. State Teachers' Retire. Fund (hybrid)	Teacher	65/10; 60/15; 55/R85	50/15	1.2%/yr. if 60-65, 5%/yr. for yrs. below age 60	Yes	3% to 13% into DC component	10 yrs.	Entry age normal	0.43
Iowa Public Employees' Ret. Sys.	State, local, teacher	65; 62/20; 55/R88	55/4	3%/yr.	Yes	3.7%	4 yrs.	Entry age normal	1.02
Kan. Public Employees Ret. Sys.	State, local teacher	65; 62/10; R85	55/10	7.2%/yr. under 60; 2.4%/yr. from 60 to 62	Yes	4%	10 yrs.	Projected unit credit	0.87
Ky. Employees Ret. Sys.	State	65/4; 27 YOS	55/5; 25 YOS	5%/yr. or 4%/yr. depending on yrs. before ret.	Yes	5%	5 yrs.	Entry age normal	1.01
Teachers' Ret. Sys. of the State of **Ky.**	Teacher	60/5; 27 YOS	55/5	5%/yr.	No	9.855%	5 yrs.	Projected unit credit	0.85
La. State Employees' Ret. Sys.	State	55/25; 60/10; 30 YOS	20 YOS	Actuarial reduction	No	7.5%	10 yrs.	Projected unit credit	0.70
Teachers' Ret. Sys. of **La.**	Teacher	65/20; 55/25; 30 YOS	60/5; 20 YOS	Actuarial reduction	No	8%	5 yrs.	Projected unit credit	0.77

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Me. State Ret. Sys.	State, teacher, local	60/10, 62/5, 60/25 or 62/25 (depending on YOS before 1994)	25 YOS	2.25%/yr. below age 60 or 6%/yr. below age 62 (depending upon plan)	No	7.65%	5 yrs.	Entry age normal	0.82
Employees' Contributory Pension Sys. of **Md.**	State, local	62/5; 63/4, 64/3; 65/2; 30 YOS	55/15	6%/yr.	Yes	2%	5 yrs.	Entry age normal	0.93
Teachers' Contributory Pension Sys. of **Md.**	Teacher	62/5; 63/4; 64/3; 65/2; 30 YOS	55/15	6%/yr.	Yes	2%	5 yrs.	Entry age normal	0.88
State Employees' Ret. Sys. of **Mass.**	State, local	55/10; 20 YOS	No early ret.	N/A	No	9% plus 2% of annual compensation over $30,000	10 yrs.	Entry age normal	0.95
Teachers' Ret. Sys. of **Mass.**	Teacher	55/10; 20 YOS	No early ret.	N/A	No	11%	5 yrs.	Entry age normal	0.82
State Employees' Ret. **S**ys. of **Mich.**	State (if hired before 4/97); see ch. 8 of this report for mandatory DC plan for post 3/97 hires	60/10; 55/30	55/15	6%/yr.	Yes	None	10 yrs.	Entry age normal	1.20
Mich. Public Sch. Employees' Ret. Sys.	Teacher	55/30; 60/5; 30 YOS	55/15	6%/yr.	Yes	3% to 4.3% graduated rate for hybrid plan	10 yrs.	Entry age normal	1.09
Minn. State Ret. Sys.	State	Soc. Sec. normal age; R90	55/3	Actuarial reduction	Yes	4%	3 yrs.	Entry age normal	1.03

