

**NEW MEXICO EDUCATIONAL
RETIREMENT BOARD**

Defined Contribution Retirement Plan Study





GABRIEL, ROEDER, SMITH & COMPANY

Consultants & Actuaries

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October 14, 2005

Dr. Evalynne Hunemuller
Director
New Mexico Educational Retirement Board
P.O. Box 26129
Santa Fe, NM 87502-0129

Subject: Report on the 2005 Defined Contribution Retirement Plan Study

Dear Evalynne:

We are pleased to present our report on the results of the 2005 Defined Contribution Retirement Plan Study of the Educational Retirement Board. The report includes a discussion of defined benefit and defined contribution plans, and presents our analysis of a potential defined contribution retirement plan. It also provides information about the actuarial cost of such a program. This study is conducted in accordance with House Joint Memorial 9 and Senate Joint Memorial 17.

Our objective is to determine if the adoption of a defined contribution retirement plan for all future members of ERB could result in a more financially sound retirement system that provides the same or better benefits.

We look forward to discussing this matter with you and other public entities as appropriate. We wish to thank you and your staff for their assistance in this project.

Sincerely,
Gabriel, Roeder, Smith & Company


William B. Fornia, F.S.A.



J. Christian Conradi, A.S.A.
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SECTION I
PREAMBLE

Section I

Preamble

At the end of the 2005 legislative session, the New Mexico legislature passed House Joint Memorial 9 and Senate Joint Memorial 17. The Joint Memorials are included in this report as Appendices A and B. These requested that the New Mexico Educational Retirement Board (ERB) study the implications of moving from a defined benefit (DB) program to a defined contribution (DC) program for all new education employees. The memorials asked that the advantages and disadvantages be compared to determine if a DC plan for new education employees would result in:

- a more financially sound retirement system
- providing the same or better benefits as those now received by retired ERB members

The Educational Retirement Board is a defined benefit (DB) plan. Retired employees receive a fixed monthly annuity based primarily on the employee's salary history and the employee's years of service. Like all DB plans, the employer bears the investment risk and the demographic risk of meeting the fixed retirement benefit. Nearly all states provide DB plans for their educational employees.

A few states offer defined contribution (DC) plans or allow employees the choice of a DC plan. Under DC plans, the employer guarantees to make a predetermined fixed contribution into an account established by the employer for the employee. An employee may elect to (or is required to) contribute some percentage of the employee's compensation. In a DC plan the employee bears the investment risk and mortality risk of meeting the employee's retirement income goals.

Several other states are exploring defined contribution plans as a potential solution to funding shortfalls of DB plans. This report examines these experiences, analyzes the specifics of ERB, and presents our findings.

SECTION II
INTRODUCTION

Section II

Introduction

Report Content

As requested in the Joint Memorials, Gabriel, Roeder, Smith & Co. is examining potential defined contribution programs to ascertain if a more financially sound system can be developed which provides the same or better benefits for future members.

To conduct this analysis, Section III analyzes the costs to ascertain how a more financially sound retirement system could be created. Section IV provides various benefit illustrations to ascertain whether such a DC program could provide the same or better benefits. Section V analyzes the various features of DB and DC plans, including the advantages and disadvantages of such programs, and Section VI addresses risk under both types of plan.

History of ERB

At the time the Joint Memorial was passed, the Educational Retirement System was experiencing solvency difficulties, including a funded ratio of 76% and an unfunded actuarial accrued liability (UAAL) of \$2.3 billion. The funded ratio is the ratio of assets to actuarial liabilities, and the UAAL is the excess of actuarial liabilities over actuarial assets.

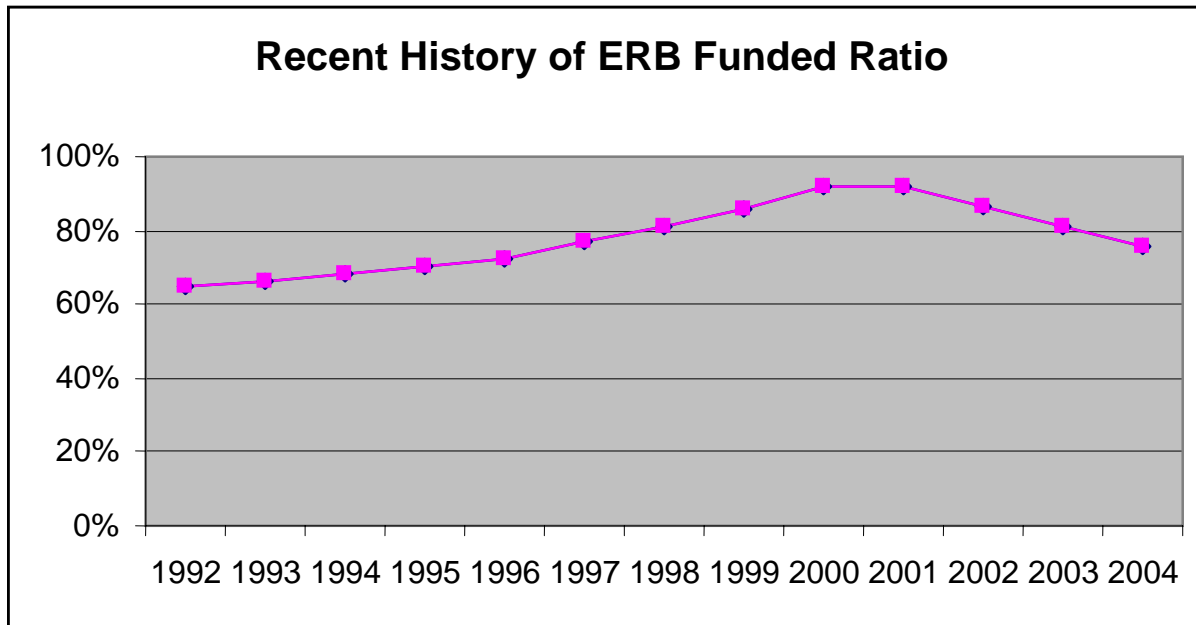
Since the time of the Joint Memorials, the funded position has been re-measured using more current actuarial assumptions. Key measures as of July 1, 2004 are:

- Actuarial Value of Assets – \$7.5 billion
- Actuarial Accrued Liability – \$10.1 billion
- Unfunded Actuarial Accrued Liability – \$2.6 billion
- Funded Ratio – 74%

A contribution increase was granted during the 2005 legislative session. This increase is projected to eventually solve ERB's funding shortfall.

ERB has its origins in a 1925 act that set pension benefits for certain university faculty members. In the 1930s, benefits were provided for public school teachers. ERB itself was created by a 1957 act. It has been a DB plan throughout its history, as is the case of teacher retirement plans in almost all other states. In 1992, the Alternative Retirement Plan (ARP) was created to allow new members of the colleges and universities to elect a DC alternative plan. However, when members elected the ARP, ERB would have been deprived of funds needed to amortize the UAAL at the time, so employers were required to contribute to ERB 3.00% of pay for each ARP member.

The following graph shows the recent history of ERB's funded ratio since July 1, 1992:



Actuarial methodology

Because ERB is a defined benefit plan, benefits are promised to members at retirement. This requires actuarial calculations to determine the desired funding level necessary to meet those promises. Under the actuarial methodology used for ERB, an actuarial liability (AL) is determined. The AL is the amount which is targeted to be in the fund if all assumptions have been met in the past, particularly the level of contributions and level of investment return. The AL is compared to the actuarial value of assets to determine the unfunded actuarial liability (UAL). The annual required contribution is then the amount necessary to pay off the UAL over a period of time, plus the regular ongoing normal cost of new benefits assigned to the current year.

Overview of study methodology

In order to compare benefit levels and benefit costs, it is necessary to have a consistent, unbiased, rigorous process for comparing the current ERB DB program with a proposed DC program.

The Cost section of this report (Section III) will analyze the costs of a proposed DC program, and the cost of the remaining ERB DB program to determine what level of DC contribution would be needed to create “a more financially sound retirement system.”

The Benefit Illustration section of this report (Section IV) will look at sample future educational employees and calculate various projected benefits at future ages. These charts will be the source for measuring whether the proposed DC program provides “the same or better retirement benefits as those now received by retired educational retirement system members.”

This two-pronged test is the measurement basis specified by the Joint Memorials, and we believe it is a reasonable test for decisions on the appropriateness of changing the system structure.

SECTION III

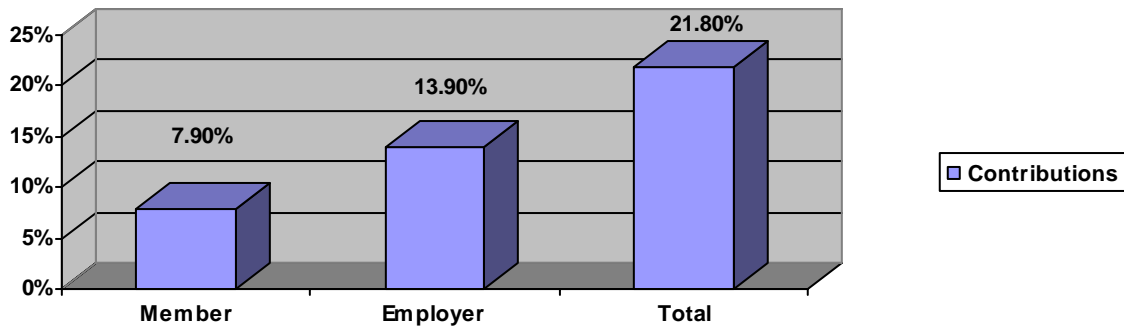
COSTS

Section III

Costs

In order to use the two-pronged test of “same or better benefits” and “more financially sound”, we must develop a DC program which would be “more financially sound.” We define more financially sound as meaning same or lower cost and more predictable cost. As will be discussed in Section V, an advantage of DC programs is that their costs do not fluctuate. Consequently, if a DC plan has the same cost as the DB, but without the risk to the employer, it would be more financially sound. Therefore, our approach is to first develop a DC plan with the same cost as the DB program, and then to see whether this DC plan can provide the same or better benefits.