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Teachers Ret. Ass'n of **Minn.**	Teacher	Soc. Sec. normal age; R90	55/3	Actuarial reduction	Yes for most (depends on sch. dist.)	5%	3 yrs.	Entry age normal	1.00
Public Employees' Ret. Sys. of **Miss.**	State, local teacher	60/4; 25 YOS	No early ret.	N/A	Yes	7.25%	4 yrs.	Entry age normal	0.82
Year 2000 Plan **(Mo.)**	State (hired after 2000 and converters from old plan)	62/5; 48/R80	57/5	6%/yr.	Yes, with exceptions	None	5 yrs.	Entry age normal	0. 86
Public Sch. Ret. Sys. of **Mo.**	Teacher	60/5; 55/25; R80; 30 YOS	55/5; 25 YOS	Actuarial reduction	No	Annually determined (currently 10.5% but may not exceed 11.5%)	5 yrs.	Entry age normal	0.95
Public Employees' Ret. Sys. (of **Mont.**)	State, local (new hires can choose this plan or a DC alternative)	65; 60/5; 30 YOS	50/5; 25 YOS	6%/yr. or 3.96%/yr. depending on age and YOS	Yes	6.9%	5 yrs.	Entry age normal	1.23
Teachers' Ret. Sys. of the State of **Mont.**	Teacher	60/5; 25 YOS	50/5	6%/yr. or 3.6%/yr. depending on age and YOS	Yes for most (depends on sch. dist.)	7.15%	5 yrs.	Entry age normal	0.90
State Employees Ret. Sys. of the State of **Neb.** (cash balance)	State (post 2002, newly hired are assigned to cash balance & preexistent DC members could switch)	55	No early ret.	N/A	Yes	4.33% up to $19,954 of annual salary and then 4.8% for remainder	3 yrs.		0.76 (all state systems)

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Sch. Ret. Sys. of the State of **Neb.**	Teacher	65; 55/R85	60/5; 35 YOS	3%/yr.	Yes	7.25%	5 yrs.	Entry age normal	--
Public Employees' Ret. Sys. of **Nev.**	State, local, teacher	65/5; 60/10; 30 YOS	5 YOS	4%/yr.	No	Salary deduction 10.5% or salary reduction of 10.125%	5 yrs.	Entry age normal	0.80
N.H. Ret. Sys.	State, teacher, local	60	50/10; R70/20	1.5% to 6.7%/yr. depending on YOS	Yes	5%	10 yrs.	Projected unit credit	0.81 (state), 0.95 (teacher)
Public Employees' Ret. Sys. of **N.J.**	State, local	60	25 YOS	3%/yr.	Yes	Currently 3%; reverts to 4.5% to 5% if excess funds are depleted	10 yrs.	Projected unit credit	1.35
Teachers' Pension & Annuity Fund of **N.J.**	Teacher	60	25 YOS	3%/yr.	Yes	Currently 3%; reverts to 4.5% to 5% if excess funds are depleted	10 yrs.	Projected unit credit	1.29
Public Employees Ret. Ass'n of **N.M.**	State, local	65/5; 64/8; 63/11; 62/14; 61/17; 60/20; 25 YOS	No early ret.	N/A	Yes	7.42%	5 yrs.	Entry age normal	1.01
Educational Ret. Fund of **N.M**.	Teacher	65/5; 25 YOS	R75 if under age 60	7.2%/yr. below age 55; 2.4%/yr. below age 60	Yes	7.6%	5 yrs.	Entry age normal	1.01
N.Y. State Employees' Ret. Sys.	State, local	62/5; 55/30	55/5	Table (based on age and YOS)	Yes	3% for 1st 10 yrs. only	5 yrs.	Aggregate cost	1.03
N.Y. State Teachers' Ret. Sys.	Teacher	62/5; 55/30	55/5	Table (based on age and YOS)	Yes	3% for 1st 10 yrs. only	5 yrs.	Aggregate cost	1.33

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Teachers' & State Employees' Ret. Sys. of **N.C.**	Teacher, state	65/5; 60/25; 30 YOS	60/5; 50/20	Reduction % based on age & YOS	Yes	6%	5 yrs.	Entry age normal	1.30
Public Employees' Ret. Sys. of **N.D.**	State, local (after 1999, newly hired nonclassified employees of state may elect DC plan)	65; R85	55/3	6%/yr.	Yes	4%	3 yrs.	Entry age normal	1.12
Teachers' Fund for Ret. of **N.D.**	Teacher	65/3; R85	55/3	6%/yr.	Yes for most (depends on sch. dist.)	7.75%	3 yrs.	Entry age normal	0.88
Public Employees Ret. Sys. of **Ohio**	State, local (DC and combined plans available)	65; 30 YOS	55/25, 60/5	Table	No	Admin. determined from 8-10% (currently 8.5%)	5 yrs.	Entry age normal	1.10
State Teachers Ret. Sys. of **Ohio**	Teacher	65; 30 YOS (benefit multiplier increases up to 39 YOS)	60/5, 55/25	Table	No	Admin. determined from 8-10% (currently 10%)	5 yrs.	Entry age normal	0.89
Okla. Public Employees Ret. Sys.	State, local	62/6; R90	55/10	Table	Yes	3% up to annual compensat'n of $25,000; 3.5% above that	8 yrs.	Entry age normal	0.78
Teachers' Ret. Sys. of **Okla.**	Teacher	62/5; R90	55/5	6.67%/yr.	Yes for most (depends on sch. dist.)	7%	5 yrs.	Entry age normal	0.52

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Or. Public Serv. Ret. Plan (hybrid)	State, local, teacher (hired post 8/2003)	65; 58/30	55	Actuarial reduction	Yes	6% into DC component	5 yrs.	Entry age normal (older plan)	0.87 (older plan)
State Employees' Ret. Sys. of **Pa.**	State	60/3; 35 YOS	5 YOS	Actuarial reduction	Yes	6.25%	5 yrs.	Entry age normal	1.04
Public Sch. Employes' Ret. Sys. of **Pa.**	Teacher	62; 60/30; 35 YOS	55/25; 5 YOS	3%/yr. (for 55/25); Actuarial reduction (for 5 YOS)	Yes	7.5% or 6.5% (depending on hiring date and employee election)	5 yrs.	Entry age normal	1.34
Employees' Ret. Sys. of the State of **R.I.**	State, local	60/10; 28 YOS	No early ret.	N/A	Yes	8.75%	10 yrs.	Entry age normal	0.83
Employees' Ret. Sys. of the State of **R.I.**	Teacher	60/10; 28 YOS	No early ret.	N/A	Yes for most (depends on sch. dist.)	9.5%	10 yrs.	Entry age normal	0.78
S.C. Ret. Sys.	State, teacher, local (after 2001, new hires may elect DC plan)	65/5; 28 YOS	60/5; 55/25	5%/yr. below age 65 if 60/5; 4%/yr. below 28 YOS if 55/25	Yes	6%	5 yrs.	Entry age normal	0.90
S.D. Ret. Sys.	State, teacher, local	65/3; 55/R85	55/3	3%/yr.	Yes	6%	3 yrs.	Entry age normal	1.05
Tenn. Consol. Ret. Sys.	State, local, teacher	60/5; 30 YOS	55/5; 25 YOS	4.8%/yr. with exceptions	Yes	None (state); 5% (teachers)	5 yrs.	Frozen entry age	1.08
Employees Ret. Sys. of **Tex.**	State	60/5; R80	No early ret.	N/A	Yes	6%	5 yrs.	Entry age normal	1.20

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
Teacher Ret. Sys. of **Tex.**	Teacher	65/5; 60/20; R80	55/5; 30 YOS	Table	No for most (depends on sch. dist.)	6.4%	5 yrs.	Entry age normal	0.94
Public Employees' Noncontributory Ret. Sys. of **Utah**	State, teacher, local	65/4; 30 YOS	60/20; 62/10; 25 YOS	3%/yr. below 65; actuarial reduction below 60	Yes	None	4 yrs.	Entry age normal	0.92
Vt. State Ret. Sys.	State	62; 30 YOS	55/5	6%/yr.	Yes	3.35%	5 yrs.	Entry age normal	0.96
State Teachers' Ret. Sys. of **Vt.**	Teacher	62; 30 YOS	55/5	6%/yr.	Yes	3.54%	5 yrs.	Entry age normal	0.91
Va. Ret. Sys.	Teacher, state, local	65/5; 50/30	55/5; 50/10	Varies by ret. age	Yes	5%	5 yrs.	Entry age normal	1.16
Wash. Public Employees' Ret. Sys. (Plan 3-hybrid)	State, local	65/10; 65/5 with 1 YOS after age 54	55/10; 55/30	55/10 (actuarial reduction); 55/30 (reduced by 3%/yr.)	Yes	5% to 15% into DC component	10 yrs. or 5 yrs. with 1 yr. after age 54	Aggregate cost	0.97
Wash. State Teachers' Ret. Sys. (hybrid)	Teacher (after 1996)	65/10; 65/5 with 1 YOS after age 54	55/10; 55/30	55/10 (actuarial reduction); 55/30 (reduced by 3%/yr.)	Yes	5% to 15% into DC component	10 yrs. or 5 yrs. with 1 yr. after age 54	Aggregate cost	1.03
W. Va. Public Employees Ret. Sys.	State, local	60/5; 55/R80	55/10; 30 YOS	Actuarial reduction	Yes	3.5% to 4.5% determined administratively	5 yrs.	Entry age normal	0.84