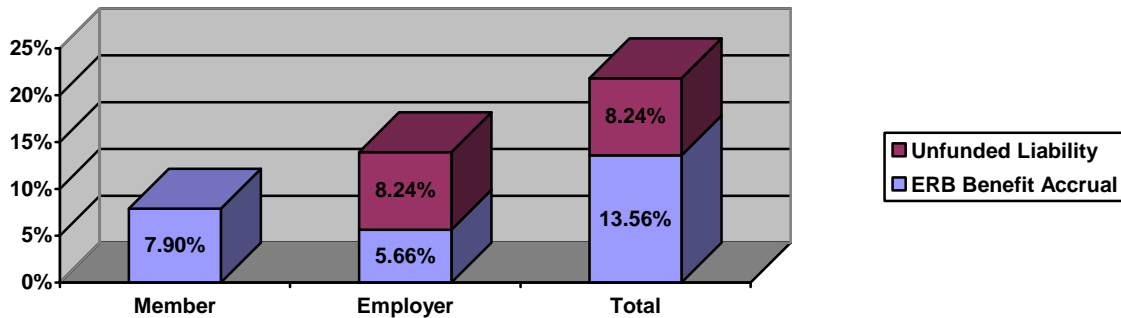
As shown by the following chart, the long term ERB financing structure is made up of member contributions of 7.90% of payroll plus employer contributions of 13.90% of payroll. Note that this represents the contribution rates after the full phase-in of increased contributions under SB 181 by 2011. Contributions in 2005-2006, for example are 7.675% for members plus 9.40% for the employer for a total of 17.075%.



By focusing on the total contribution rate of 21.80%, one might conclude that we could compare the DB benefits with benefits produced by a 21.80% DC plan. This is not the case because the current DB program has costs from two sources:

- The ongoing cost of new defined benefits being accrued.
- The cost of funding for benefits already accrued.

An allocation of these costs between the accrual of ongoing benefits and the payment of the unfunded liability results in the following breakdown of costs:



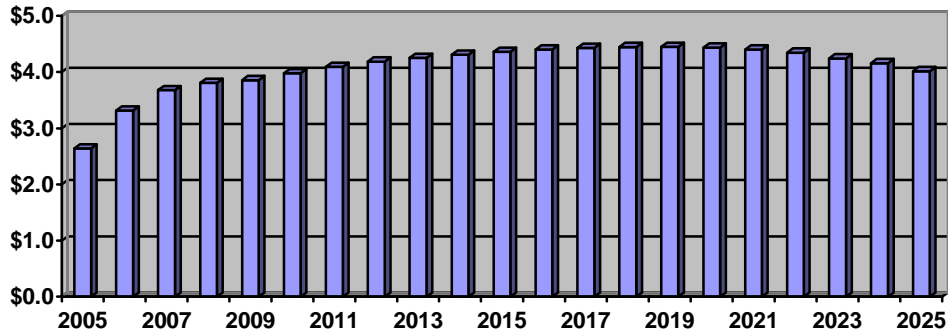
As seen in this chart, of the total contributions of 21.80%, 13.56% is needed to fund the normal cost of ongoing benefit accruals, while the remaining 8.24% is used to pay off the unfunded liability for benefits already accrued.

In order to adequately fund this liability, the 8.24% contributions must come from all present and future members. If future members do not generate an 8.24% contribution to pay off this unfunded liability, the liability will not get paid off and DB funds will not be available to pay benefits at some point in the future. We have estimated the value of the shortfall as \$2.2 billion. For this reason, the amount which can be used to fund DC benefits without violating the “more financially sound” principle is 13.56% of pay. This is the contribution analyzed in Section IV.

Therefore, if a DC plan were to be adopted for new members, the members and employers may contribute up to 13.56% combined, but the employers must also contribute 8.24% to the ERB DB plan, or the remaining DB plan will deteriorate financially. Because 8.24% is needed for the current ERB DB plan, only 5.66% of the employer 13.90% contribution will be available for the new DC plan. Note that this has a parallel in the creation of the Alternative Retirement Plan (ARP), a DC plan for new faculty members at public New Mexico colleges and universities. A 3.00% contribution is required from the employers to ERB on the payroll for all ARP members. This was required when the ARP was created, in order to continue the necessary funding of the UAAL at the time.

Another way to approach this question is to project what would happen if less than 8.24% were contributed to the DB plan. First consider the following projections of the unfunded liability under the current financing program.

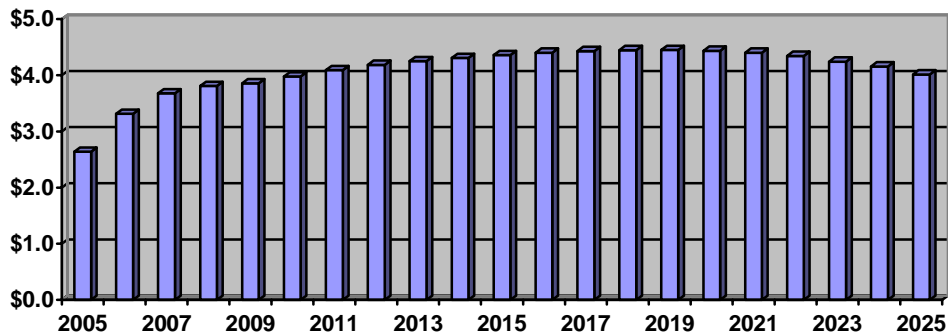
Projection of Future Unfunded Liabilities Under Current Program (\$billions)



The above graph indicates that the unfunded liability is projected to increase to nearly \$4.5 billion around 2019, then begin to decrease. The increase is a result of currently inadequate contributions, and the decrease begins as the increased contributions granted by the 2005 legislature begin to chip away at the growth of the unfunded liability. The unfunded liability is projected to be completely funded by 2035. These illustrations assume that the plan achieves an 8% investment return each year and that all other actuarial assumptions are met.

One test to see if a proposed DC program is “more financially sound” is to compare the unfunded liabilities of the current program with unfunded liabilities of a proposed program. The following graph charts the unfunded liabilities of the current DB program if the proposed DC program is made up of 13.56% contributions plus continued employer 8.24% contributions toward the DB plan unfunded liability:

Projection of Future ERB Unfunded Liabilities Under DC Program with 8.24% contributions continuing to ERB DB Program (\$billions)

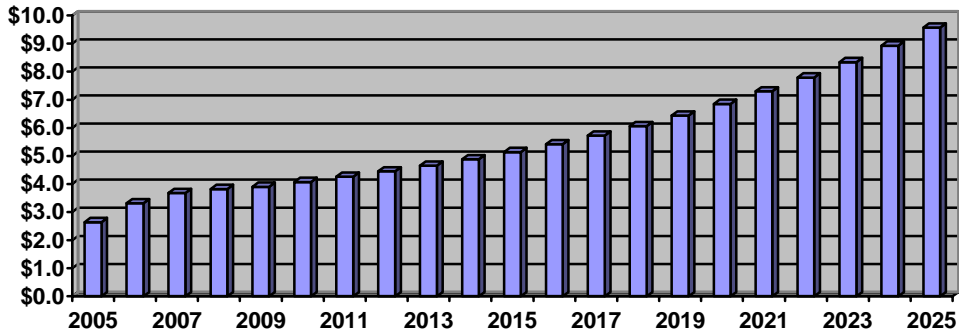


This projection is identical to the current program. This means that as long as ERB continues to receive 8.24% contributions attributable to all members, the unfunded liability will be paid off as rapidly as under the current program. The scenario above is more financially sound because the

ERB unfunded liabilities are being paid off as rapidly, and there is no risk of future unfunded liabilities attributable to future DC members.

Next, we look at the ERB unfunded liability projections if ERB does not continue to receive 8.24% contributions attributable to future members.

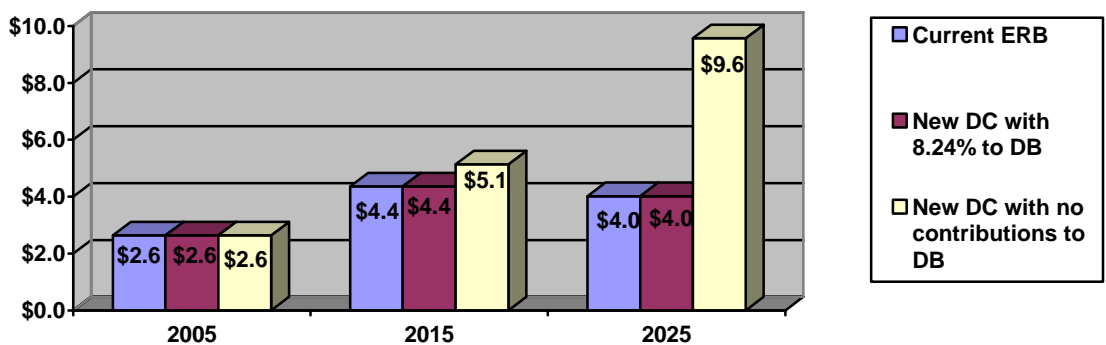
Projection of Future ERB Unfunded Liabilities Under DC Program without 8.24% contributions continuing to ERB (\$billions)



It can be clearly seen that this projection of unfunded liabilities is much higher than in the previous charts. This is because the contribution toward unfunded liabilities is being phased out as current members retire and terminate and new DC members do not generate any contributions toward the unfunded liability.

The following graph gives a side by side comparison of the three scenarios for 2005, 2015, and 2025.

Projection of Unfunded Liabilities (\$billions) Under Various Scenarios

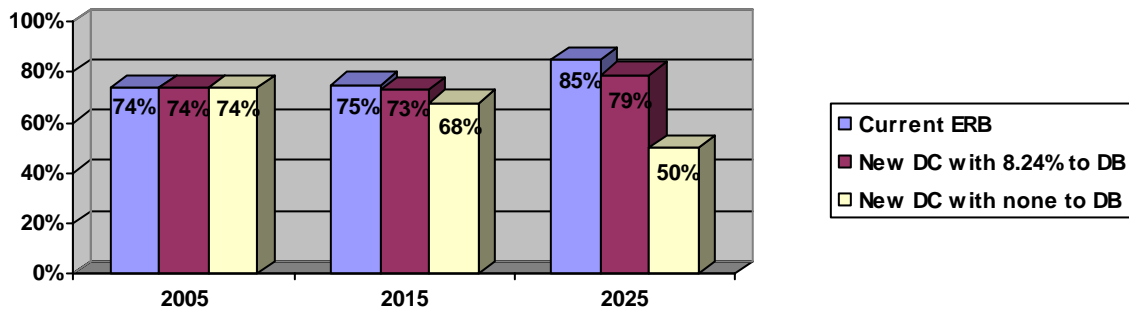


This graph reiterates that if no contributions are allocated to the current DB program to pay off the unfunded liability, it will increase to nearly \$10 billion by 2025. This demonstrates that a program without contributions toward the ERB unfunded liability would not be “more

financially sound” than the current program, because of the substantial increase in the unfunded liability.

The following graph presents the same projections, but showing funded ratio, rather than unfunded liability.

Projection of Funded Ratios Under Various Scenarios



This demonstrates that if the plan is closed and no contributions are made from new members, then the funded ratio is projected to be 50% by 2025, while it is projected to be 85% under the current arrangement. If contributions continue from new members, the funded ratio is projected to be 79%. This is an improvement from the situation in 2005, and as illustrated by the unfunded liability charts, represents the same absolute dollars of unfunded liability (\$4.0 billion). These charts also confirm that if money is not dedicated to pay off the unfunded liability, the funding situation will continue to deteriorate.