Appendix C--(continued)

Retirement System	Membership	Qualifications for Normal Retirement	Qualifications for Early Retirement	Reduction for Early Retirement	Social Security Coverage	Employee Contribution	Vesting Period	Actuarial Method	Funding Ratio
State Teachers' Ret. Sys. for **W. Va.**	Teacher (after 1991, new hires enrolled in DC plan)	60/5; 55/30; 35 YOS	30 YOS	Actuarial reduction	Yes	6%	5 yrs.	Entry age normal	0.21
Wis. Ret. Sys.	State, local, teacher	65; 57/30	55	Actuarial reduction	Yes	5% (plus benefit adjustment, currently 0.4%)	Immediate	Frozen entry age	1.26
Wyo. Ret. Sys.	State, local, teacher	60/4; R85	50/4; 25 YOS	5%/yr.	Yes	5.57%	4 yrs.	Entry age normal	1.21

APPENDIX D

State Public Defined Benefit Retirement Systems: Benefits

Appendix D
State Public Defined Benefit Retirement Systems: Benefits

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
Employees' Ret. Sys. of **Ala.**	State, local	2.0125%	3 H of last 10 YOS	None	Ad hoc	Exempt	No
Teachers' Ret. Sys. of **Ala.**	Teacher	2.0125%	3 H of last 10 YOS	None	Ad hoc	Exempt	No
Public Employees' Ret. Sys. of **Alaska**	State, local	2% (1st 10 YOS); 2.25% (2d 10 YOS); 2.5% (add'l YOS)	5 HC	None	75% of CPI if 65—9% cap; 50% of CPI if 60 or ret. 5 yrs.—6% cap	No income tax	No
Teachers' Ret. Sys. of **Alaska**	Teacher	2% (1st 20 YOS); 2.5% (add'l YOS)	3 H	IRC § 415	75% of CPI if 65—9% cap; 50% of CPI if 60 or ret. 8 yrs.—6% cap	No income tax	No
Ariz. State Ret. Sys.	State, local, teacher	2.1% to 2.3% depending on YOS	3 HC of last 10 YOS	80% of average compensation; IRC § 415	Excess earnings—4% cap	Taxable	Up to 3 yrs. of ret. benefits
Ark. Public Employees' Ret. Sys.	State, local	After June 2001--1.72%; before July 2001--1.75%	3 H	FAS; IRC § 415	CPI—3% cap	Exempt to $6,000	Up to 5 yrs. of ret. benefits
Ark. Teacher Ret. Sys.	Teacher	2.15% (statutory range)	3 to 5 H	IRC § 415	CPI—3% cap	Exempt to $6,000	No
Public Employees' Ret. Sys. of **Cal**.	State, local	1.25% to 3% depending on hiring date	1 H (1 or 3 H depending on employer's contract)	IRC § 415	CPI up to 6%/yr. ltd. to a max. increase of 2%/yr. cumulatively during ret.; 75% purchasing power floor	Taxable	No
State Teachers' Ret. Sys. of **Cal.**	Teacher	2% to 2.4%	3 HC; 12 HC mos. for 25 YOS or more	IRC § 415	2% simple; 80% purchasing power floor	Taxable	Partial w/drawal at age 60¼ or 60/30; amt. depends on age and ret. amt.

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
Public Employees' Ret. Ass'n of **Colo.**	State, local, teacher	2.5%	3 H, but annual salary increase above 15% is excluded	FAS; IRC § 415	3.5% compounded	$20,000 exempt for residents age 55-64; $24,000 exempt for 65 and older	No
State Employees' Ret. Sys. of **Conn.**	State	1.33% plus 0.5% of FAS exceeding annual breakpoint	3 H, amt. over 130% of avg. of preceding 2 yrs. is excluded	IRC limit	60% of CPI up to 6% plus 75% of CPI above 6%	Taxable	No
Conn. Teachers' Ret. Sys.	Teacher	2%	3 H	75% of FAS; IRC § 415	Contingent on investment return and reserve fund	Taxable	Pre-1990 contributions
State Employees' Pension Plan of **Del.**	State, teacher	2% pre-1997 service plus 1.85% after 1996 service	3 H	None	Ad hoc	$2000 exempt below age 60; $12,500 exempt from age 60	No
Fla. Ret. Sys.	State, local, teacher	1.6%; 1.68% if service past normal ret. date	5 H	FAS; IRC § 415	3%	No income tax	No
Employees' Ret. Sys. of **Ga.**	State, local	1.5% to 2%	2 HC	90% of highest salary; IRC limit	CPI—1.5% semi-annual cap; compound; conditional	Taxable	No
Teachers Ret. Sys. of **Ga.**	Teacher	2%	Avg. during last 5 YOS	40 yrs. max; IRC limit	CPI—1.5% semi-annual cap	Exempt to $14,000	No
Employees' Ret. Sys. of the State of **Haw.**	State, local, teacher	1.25%	3 H	80% of FAS	2.5% simple	Exempt	No
Public Employee Ret. Sys. of **Idaho**	State, teacher, local	2%	3½ HC	FAS	CPI—1% to 6%; conditional	Taxable, subject to deductible amount	No
State Employees' Ret. Sys. of **Ill.**	State	1.67% if covered by Soc. Sec.; 2.2% if uncovered	4 HC of last 10 yrs. (last yr. amt. over 25% of final avg. excluded)	75% of FAS	3%	Exempt	No

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
Teachers' Ret. Sys. of the State of **Ill.**	Teacher	2.2%; 2.3% after 30 YOS	4 HC of last 10 YOS (increase over 20% prev. yr's. salary is excluded)	75% of FAS	3%	Exempt	No
Public Employees' Ret. Fund of **Ind.** (hybrid)	State, local	1.1%	5 H	IRC § 415	Ad hoc	Taxable	DC account
Ind. State Teachers' Ret. Fund (hybrid)	Teacher	1.1%	5 H	IRC § 415	Ad hoc	Taxable	DC account
Iowa Public Employees' Ret. Sys.	State, local, school	2% (1st 30 YOS); 1% (YOS 31-35)	3 H	65% of FAS	Contingent on return	Exempt to $6,000	No
Kan. Public Employees Ret. Sys.	State, local, teacher	1.75%	3 H	IRC § 415	Ad hoc	Exempt	Can take up to half of benefits in lump sum
Ky. Employees Ret. Sys.	State, local	2% (under 20 YOS); 2.2% (20 or more YOS)	5 H	None	CPI—5% cap	Taxable above inflation adjusted amt. (currently $39,400)	Up to 3 yrs. ret. benefits
Teachers' Ret. Sys. of the State of **Ky.**	Teacher	2% (under 10 YOS); 2.5% (10 to 30 YOS); 3% (30 YOS subject to bd. approval)	5 H	Greater of FAS or final yr's. compensation; IRC § 415	1.5%	Taxable above inflation adjusted amt. (currently $39,400)	No
La. State Employees' Ret. Sys.	State	2.5%	3 HC (increases over 25% excluded)	FAS; IRC § 415	CPI to 2%; add'l 1% conditional	Exempt	Up to 3 yrs. ret. benefits
Teachers' Ret. Sys. of **La.**	Teacher	2% or 2.5% (age and service related)	3 HC (increases over 10% excluded)	FAS; IRC § 415	CPI to 2%; add'l 1% conditional	Exempt	Up to 3 yrs. ret. benefits