The funding projections shown above were based on assumptions consistent with those provided to the Governor’s Task Force and the Legislature in the spring. Specifically, the projections assume 1.5% annual growth in membership and 8% investment return.

Another concern which exacerbates the deterioration in the DB plan’s funded status is that as the DB plan’s cash flow becomes more and more negative, it will no longer be able to invest as aggressively. It will become necessary to invest more conservatively, which would result in reduced investment returns. Consequently, the actuarial liabilities would need to be measured at a lower interest rate and would be higher. This means that the graphs under the closed plan scenarios would be worse than those shown above.

The conclusion from this Section is that in order to be as financially sound, the existing ERB must receive the 8.24% contributions on behalf of future DC plan members. These are necessary to pay off the already existing unfunded liability. Consequently, the amount available for DC benefits is the remaining 13.56% of pay, not the entire 21.80% of pay.

SECTION IV
BENEFIT ILLUSTRATIONS

Section IV

Benefit Illustrations

A convenient method for measuring the adequacy of retirement income is to calculate the income replacement rate for members who retire, which is the ratio of the retirement income to the wages in the year of retirement. Typically, all sources of retirement income are considered to determine the overall adequacy of retirement income (Social Security benefits, personal savings etc.). However, the ratio can be useful for measuring the value of a single source of retirement income.

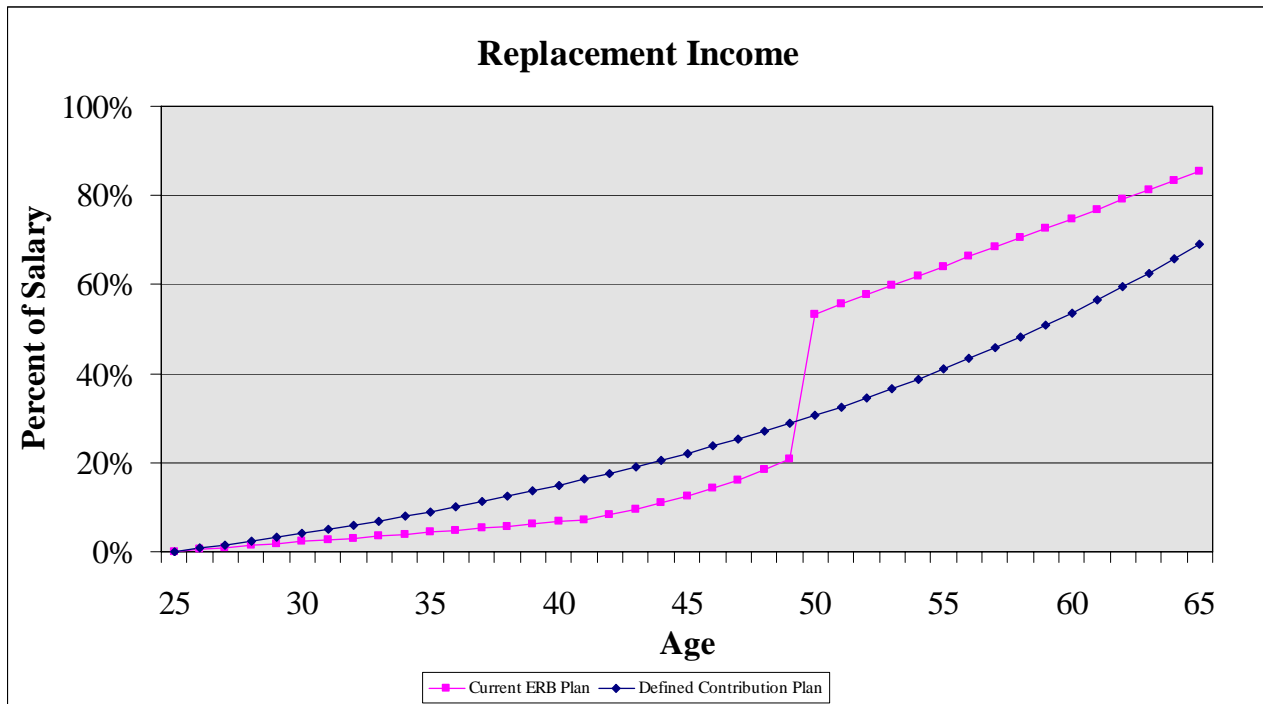
The following graphs illustrate the percentage of salary that would be replaced by retirement income for ERB as well as for a 13.56% DC plan. As demonstrated in Section III on costs, a 13.56% contribution to the DC plan is the largest contribution that can be considered, given the “more financially sound” criteria. This 13.56% would be made up of 7.90% member contributions plus 5.66% employer contributions. An investment rate of 8% is assumed for the contributions in all plan designs, except as noted below. The issue of whether an 8% return rate is appropriate is discussed in further sections. Other assumptions made in developing these graphs are described in Appendix D.

Under a DC plan, the contributions are contributed to a fund over a members career, and individual account balances are built up from these contributions plus investment earnings. In order to compare the DC plan benefit with the DB plan benefit, the DC account balance was converted to an income by assuming it was used to purchase an annuity, as described later in this section. An annuity is an insurance policy which provides monthly income. The annuity would be purchased using the proceeds from the accumulated DC account. Then both the DC and DB benefits were compared to the member’s final pay at termination or retirement, to determine the replacement ratio.

For example, if a member retires with a final pay of \$40,000 and a benefit of \$30,000, the replacement ratio is 75% ($\$30,000/\$40,000$). This means that the gross retirement pay is 75% of the gross pre-retirement pay.

The following graph compares the replacement income available to a participant from the DB plan with that from a DC plan. It illustrates the percentage of income that would be replaced after a full career as a New Mexico education employee hired at age 25. The pattern shown is typical in these comparisons — the DC plan provides superior benefits for members who leave early in their career and the DB plan provides the better benefits for members who remain in service until retirement.

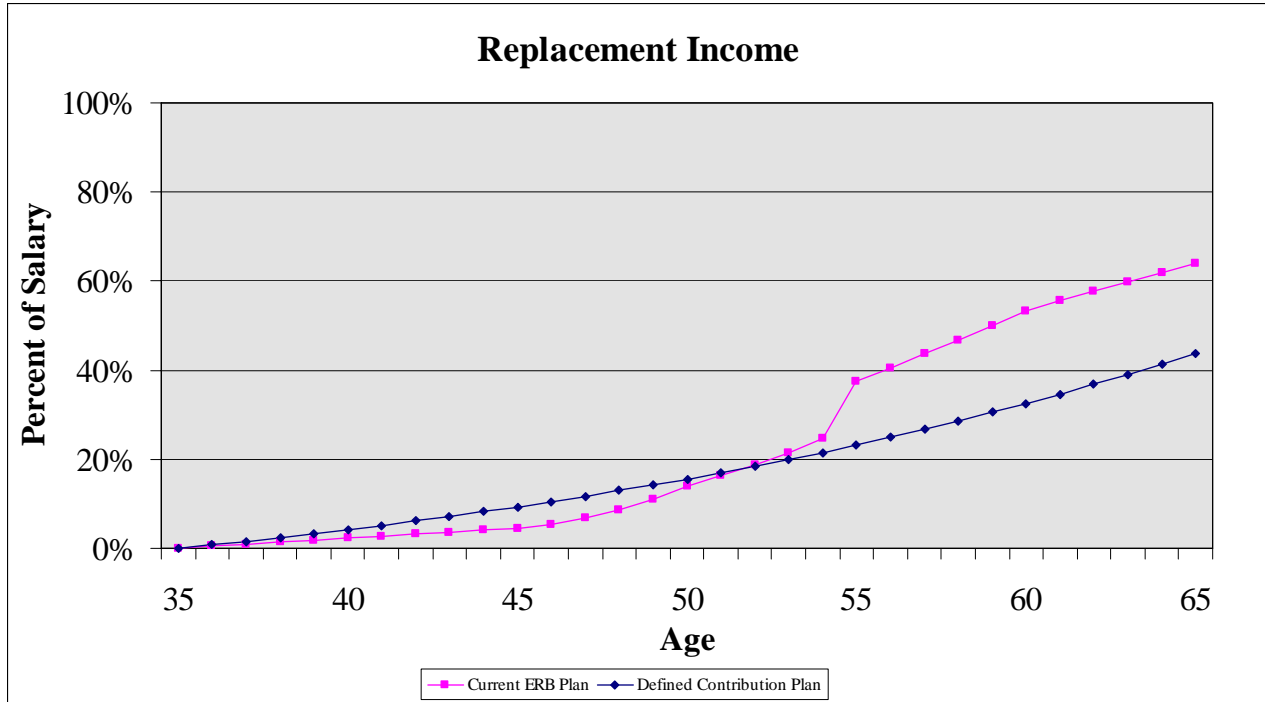
Hire Age 25, Investment Return 8%



This graph demonstrates that the value of a DC program exceeds the value of a DB program for individuals who terminate before eligibility for retirement under the DB program. Once this member has 25 years of service (at age 50), they are eligible to retire with an immediate unreduced pension. For this reason, the ERB value jumps substantially and exceeds the value of DC. The “same or better” test is satisfied for the first 25 years of this member’s career, but is not satisfied beyond 25 years. If the objective is to provide “same or better” retirement benefits, then DC would not satisfy that criteria. This chart was chosen as a starting point because it represents a full career, beginning at 25. Several graphs on the next pages will look at modifications to this baseline criteria.

The following graph illustrates the replacement income available to participants hired at age 35. The illustration of an age 35 hire more accurately depicts the average New Mexico education employee because the average hire age is approximately 36 years.

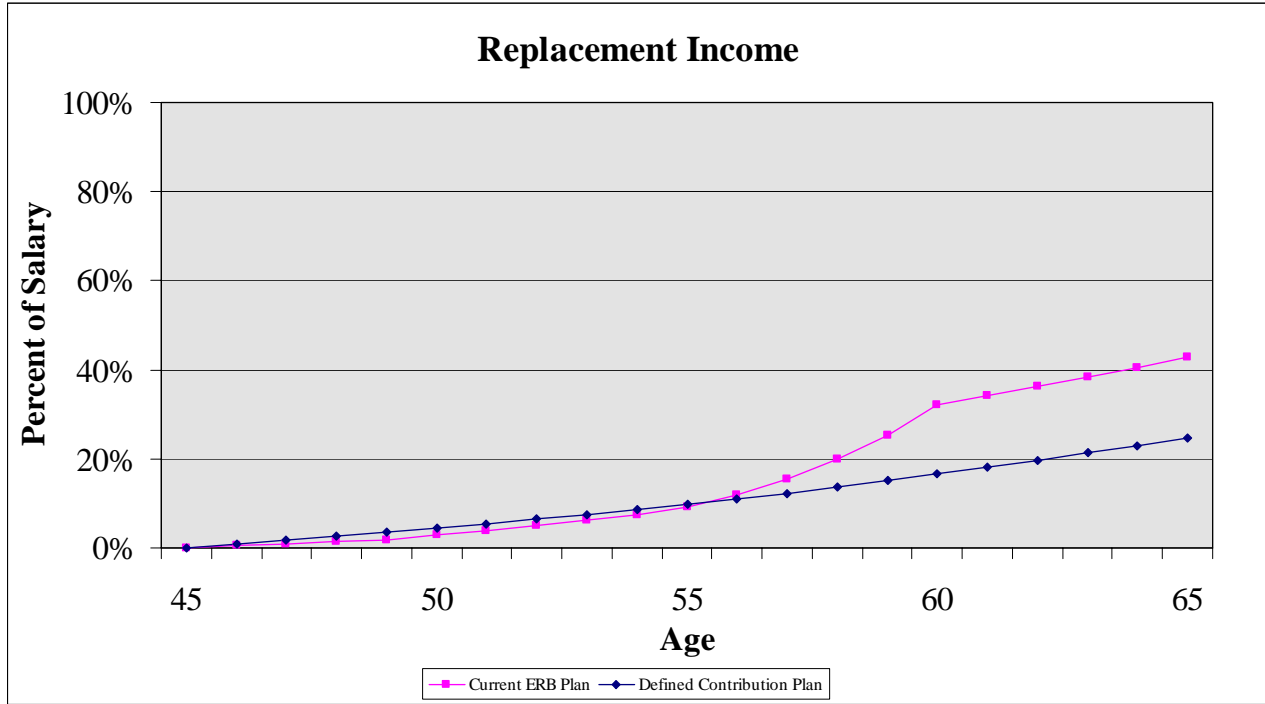
Hire Age 35, Investment Return 8%



Because of the later starting age, the jump after 25 years of service is not as significant as it was for the 25 year old hire. In this case, the DB becomes more valuable at age 53, while the DC is more valuable prior to age 53, particularly in the mid 40's. The disparity at age 65 is greater here than for the age 25 hire. This is because under DC plans, members get the advantage of the compounding of investment return. This is more useful for a 25 year old hire who has money invested for 10 years longer than does a 35 year old hire.

The following graph illustrates the replacement income available to participants hired at age 45.

Hire Age 45, Investment Return 8%

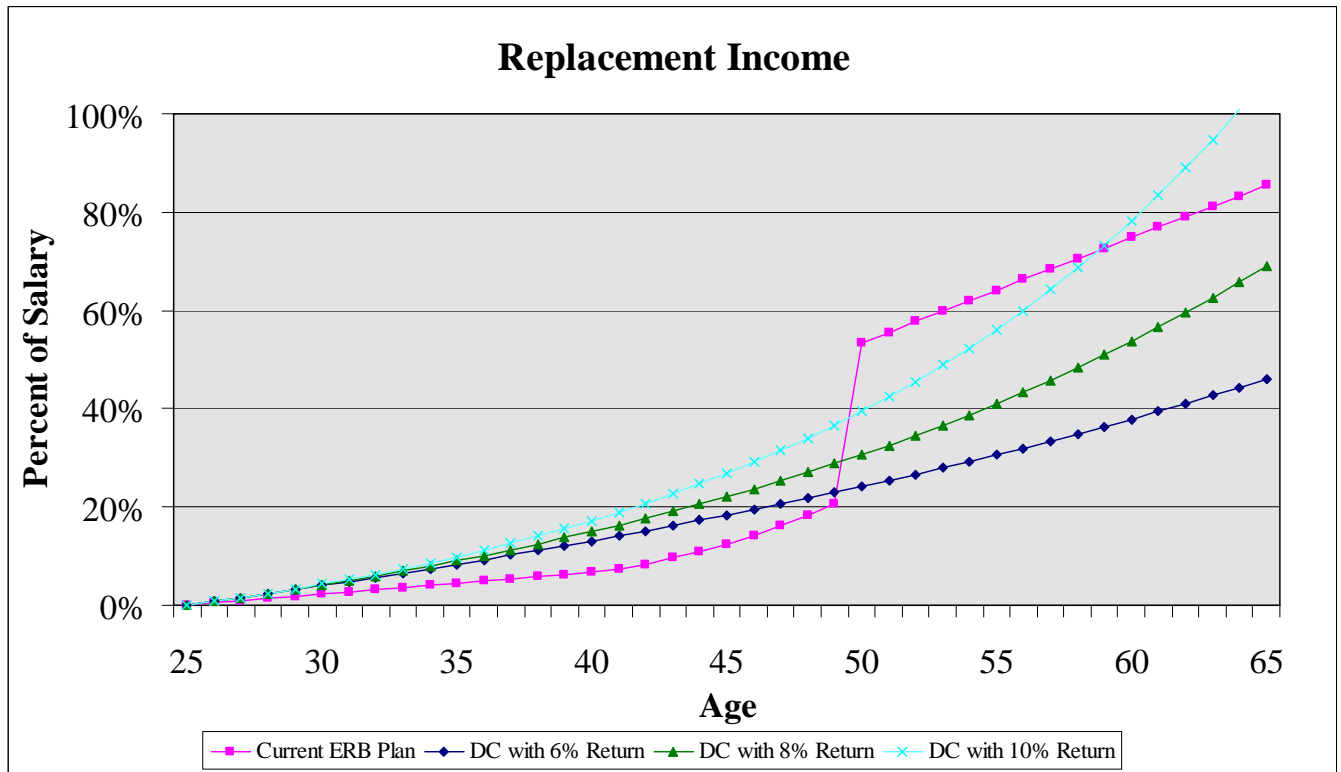


This graph shows that the DC is only slightly better than DB from ages 45 to 55. The current ERB program is much stronger than DC once the member attains age 60.

A graph showing age 50 or 55 hires would demonstrate the same phenomenon. DC would be slightly better than DB for the first few years, but once eligible to retire, DB would produce far higher results.

Even though we believe the 8% return assumption is most appropriate for comparing the two types of plan, as discussed later, we have illustrated the impact under alternative returns. Because of the nature of DC plans, some employees will achieve returns lower than average and some will achieve returns higher than average. The following graph illustrates the diversity in benefits receivable from a DC plan based on returns of 6%, 8%, and 10%.

Hire Age 25, Investment Returns of 6%, 8%, and 10%

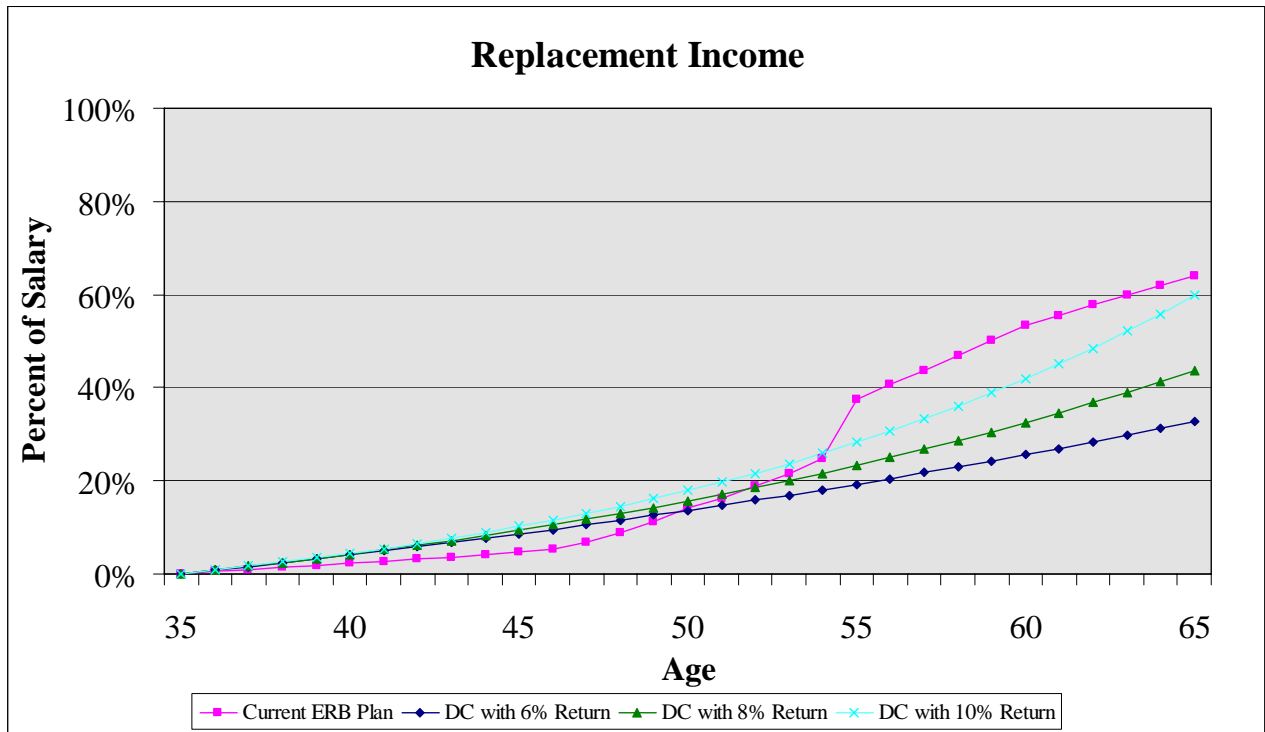


This graph shows that the rate of investment return has a tremendous impact for an individual hired at 25. If returns can be at the 10% level, then the DC plan will provide the same or better benefits for all ages except at retirement from age 50 through 57. However if returns are only 6%, the DC will provide the same or better benefits only for termination prior to age 49. The conclusion is that some individuals would receive the same or better benefits than the current DB plan provides under the DC plan, but most would not.

It is important to keep in mind that these graphs show the range of potential DC benefits. If returns average 8%, then some members would earn 10% and some would earn 6%. If long run returns average 6% or 10%, then the actuarial costs of the current ERB DB program are much too low or much too high.