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
Me. State Ret. Sys.	State, teacher, local	2%	3 H (increase over 5% of previous yr. and 10% total increase excluded unless employer defrays excess)	None	Automatic CPI up to 4%; over 4% requires supplemental funding	Exempt to $6,000 minus Soc. Sec. benefit	No
Employees' Contributory Pension Sys. of **Md.**	State, local	1.4%	3 HC	FAS	CPI—3% cap; compounded	Taxable	No
Teachers' Contributory Pension Sys. of **Md.**	Teacher	1.4%	3 HC	None	CPI—3% cap; compounded	Taxable	No
State Employees' Ret. Sys. of **Mass.**	State, local	0.5% to 2.5% depending on age	3 H	80% of FAS; IRC § 415	CPI—3% on 1st $12,000; conditional	Exempt	No
Teachers' Ret. Sys. of **Mass.**	Teacher	0.1% to 2.5% depending on age	3 HC	80% of FAS; IRC § 415	CPI—3% on 1st $12,000; conditional	Exempt	No
State Employees' Ret. Sys. of **Mich.**	State (if hired before 4/97)); see ch. 8 of this report for mandatory DC plan for post 3/97 hires	1.5%	3 HC	FAS; IRC § 415	3%—$300 cap	Exempt	No
Mich. Public Sch. Employees' Ret. Sys.	Teacher	1.5%	3 HC	FAS; IRC § 415	3% simple	Exempt	No
Minn. State Ret. Sys.	State	1.7%	5 HC	None	CPI—2.5% plus investment surplus	Taxable, subject to unearned income exclusion	No
Teachers Ret. Ass'n of **Minn.**	Teacher	1.7% (2.7% if not covered by Soc. Sec.)	5 HC	IRC § 415	CPI—2.5% plus investment surplus	Taxable, subject to unearned income exclusion	No

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
Public Employees' Ret. Sys. of **Miss.**	State, local, teacher	2% (1st 25 YOS); 2.5% (remaining YOS)	4 H or final 4, but not > $150,000	IRC § 415	3% compounded, beginning at age 55	Exempt	If age 63 or 28 YOS, up to 3 yrs. ret. benefits
Year 2000 Plan **(Mo.)**	State (hired after 2000 & converters from old plan)	1.7% (2.5% if not covered by Soc. Sec.)	3 HC	IRC § 415	80% CPI—5% cap, compounded	Exempt up to $6,000, depending on income	No
Public Sch. Ret. Sys. of **Mo.**	Teacher	2.2% to 2.5%	3 HC (but any annual increase over 20% excluded)	FAS	CPI—5% cap	Exempt up to $6,000, depending on income	Up to 3 yrs. ret. benefits (if 63/8, 33 YOS R86)
Public Employees' Ret. Sys. (of **Mont.**)	State, local	1.7857% to 2%, depending on YOS	3 HC	IRC § 415	3%; 75% purchasing power floor	Exempt to $3,600	No
Teachers' Ret. Sys. of the State of **Mont.**	Teacher	1.67%	3 HC (yr. to yr. increase over 10% excluded with exceptions)	IRC § 415	1.5%; add'l 1.5% conditional	Exempt to $3,600	No
State Employees Ret. Sys. of the State of **Neb.** (cash balance)	State (post 2002, newly hired are assigned to cash balance & preexistent DC members could switch)	N/A	N/A	None	N/A	Taxable	Part of cash balance account
Sch. Ret. Sys. of the State of **Neb.**	Teacher	1.25% to 2% depending on when serv. credit was acquired	3 H (yr. to yr. increase over 10% excluded unless for different position or collective bargaining)	None	CPI—2.5% cap	Taxable	No
Public Employees' Ret. Sys. of **Nev.**	State, local, teacher	2.5% (serv. pre-2002); 2.67% (serv. after 2001)	3 HC	75 or 90% of FAS depending on membership date; IRC § 415	CPI—cap of 2% to 5% (depending on yrs. retired)	No income tax	No