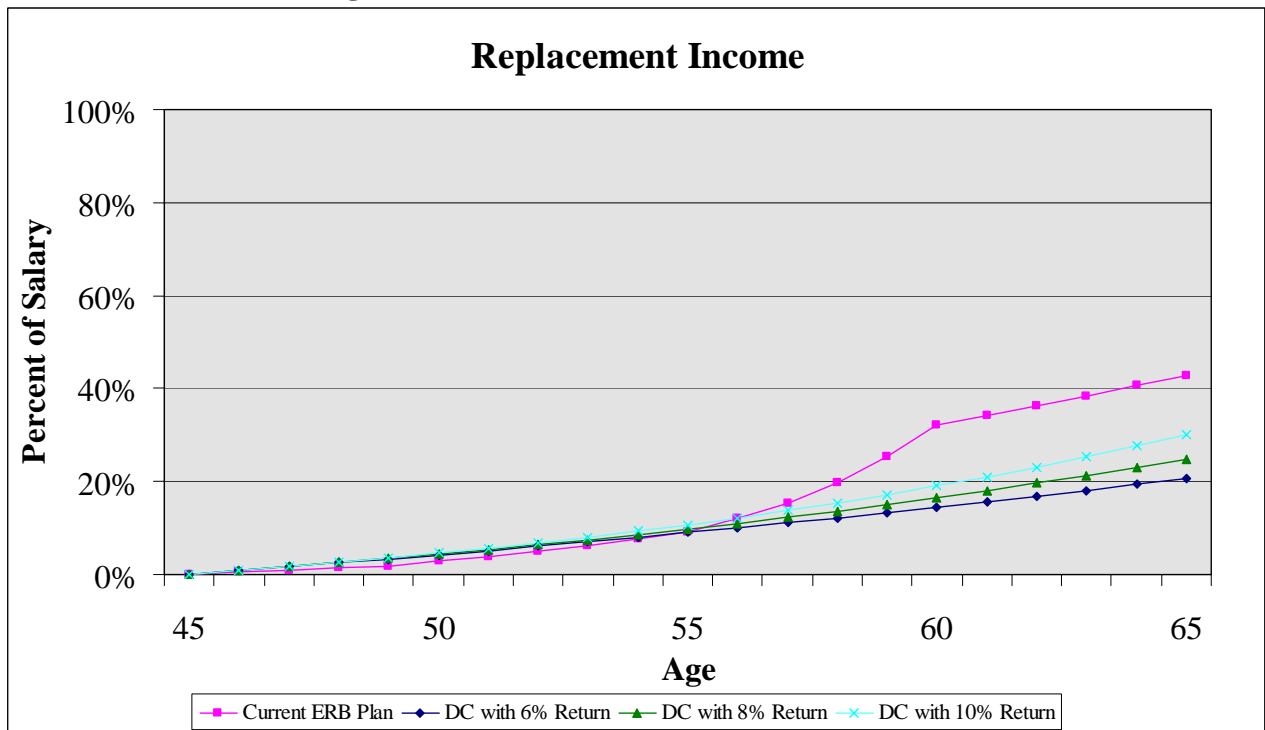
The following two graphs show the same information for an age 35 hire and an age 45 hire. The impact is similar for an age 25 hire, but not as dramatic. The investment experience has a much smaller effect on the replacement ratios at later hire ages. This is because there is less time for the investment earnings to accumulate.

Hire Age 35, Investment Returns of 6%, 8%, and 10%



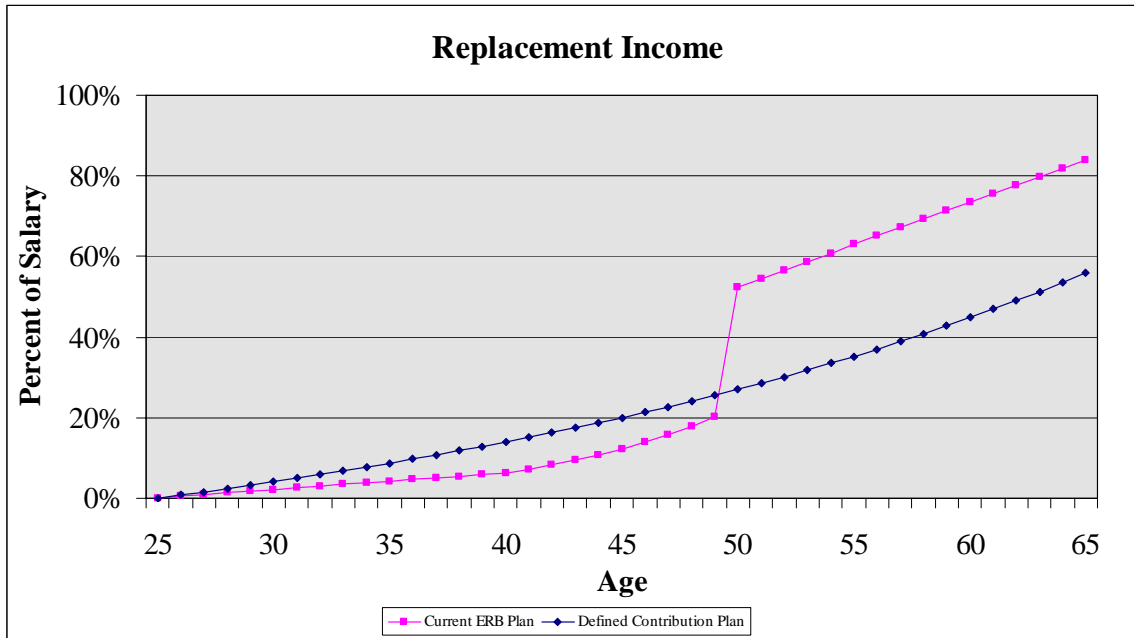
Note that even at a 10% return, a DC program does not provide the same or better benefits once the individual is eligible for retirement.

Hire Age 45, Investment Returns of 6%, 8%, and 10%

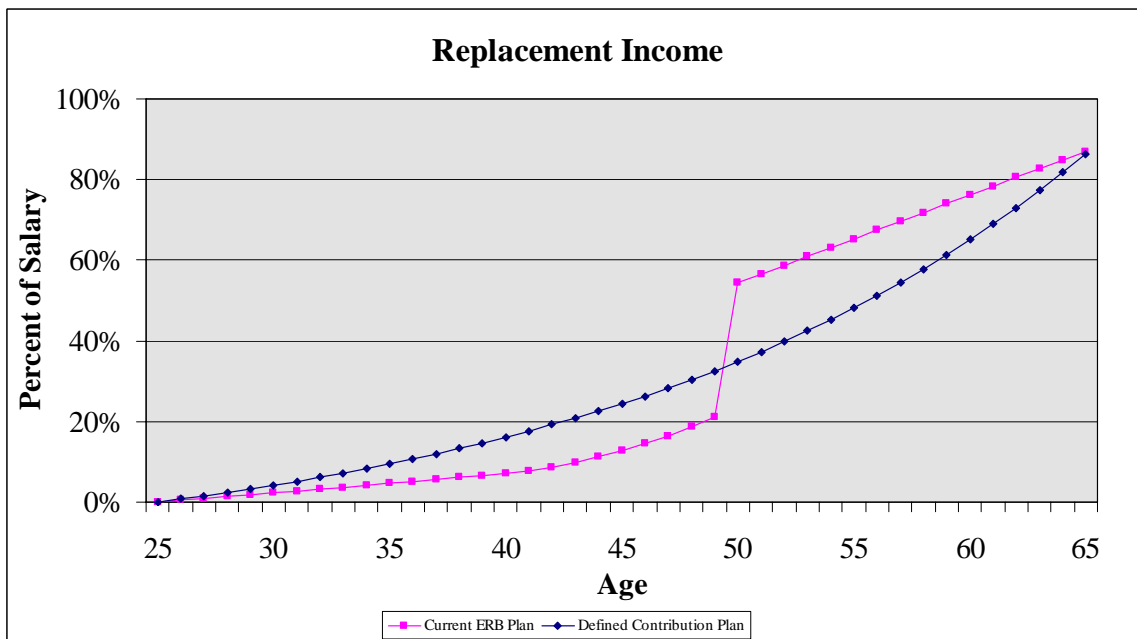


Finally, a comparison of the two graphs below with each other and with the original graph show the impact of salary growth. The “high performer” is assumed to have pay increases 1% higher than the average, while the “low performer” is assumed to have pay increases 1% lower than the average. The DB benefits are virtually identical, but the DC is lower for the “high performer.” This is because the DB plan benefit is based on final pay, while the DC plan benefit is based on the full career pay.

Hire Age 25, Investment Return 8%, High Performer



Hire Age 25, Investment Return 8%, Low Performer



Methodology

In order to develop these benefit illustrations, several assumptions must be made. The most important is the rate of investment return. Because ERB is currently funded using an actuarial rate of investment return of 8% per year, this is a reasonable benchmark for a starting point. We believe that 8% is a good estimate for long term investment return for a DB plan such as ERB's.

As discussed in Section V, there are several sound arguments why DC returns should be assumed to be lower than DB returns. These include:

- DB plan investments are managed by investment professionals, while DC plan investments are managed by novices;
- DB plans do not need to have the expenses associated with individual accounts, and tend to use much more cost effective money managers due to economies of scale; and
- DB investors have the time horizon of a large group and can invest in riskier assets, while each individual DC investor must have a shorter time horizon.

Although these arguments have substantial merit, we have not attempted to quantify the investment return differential. This is because our findings that no DC plan exists which meets the two-pronged test are reached without introducing this weakness of DC relative to DB.

In order to insure against the risk of a member outliving their DC savings, we introduced an assumption that the member would be able to convert their retirement DC balance to an annuity at very favorable annuity conversion rates. These rates assumed that either ERB would annuitize the balances or that an insurer would annuitize the balances using an assumed investment return rate of 6%, a 2% COLA and the UP 94 female mortality table.

In reality, no insurer would typically provide such favorable terms however, the Legislature could have ERB offer the DC plan annuity and provide these favorable rates, but it could also be argued that members could self-insure at a higher investment return rate (e.g. 6%). Another issue is that we assumed that the insurer would annuitize a benefit with a 2% COLA, although that is not currently common practice. Because of the wide disparity between the DB and DC benefit levels provided, we conclude that the "same or better" test is failed under most reasonable assumptions and the technical issue of annuitization is not germane to the overriding objective of the Joint Memorials.

SECTION V
DEFINED BENEFIT AND DEFINED
CONTRIBUTION PLANS

Section V

Defined Benefit and Defined Contribution Plans

Overview

Two broad categories of retirement plans are offered to employees. These are classified as defined benefit (DB) plans and defined contribution (DC) plans. The current program offered to educational employees in New Mexico is a defined benefit plan.

Under a DC plan, the contribution into the plan is fixed. The best known example of a DC plan is a 401(k) plan. These are commonly provided in the private sector and typically have a voluntary tax-deferred employee contribution with a 50% matching contribution made by the employer. 401(k) plans are generally not available to public entities, unless they were in effect prior to May 6, 1986. Most educational employers, including New Mexico ERB employers at the local level, offer a voluntary DC plan through a 403(b) annuity program. In the New Mexico plan, the employer does not match the employee contribution.

Under a defined benefit plan, the retirement pension is defined, and the contribution necessary to fund that contribution is not defined. For example, under ERB, the benefit is defined as a formula for a lifetime pension based on the number of years of service, the average salary at retirement, and the age at retirement. The annual required contribution is calculated actuarially based on trust fund experience and employee demographic experience. Even in systems like ERB, where the employer contribution to the DB plan is fixed by law, there is always the possibility, as New Mexico saw earlier this year, that the statutory rate becomes inadequate and has to be reset at a higher level.

Under a DC plan, while the contribution is defined (fixed), the level of pension benefits is not defined. The benefit is dependent on the amount of assets built up and the number of years that the member draws down the assets. If the investment return is strong and/or the member does not live long after retirement, the benefit can be higher than anticipated. If investment return is weak and/or the member lives long after retirement, then lower benefits will be provided.

In a nutshell, the employee takes the investment risk and longevity risk under a DC plan, whereas the plan and/or employer take those risks under a DB plan.

General Comparison of DB and DC plans

The memorials specifically asked for an analysis based on the two criteria of financial soundness and benefit levels. We are also including the following pages, which present advantages of DC and advantages of DB based on various criteria.

Advantages of DC Plans

Financial certainty

The strongest advantage of DC plans is that employer contributions to DC plans are stable from year to year. Typically, employer contributions are made at a fixed percentage rate or at a rate that matches a portion of the member's contribution, or both. For example, an employer may promise to contribute 4% of a member's salary annually and, in addition, match up to 3% of the member's contributions. While there may be some variability in the employer's contributions depending on the member's decision to contribute, the employer's contribution rate would not exceed 7 percent of pay per year for each employee – absent future benefit changes.

The related advantage for employers is that, after making their contribution to the DC plan, they have no further financial liability for employees after they retire. Employers do not have to calculate or report an actuarial liability on their financial statements, nor are they subject to the risks associated with lower than assumed investment returns or higher than assumed longevity. On the other hand, higher than assumed investment returns are not available to reduce the employer's contributions to a DC plan, as they may be in a DB plan.

For taxpayers, DC plans offer similar advantages to those offered employers. As a result of the fixed contribution rate associated with the DC plan, taxpayers are protected against increased contributions due to lower than expected investment earnings or higher than expected longevity rates. Moreover, since there are no long-term actuarial liabilities associated with the DC plan, the government's bond rating would not be affected by unfunded actuarial liabilities.

These advantages cannot be understated. Any measure of the advantages of DB must be compared against the risk that employers and taxpayers bear. From the DC proponent perspective, DB plans are thought of as a blank check. Because the benefit rather than the contribution is defined, the employer or taxpayer bears the risk and responsibility to fund the benefits.

Preference for DC for employees

For employees, DC plans have the advantage of shorter vesting periods than are typical for DB plans. Employees immediately vest in their own contributions to a DC plan and typically vest in employer contributions after six months to two years, depending on the plan. In DB plans, employees typically vest after 5 years, although some DB plans have shorter or longer vesting periods.

Another attractive feature of DC plans for employees is that DC account balances may be transferred to another retirement plan after the employee terminates employment. Upon leaving employment, an employee may transfer his or her DC account balance to a wide variety of other DC-type plans maintained by the subsequent employer, including a 401(a) DC plan, 401(k) plan, 403(b) annuity, or 457 governmental deferred compensation plan. An employee may also use these funds to purchase service credit in a governmental DB plan.

DC plans have the desirable feature for employees that the account balances are owned by them. Once the contributions have been made to the employee's DC account (and vested), they are the

property of the employee. Consequently, they are not subject to the claims of the employer's creditors if the employer goes bankrupt, nor are they subject to the risks of plan underfunding if the employer is unable to make its contributions to the DB plan.

Psychologically, ownership may foster a broader sense of personal responsibility, since the member's standard of living in retirement will depend on the amounts contributed to the DC plan and on investments selected. Also, since all investment earnings accumulate in the member's account, DC plans have the potential of being stores of wealth for the member – a mechanism for accumulating tax-deferred investment earnings. And, if investment returns are superior, DC plans can result in a higher benefit for the participant than might otherwise be earned in a DB plan.

Advantages of DB Plans

In a paper recently developed for the National Conference on Public Employee Retirement Systems on behalf of a coalition of organizations committed to preserving defined benefit plans, the authors outlined the disadvantages of replacing DB plans with DC plans for state and local governments, their employees and taxpayers. The paper describes ten issues and problems involved with replacing DB plans with DC plans. Much of that paper is included in the ten issues identified below.

Issue 1: Switching to a DC plan is likely to cost state and local governments more over the short-term. Long-term cost savings are uncertain at best.

- DC plans are costly to establish and maintain. A DC plan must be designed, vendors must be selected, and its operation must be monitored. In addition, employees must be informed about plan features and available investments. Staff time is spent throughout the process, and the sponsoring government must pay additional legal and consulting fees. If a third-party administrator is not hired to administer the plan, the government must do this as well. Even if a third-party administrator is hired, the government will still have operating costs related to the DC plan, possibly ranging in the millions of dollars. For example, the budget for the State of Florida's DC plan, established in 2000, totaled \$89 million from FY 2001 through FY 2004. This includes \$55 million to educate Florida's 650,000 government employees about the new plan.¹ A solution which could be more cost effective is to give the responsibility for administering the DC plan to the existing retirement system, in this case ERB. This is the approach partially adopted in Colorado.
- Pension benefits currently promised to state and local employees and retirees may not be abandoned. Switching to a DC plan does not reduce accrued DB plan benefits already earned. Most governmental DB plan benefits are protected by the state's constitution or statutes that prevent accrued benefits from being reduced. Consequently, switching to a DC plan is usually accomplished by giving current and future employees the option of

¹ Information provided by the Pension Protection Coalition, based on an analysis of the Florida Public Employee Optional Retirement Program's approved budgets and revenue collections. The analysis was done for the Coalition by the law offices of Olson, Hagel & Fishburn, LLP, January 18, 2005. The budgeted amounts exclude investment management fees paid by plan participants. Used with permission.

remaining in the current DB plan or electing to transfer to the new DC plan. For current DB plan members who elect the DC plan, the value of the member's accrued DB benefit is transferred to the DC plan.

- When given the option, most employees remain in the DB plan. In most cases, only a small percent of employees elect to transfer from the DB plan to the DC plan.² To increase the number of employees who eventually enter the DC plan, a few governments have restricted the DB plan to current employees and have required newly hired employees to join the DC plan.³
- Even when new hires are required to join the DC plan, long-term cost savings for employers are uncertain and may take many years to realize. When a DB plan is closed to new hires, it still covers current employees and retirees, and benefits continue to accrue to active employees as a result of additional service. To the extent plan assets are less than accrued liabilities, unfunded liabilities remain. For DB plans with unfunded liabilities, closing the DB plan to new hires will likely increase the employer's annual required contribution rate. Because new hires are not entering the plan, the cost of funding the liabilities is spread over a declining number of active members,⁴ thereby increasing the employer's contribution rate as a percent of covered payroll. In addition, since a growing portion of plan assets must be used to pay benefits, a growing portion of assets will likely be held in short-term securities, thereby reducing investment returns. For example, the Los Angeles County Employees Retirement Association (LACERA) estimated that the County's DB plan contribution rate would increase by 3.66% if employees hired after July 1, 2007, were required to join a DC plan. This would increase County contributions to the closed DB plan by \$206 million in 2008. While the contributions would gradually decline over time, the County would have to wait until 2018 to see any savings in DB plan costs as a result of the change.⁵
- In several cases, states have replaced (or are considering replacing) DC plans due to inadequacy of plan benefits or increased costs.
 - In 1977, the North Dakota Public Employees Retirement System, originally established as a DC plan in 1966, was changed to a DB plan. Reasons given for

² Anya Sostek, "Pension Pendulum," *Governing Magazine*, March 2004: p. 28. Three percent of employees covered by the DB plan elected to join the new DC plan in Florida, 6 percent in Michigan, and 2.5 percent in Ohio.

³ National Association of State Retirement Administrators, "Overview of Plan Types." Of the 14 state retirement systems discussed in this paper, only two (Michigan and West Virginia) required newly hired employees to join the DC plan. The remaining systems offered DC plans as a voluntary alternative to the DB plan or offered a new plan that combined DB and DC plan features. Available on the NASRA web site (www.nasra.org).

⁴ Governmental Accounting Standards Board, Statement No. 27, *Accounting for Pensions by State and Local Governmental Employers* (Norwalk, CT: Governmental Accounting Standards Board, 1994), 7. In situations where a DB plan is closed to new members and unfunded liabilities are amortized as a level percent of projected payroll, projected decreases in active plan members should be included in the calculation.

⁵ Los Angeles County Employees Retirement Association, "Proposals to Close Public Defined Benefit Plans." (<http://www.lacera.com/home/ProposalstoClosePublicDefinedBenefitPlans.html>).

the change include the need to provide adequate retirement benefits and the need to attract and retain quality employees.⁶

- In 2000, the State of Nebraska reviewed its two DC retirement plans for state and county workers and found that between 1983 and 1999 the DC plans' investment returns averaged only 6 percent, compared with 11 percent for the state's DB plans. Recognizing these returns were inadequate to sustain retirement benefits, the state responded by creating a new hybrid plan for state and county workers, combining both DB and DC plan features.⁷
- In 2005 a West Virginia bill was passed to allow teachers in the Teacher's Defined Contribution Plan (created in 1991) to transfer into the Teacher's Defined Benefit Retirement Plan. According to the West Virginia Consolidated Retirement Board's actuary, the change would save the State \$1.8 billion over the next 30 years, because of lower employer contributions required for the DB plan (4.3 percent of payroll) than for the DC plan (7.5 percent of payroll). State teacher representatives suggested the change would also help prevent teachers from leaving their jobs. Members will be voting on the merger during March, 2006. If approved, all DC members will be transferred to the DB plan.

Issue 2: Almost all state and local DB plans provide disability and survivor benefits as well as retirement income. Switching to a DC plan would require employers to obtain these benefits from another source, probably at a higher cost.

- Almost all state and local DB plans provide disability and survivor benefits. According to the U.S. Bureau of Labor Statistics, 97 percent of state and local government employees in DB plans have disability coverage through the plan and 93 percent may elect joint and survivor benefits.⁸ These benefits are largely funded through contributions and investment earnings. Disability and survivor benefits are especially important for employees in hazardous occupations such as firefighters and police officers who may die or become disabled in the line of duty.
- Few DC plans provide disability benefits. Moreover, DC plan survivor benefits are limited to the participant's account balance. In the absence of a DB plan, employers would need to obtain disability and pre-retirement death benefits through commercial insurance or else would have to self-fund the benefits. Either of these options would result in additional administrative costs. If the benefits were obtained through commercial insurance, the employer's cost would also include the insurer's profit margin. At ERB, 3% of those receiving benefits are disabled, and 8% are surviving spouses of deceased members.

⁶ North Dakota Legislative Council, Employee Benefits Program Committee, "Public Employees Retirement Programs – History," October 1998.

⁷ Anya Sostek, p. 28.