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
N.H. Ret. Sys.	State, teacher, local	Below age 65: 1.67%; age 65 and older: 1.515%	3 H (final yr. is ltd. to 150% of preced'g yr. or highest of any yr. used)	IRC § 415	Ad hoc	Exempt	May elect to receive ret. allowance actuarially equal to an available option, subject to bd. approval
Public Employees' Ret. Sys. of **N.J.**	State, local	1.82%	3 H	None	60% of CPI	Exempt up to $20,000 and return of employee contributions	No
Teachers' Pension & Annuity Fund of **N.J.**	Teacher	1.82%	3 H	IRC § 415	60% of CPI	Exempt up to $20,000 and return of employee contributions	No
Public Employees Ret. Ass'n of **N.M.**	State, local	3%	3 HC	80% of FAS	3% compounded	Taxable	No
Educational Ret. Fund of **N.M**.	Teacher	2.35%	5 HC	None	CPI up to 2%; 50% of CPI over 2%—4% cap, compounded	Taxable	No
N.Y. State Employees' Ret. Sys.	State, local	1.67% (under 20 YOS); 2% (1st 30 YOS); 1.5% (added for YOS over 30)	3 HC (increases over 10% excluded)	Formula; IRC § 415	If age 62 and ret. 5 yrs., 50% CPI—3% cap (on 1st $18,000)	Exempt	No
N.Y. State Teachers' Ret. Sys.	Teacher	1.67% (under 20 YOS); 2% (1st 30 YOS); 1.5% (added for YOS over 30)	3 HC (increases over 10% excluded)	None	If age 62 and ret. 5 yrs. or 55 and ret. 10 yrs., 50% CPI—3% cap (on 1st $18,000)	Exempt	No

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
Teachers' & State Employees' Ret. Sys. of **N.C.**	Teacher, state	1.82%	4 HC	IRC § 415	Ad hoc	Exempt to $4,000	No
Public Employees' Ret. Sys. of **N.D.**	State, local (after 1999, newly hired nonclassified employees of state may elect DC plan)	2%	3 H of final 5 yrs.	IRC § 415	Ad hoc	Taxable	Accumulated contributions
Teachers' Fund for Ret. of **N.D.**	Teacher	2%	3 H	IRC § 415	Ad hoc	Taxable	Up to 1 yr. ret. benefits
Public Employees Ret. Sys. of **Ohio**	State, local (DC and defined plans available)	2.2% (1st 30 yrs.) plus 2.5% (add'l yrs.); adjusted for age and YOS by table	3 H	FAS; IRC § 415	3% simple	Taxable	Up to 3 yrs. ret. benefits
State Teachers Ret. Sys. of **Ohio**	Teacher	2.2% to 3.1% (depending on YOS)	3 H (formula increase cap)	FAS; IRC § 415	3% plus supplemental benefit depending on earnings	Taxable	Up to 3 yrs. ret. benefits
Okla. Public Employees Ret. Sys.	State, local	2% (beginning in 2004, members may increase this to 2.5% for add'l contributions)	3 H of final 10 yrs.	IRC § 415	Ad hoc	Exempt to $5,500	No
Teachers' Ret. Sys. of **Okla.**	Teacher	2%	5 HC	None	Ad hoc	Exempt to $5,500	Up to 3 yrs. ret. benefits (requires 30 YOS)
Or. Public Serv. Ret. Plan (hybrid)	State, local, teacher (hired after 8/2003)	1.5%	3 H	IRC § 415	CPI—2% cap	Taxable	DC account