⁸ U.S. Department of Labor, Bureau of Labor Statistics, *Employee Benefits in State and Local Governments, 1998* (Washington, DC: U.S. Government Printing Office, December 2000), pp 94-98.

Issue 3: DB plans enhance the ability of state and local governments to attract qualified employees and retain them throughout their careers. Switching to a DC plan would limit this ability, possibly producing or exacerbating labor shortages in key service areas by increasing employee turnover rates. Higher turnover rates result in increased training costs and lower levels of productivity that can, in turn, result in the need for a larger total workforce.

- Employers offer retirement plans as a way to attract qualified employees and retain them so their skills and experience are used efficiently. According to the Diversified Investment Advisors' Report on Retirement Plans, most large employers see a tangible value in offering a defined benefit plan to their employees – despite the high costs sometimes associated with it. Fifty-eight percent of plan sponsors with 25,000 or more employees believe that their DB plans have a major impact on employee retention.⁹
- DB plan provisions encourage employees to remain with an employer longer than DC plan provisions. The vesting period for DB plans is typically longer (e.g., 5 years) than the vesting period for DC plans (e.g., 6 months to 2 years). Consequently, employees have a financial incentive to continue working for the employer at least until they vest. After that, benefit accruals based on continued service provide an additional financial incentive.
- Key governmental service areas, such as education and public safety, require skilled and dedicated employees to work in positions involving high levels of stress or physical activity or both. Individuals with the skills and temperament to take on these roles usually have other opportunities in the labor market. DB plans provide strong incentives by rewarding long-term, dedicated service with a secure retirement.

Issue 4: DB plans help state and local governments manage their labor force by providing flexible incentives that encourage employees to work longer or retire earlier, depending on the circumstances. Switching to a DC plan would limit this flexibility and make these incentives more expensive for the employer.

- Governments can use DB plan benefits as a way to manage their labor force by rewarding longer employment or encouraging retirement after a certain period employment. DB plan benefit formulas can be structured to provide incentives for longer employment by increasing the benefit multiplier after a certain period of service. For example, the formula could provide benefits of 2.0 percent of final average earnings for the first 20 years of service and 2.2 percent for service over 20 years. To encourage retirement after a certain period of employment, DB benefit formulas can limit benefit accruals to a maximum percent of final average earnings or a maximum years of service. In the above example, if the benefit accrual was limited to 62 percent of final average earnings, it would encourage employees to retire after 30 years of service. Other options, such as early retirement incentives (ERIs) and deferred retirement option plans (DROPs), are also available.

⁹ "Majority of U.S. Companies That Offer a Pension Plan Say It Impacts Employee Retention," *Business Wire*, September 7, 2004.

Issue 5: DB plans lower overall retirement benefit costs by pooling the risks of outliving retirement benefits and of investment losses over a relatively large number of participants. Switching to a DC plan would require each individual to bear these risks alone, consequently requiring higher contributions than if the risks were pooled.

- DC plan participants must save enough to ensure they will not outlive their benefits while protecting their funds against financial market fluctuations. Average life expectancy at age 65 is 16 years for men (age 81) and 19 years for women (age 84).¹⁰ Furthermore, 71,000 people will be 100 years or older in 2005, and 1.9 million will be 85 or older.¹¹ This means that DC plan participants must contribute enough to ensure their benefits will be paid through their maximum life expectancy, i.e., at least until their late 90s.
- In order to lower investment risk, DC plan participants usually shift a greater portion of their assets from stocks into bonds as they grow older. While this helps protect against equity market downturns, it also lowers likely investment return. According to a recent Employee Benefit Research Institute study, 401(k) plan participants in their 20s invest 65 percent of their account balances in equities (including company stock) and 21 percent in fixed-income securities, on average. Participants in their 60s invest 49 percent in equities and 40 percent in fixed-income securities.¹² In contrast, large public retirement systems hold 57 percent of assets in equities, 32 percent in fixed-income securities, and the remaining 11 percent in other investments.¹³
- By averaging risks over a large number of participants, DB plans lower the total costs of providing retirement benefits. Instead of requiring contributions that are large enough to fund retirement benefits through maximum life expectancy, DB plans only need to fund benefits through the average life expectancy of the group. This lowers required contributions. Moreover, by spreading investment risk over a longer period, DB plans can maintain an investment mix that includes a higher percentage of equity investments. This increases likely investment returns, which further lower required contributions.

Issue 6: DB plans earn higher investment returns and pay lower investment management fees, on average, than DC plans. Switching to a DC plan is likely to lower investment earnings used to finance retirement benefits and increase management costs, to the detriment of plan members.

- Employees direct their own investments in a DC plan, usually selecting from among several funds that reflect major investment categories. Generally, employees have limited investment experience or training. In a DB plan, investments are selected and monitored by investment professionals who have extensive experience and training.

¹⁰ U.S. Department of Health and Human Services, Social Security Administration, *2004 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Trust Funds* (Washington, DC: U.S. Government Printing Office, 2004), p. 81.

¹¹ U.S. Department of Commerce, U.S. Census Bureau, *Statistical Abstract of the United States 2004-2005* (Washington, DC: U.S. Government Printing Office, 2004), Table No. 12.

¹² Sara Holden and Jack VanDerhei, "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2004," *EBRI Issue Brief*, No. 272, August 2004. Employee Benefit Research Institute.

¹³ Keith Brainard, "Public Fund Survey, Summary of Findings, FY 2003," September 2004.

- On average, investment returns for DC plans are lower than for DB plans, resulting in significantly lower investment earnings over an individual's lifetime. According to Boston College economist Alicia Munnell, DB plans outperformed DC plans by 0.8 percent annually, on average, between 1985 and 2001.¹⁴ For a person contributing \$5,000 to a DC plan each year for 40 years, the difference between an 8.0 percent annual return and a 7.2 percent return amounts to a loss of over \$244,000 in retirement benefits.¹⁵
- Administration and investment costs for DC plans can be more than four times higher than for DB plans. In DC plans, these costs are borne directly by individual plan participants through deductions from their DC accounts. According to the Investment Management Institute, the operating expense ratio for DB plans averages 31 basis points (31 cents per \$100 of assets) compared with 96 to 175 basis points for DC plans.¹⁶ According to the Illinois Municipal Retirement Fund, the total annual administrative and investment cost for their DB plan amounted to 44 basis points in 1999. If they had switched to a DC plan, total annual administrative and investment costs could have increased up to 225 basis points, or up to \$250 million more than the annual administrative and investment costs paid by the DB plan.¹⁷
- DC plan participants often cash-out and spend some (or all) of their DC accounts when they switch jobs. As a result, the accounts contain less money to earn investment returns and to pay benefits at retirement. According to Alicia Munnell, more than half of DC plan participants withdraw funds from their DC accounts when they change jobs, removing between one-quarter and one-third of total DC plan assets before they reached retirement.¹⁸

Issue 7: DB plan investment earnings reduce future employer contributions. Switching to a DC plan would prevent state and local governments from reducing employer contributions through investment earnings, which currently fund over two-thirds of public retirement benefits.

- State and local governments have benefited from investment returns overall, and many have used investment earnings to reduce employer contributions. Over the long-term, an employer's cost of providing DB plan benefits depends on investment earnings. Although investment earnings can fluctuate sharply at times (as happened between 2000 and 2002), over the last 20 years state and local governments have benefited from investment returns and have used the accumulated assets to lower employer contributions. As provided in governmental accounting standards, plan assets that are

¹⁴ Alicia H. Munnell and Annika Sunden, *Coming up Short: The Challenge of 401(a) Plans*, (Washington, DC: Brookings Institution Press, 2004), p. 77.

¹⁵ Author's calculations.

¹⁶ Sean Collins, "The Expenses of Defined Benefit Pension Plans and Mutual Funds," *Perspective*, Vol. 9, No. 6, December 2003. DC plan expenses include 12-b1 marketing and distribution fees.

¹⁷ Louis W. Kosiba, "The Defined Benefit vs. Defined Contribution Debate: The \$250 Million Question," Illinois Municipal Retirement Fund, October 13, 1999, p. 2. IMRF serves over 360,000 active employees, inactive members, retirees and beneficiaries.

¹⁸ Munnell and Sunden, p. 132.

greater than plan liabilities are amortized to reduce employer contributions.¹⁹ A 2002 survey of Michigan state and local government retirement systems shows that of 115 independent local government retirement plans surveyed, employer contributions for 102 (89 percent) were below the normal cost of benefits as a result of this amortization.²⁰

- Most of the money paid out of state and local retirement plans comes from investment earnings. Over the last 20 years, state and local government investment earnings amounted to about \$1.65 trillion, compared with total employer contributions of \$696 billion.²¹ This means two out of every three dollars paid from state and local retirement plans was received from investment earnings. According to a paper on state and local retirement plans prepared for the Wharton School's Pension Research Council: "Setting aside all the other benefits to employers and employees of DB plans, contributions to public pension plans may be among the best investments a state or local government can make."²²

Issue 8: DB plans provide secure retirement benefits based on a person's salary and period of service. Switching to a DC plan is likely to result in lower and less secure retirement benefits for many long-term governmental employees, including teachers, police officers, and firefighters, who constitute over half of state and local government workers. State and local employees who are without Social Security coverage would be put at even greater risk.

- Retirement benefits paid from DC plans are significantly less than those paid from DB plans. The U.S. Congressional Research Service found that, for current older workers, DC-type plans will provide annual benefits of less than \$5,000 for half the workers.²³ This is less than one-third of the \$18,000 average annual benefits currently paid by governmental DB plans to state and local workers.
- If average state and local retirement benefits fell from \$18,000 to \$5,000, it would mean a loss of about \$80 billion in annual personal income.²⁴ This loss would be felt by state and local economies, since many retirees remain in the same location when they retire. These pension benefits are also, in most cases, subject to federal and state income taxes, thus resulting in a loss of tax revenues. The same would be true in states that rely solely on sales taxes as their source of revenue.
- The change would have an even greater effect on the 25 percent of state and local government employees who are not covered by Social Security, including about half of school teachers and three-quarters of police officers and firefighters. When first enacted in 1935, Social Security excluded state and local employees, due to constitutional

¹⁹ Governmental Accounting Standards Board, Statement No. 27, p. 6.

²⁰ Gabriel, Roeder, Smith & Company, *2002 Michigan Public Employee Retirement Systems Survey*, (Southfield, MI: Gabriel, Roeder, Smith & Company, 2002).

²¹ Gary W. Anderson and Keith Brainard, "Profitable Prudence: The Case for Public Employer Defined Benefit Plans," Pension Research Council, Wharton School, University of Pennsylvania, 2004, p. 22.

²² Anderson and Brainard, p. 14.

²³ Patrick J. Purcell, "Retirement Savings and Household Wealth: A Summary of Recent Data," Washington, DC: Library of Congress, Congressional Research Service, December 11, 2003.