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
State Employees' Ret. Sys. of **Pa.**	State	2.5%	3 H	1 H; IRC § 415	Ad hoc	Exempt	Employee contributions
Public Sch. Employes' Ret. Sys. of **Pa.**	Teacher	2.5% (most); 2%	3 H	IRC § 415	Ad hoc	Exempt	Employee contributions
Employees' Ret. Sys. of the State of **R.I.**	State, local	1.7% (1-10 YOS); 1.9% (11-20 YOS); 3% (YOS 21-34); 2% (35th yr.)	3 HC	80% of compensation payable at completion of 35 YOS; IRC § 415	3% compounded	Taxable	No
Employees' Ret. Sys. of the State of **R.I.**	Teacher	1.7% (1-10 YOS); 1.9% (11-20 YOS); 3% (YOS 21-34); 2% (35th yr.)	3 HC	80% of compensation payable at completion of 35 YOS; IRC § 415	3% compounded	Taxable	No
S.C. Ret. Sys.	State, teacher, local (after 2001, new hires may join optional DC plan instead)	1.82%	3 HC	None	CPI—4% cap (depending on earnings)	Exempt to $3,000; exempt to $10,000 from age 65	No
S.D. Ret. Sys.	State, teacher, locals	Larger of 1.625% for serv. pre-2003 plus 1.55% after 2002 or 2.325% pre-2003 plus 2.25% after 2002 minus 80% of amt. of primary Soc. Sec. benefits	3 HC of final 10 yrs.	None	3.1% compounded	No income tax	No
Tenn. Consol. Ret. Sys.	State, local, teacher	1.5% plus 0.25% over Soc. Sec. integration level	5 HC	94.5% of FAS	CPI—3% cap	Exempt	No
Employees Ret. Sys. of **Tex.**	State	2.3%	3 H	FAS	Ad hoc	No income tax	Up to 3 yrs. ret. benefits

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
Teacher Ret. Sys. of **Tex.**	Teacher	2.3%	3 H	None	Ad hoc	No income tax	Up to 3 yrs. ret. benefits
Public Employees' Noncontributory Ret. Sys. of **Utah**	State, teacher, local	2%	3 H but annual increase can't exceed 10% plus CPI unless employee is transferred or promoted	None	CPI—4% cap; if CPI is over 4%, excess can accumulate to be added when CPI is below 4%	Under 65 exempt; age 65 or above, taxable but $7,500 is exempt	No
Vt. State Ret. Sys.	State	1.67%	3 HC	50% of FAS	CPI—5% cap	Taxable	No
State Teachers' Ret. Sys. of **Vt.**	Teacher	1.67%	3 HC, but increase over 10% excluded unless due to add'l duties	50% of FAS	CPI—5% cap	Taxable	No
Va. Ret. Sys.	Teacher, state, local	1.7%	3 HC (increases in final 4 YOS over avg. increase of comparable employees excluded unless due to promotion)	IRC § 415	CPI to 3% plus 50% of CPI 3% to 7% (5% cap)	Taxable	Up to 3 yrs. ret. benefits
Wash. Public Employees' Ret. Sys. (Plan 3-hybrid)	State, local (for those who became members in 2002 or after)	1% (under 20 YOS); 1.25% (20 or more YOS)	5 HC	None	CPI—3% cap; if plan's combined trust fund averages more than 10% returns for 4 yrs., half of excess over 10% may be distributed	No income tax	DC account
Wash. State Teachers' Ret. Sys. (hybrid)	Teacher (after 1996)	1% (under 20 YOS); 1.25% (20 or more YOS)	5 HC	None	CPI—3% cap	No income tax	DC account

Appendix D--(continued)

Retirement System	Membership	Benefit Multiplier	Final Average Salary Period	Benefit Limitation	Annual Post Retirement Increases	State Income Taxation of Benefits	Option to Withdraw Lump Sum
W. Va. Public Employees Ret. Sys.	State, local	2%	3 H of final 10 YOS	IRC § 415	Ad hoc	Exempt to $2,000	No
State Teachers' Ret. Sys. for **W. Va.**	Teacher (after 1991, new hires enrolled in DC plan)	2%	5 H of final 15 YOS	IRC § 415	Ad hoc	Exempt to $2,000	No
Wis. Ret. Sys.	State, local, teacher	1.6% for serv. after 1999	3 H	70% of FAS; IRC § 415	Investment earnings distrib'd if enough for at least 2%, but investment losses can result in benefit decreases	Taxable	No
Wyo. Ret. Sys.	State, local, teacher	2.125% (1-15 YOS); 2.25% (add'l YOS)	3 HC	None	CPI—3% cap; if CPI is over 3%, excess is accumulated for distrib. when CPI is under 3%	No income tax	Employee contributions