²⁴ Based on \$110 billion in state and local annual benefit payments made in 2002.

questions about the federal government's right to tax state and local governments. In 1950, Congress amended Social Security to allow state and local governments to voluntarily elect coverage. By then, however, half of the largest state and local plans had already been established, including many plans for teachers and public safety employees.²⁵ These DB plans provide benefits that compensate for the lack of Social Security coverage. Replacing them with defined contribution plans would put members at even greater risk, since they would not have Social Security benefits to fall back on.

Issue 9: DB plans help sustain state and local economies by providing adequate retirement benefits for a significant portion of the workforce. Switching to a DC plan may slow state and local economies, since a large number of retirees would likely receive lower retirement benefits.

- The economic value added by the investment income of state and local DB plans over what would otherwise have been earned in DC plans is estimated to be about \$200 billion annually, or 2.0 percent of U.S. Gross Domestic Product.²⁶ In essence, state and local retirement plans act as financial engines, using employer and employee contributions to generate investment income that, when paid as retirement benefits, bolsters state and local economies by \$200 billion a year. State and local retirees purchase a wide range of goods and services with their retirement income. These purchases, in turn, promote employment and create additional economic demand, generating additional economic activity. As a result of this multiplier effect, the economic activity generated by the higher investment earnings amounts to 2.0 percent of U.S. Gross Domestic Product. As a growing number of state and local employees retire, this percentage will likely increase.

Issue 10: Switching to a DC plan is likely to result in pressure on state and local governments to increase DC plan benefits and provide additional financial assistance for public sector retirees.

- If DC plan benefits are less than what is needed to ensure an adequate standard of living during retirement, continued pressure will be placed on state and local governments, legislators, and taxpayers as retirees outlive their retirement income. Since DC benefits are not indexed to inflation, extended periods of even modest inflation will mean almost constant pressure for some form of additional financial support for retirees, who will make up a growing portion of the electorate. When DC plan benefit improvements are granted, they will be paid from current government revenues and will not be offset by investment earnings.

Other DB and DC Plan Issues

Current Picture of DC Plans in Public Sector

The table attached as Appendix C summarizes statewide pension systems with DC features. Most statewide plans do not have DC features, but many are beginning to incorporate certain features of DC plans. Very few states require all members to be covered by a DC plan. Most of the plans

²⁵ Mitchell, et al, p. 13.

²⁶ Anderson and Brainard, p. 14.

have optional DC plans, as discussed below under Choice. Where implemented, optional DC plans generally have attracted less than 10% of the members.

Choice

Some states have incorporated a choice feature in their new DB/DC programs. With choice, current members would have the ability to elect whether they remained in DB or moved to DC. In some cases, the same choice is offered to future members. The advantage of choice is that one could argue that since members are given choice, then the “same or better benefits” test is automatically satisfied.

The disadvantages of choice are:

1. administrative costs are higher because of the need to administer two plans, and the need to communicate and administer choice elections.
2. actuarial costs are higher – it is likely that the members who are older at hire, and who are more expensive because they have fewer years until retirement, will be more likely to elect the DB plan, while younger members, who are less expensive for the DB plan, will be more likely to elect the DC plan. This “anti-selection” effect would make choice more expensive.
3. despite the above, some members will not make choices which turn out to be in their best interest and will not in fact receive “the same or better benefits.”

A rigorous analysis of choice is not within the scope of the Joint Memorials.

Hybrid Plans

Also beyond the scope of the Joint Memorials, but worthy of consideration, are hybrid plans. If it is possible to develop a program which is “the best of both worlds” – the best of DB combined with the best of DC – then the hybrid solution could be an ideal solution. In general, this is not possible. Hybrid plans take both the positive and negative features from both DB and DC. Depending on the design of the hybrid plan, the cost may higher than the cost of the traditional DB plan.

Hybrid plans nevertheless can be an attractive alternative because they combine some aspects of a DB plan with some aspects of a DC plan. For example, in a DC plan, employees assume all of the risk associated with lower than expected investment returns or higher than assumed longevity. Alternatively, in a DB plan, the employer assumes all of the investment and longevity risk. A hybrid plan could be developed as a way to balance these risks between the employer and employee. Several hybrid programs were analyzed, but although they tended to be superior to a DC-only alternative, they did not meet the two-pronged test of “same or better benefits” and “more financially sound.”

There are three basic types of hybrid plans. The first is combination of DB and DC, where neither plan alone provides adequate retirement benefits, but in combination, they provide an reasonable level of benefits. For example, the plan could provide DB benefits at a level of about

half the current ERB, and grant DC contributions of half the 13.56% (7.78%) analyzed in Section IV. Such a hybrid plan would produce benefits precisely half way between the current ERB and the proposed DC plans analyzed in Section IV. This approach has been offered in Washington State and Ohio as part of a choice program.

The second classification of hybrid plans is those plans which incorporate features of both DB and DC. Cash Balance plans are the most well known of this classification of hybrids. Technically a DB plan, to the employee a cash balance plan looks like a DC because the benefits are defined as a cash balance. Cash balance contributions are granted to the member each year much like a DC, but the returns are fixed by the employer. The employer continues to bear the investment risk.

A third type of hybrid is similar to the first. But where as the first can be thought of as DB plus DC, this type can be thought of as a total plan with DB carve out. A fixed contribution is defined, and the cost of DB is subtracted from the fixed total to determine each year's DC contribution. This provides more contribution rate stability than pure DB, but some level of defined benefit.

Risk Issues

Underlying many of the advantages and disadvantages of DB and DC is the concept of risk. This will be analyzed further in the Section VI.

Conclusions

DB plans are much more effective at providing retirement benefits to members, but they come with risks to the employers.

Employers need to determine whether the financial risk they bear is worth it to provide superior retirement benefits to their employees. This is consistent with the Joint Memorials' objective of ascertaining whether a more financially sound system could be introduced which provides the same or better benefits.

SECTION VI
RISK

Section VI

Risk

In evaluating DB and DC plans, comparisons of results under the two types of plans often fail to present the risks associated with each vehicle. A projection of the results for an individual under a DC plan may assume a fixed rate of return on the account, without portraying the large range of possible results. The costs for a DB plan are presented as a single employer contribution rate, often with no recognition that the rate can vary over time. This section discusses these issues and others related to the risks assumed by plans, employers, and participants. The two kinds of plans have very different risk profiles. In general, DC plans lessen the risks that employers are exposed to, while DB plans do a better job of reducing risk for participants and their families.

Investment Risk

One of the fundamental differences between DB and DC plans is that the employer bears the investment risk in a DB plan while the member bears the risk in a DC plan. Under the DB plan, investment returns have no effect on the member's benefit, only on the contributions required. On the other hand, the individual member's DC account is directly impacted by the investment returns.

This risk comes from at least two sources: a market risk and a knowledge or sophistication risk. Suppose a plan holds a typical 60% equities and 40% fixed income portfolio. Further suppose its investment advisors have modeled investment returns for each asset class it holds and have determined that the expected or median return is 8.00%. Despite all the professional guidance and despite the sophisticated modeling, it will still be the case that over a twenty year period, the plan has a 25% probability of earning less than 6.50%, and a 25% probability of earning more than 9.5%. This is simply a result of the fact that returns for investments are highly variable, and even over a twenty-year period, can deviate substantially from the expected result. This is the market risk, and it affects both DB and DC plans.

When returns are anemic for a long period, or when the markets suffer a significant shock, as they did from 2000 to 2002, DB costs tend to increase. The result may be increased taxes or reduced services, but the burden is shared by all taxpayers and citizens. In the DC plan, the poor returns impact the individual member's account balance. For younger members, the impact might be shock, but the real financial effects may be small, since they do not need to draw on the money now, and since they have years to recover. Members near retirement, though, may have to make significant and immediate changes in their plans. They may have to work longer than they intended, or may not enjoy the standard of living in retirement that they anticipated.

The other risk comes from the lack of sophistication or knowledge of individual investors. We discuss elsewhere the fact that investors in DC plans do not produce returns as high as the professionally managed DB plans. This may be due to the fact that investors as a group do not have the knowledge or the inclination to manage their accounts effectively. Surveys have been carried out showing that a substantial portion of the population (20%-40%) is uninterested in or afraid of financial matters. These account holders may do much worse than DC participants who are interested in or see the wisdom of learning about investments and money management.

Often, education is touted as a way to reach these people. Unfortunately, educational sessions and material usually end up in the hands of those who are comfortable with money and investing. Even employees who take an active interest in managing their investments incur risk from selecting companies whose motivation towards profit will far exceed their skill or success at investing money for their members.

To some extent, the knowledge or sophistication risk can be reduced during the member's working career if lifestyle funds become the default option. These are funds that decrease the amount of equities held for members as they get older and closer to retirement. By making them the default option, the uninterested member can leave the management of the funds on autopilot. However, current surveys indicate lifestyle funds are often misused; members add other investments to their portfolio, thereby changing the amount of equity risk for their total account, often inappropriately. Further, lifestyle funds are not designed for the post-retirement period in which members must manage their distributions and spending.

Therefore, while both DB and DC plans are exposed to investment risk, a DB plan works like insurance, spreading the market risk over the entire population of taxpayers and citizens, not focusing it all on older workers. By using professional investment managers, a DB plan also eliminates the knowledge or sophistication risk. Those who are disinclined or unable to manage investments do not need to do so.

From the employer point of view, the DB risk can be substantial. Old private sector businesses are finding that their pension risk can be a substantial portion of their overall business risk. Some private sector employers have terminated their DB plans, more have frozen their plans, and few are starting up defined benefit plans.

Longevity Risk

Although it is possible for a DC plan to offer or require the purchase of an annuity contract at retirement, it is unusual. It is also possible for an individual member of a DC plan to purchase an immediate annuity at retirement, but few avail themselves of this option. Therefore, most members of DC plans are exposed to longevity risk once they retire—the chance of living so long that they run out of funds.

If a member were to purchase an annuity, they would exchange their DC balance with an insurer (or ongoing employer DB plan) and receive a guaranteed payment each month for their lifetime. Like a DB plan, the guaranteed payments cease upon the member's death unless a survivor annuity option was chosen.

Individuals often significantly underestimate life expectancy, and as a result, they do not plan their spending properly. The average sixty-year-old female teacher has a life expectancy of over 25 years. That means that in a DC environment, over half of all 60-year old female teachers will have to make their money last more than 25 years. Half of the 60-year-old married male teachers will need income for one or both parties to the marriage for over 32 years.

If a member plans out his expenditures in retirement so that the DC money will last for his life expectancy, then about half the time he will run out of money, and about half the time he will leave money to his heirs. Only rarely will his plan turn out to have been just right. To avoid this, individuals often reduce their expenditures, so their money will last well beyond their life expectancy, say to 95 or 100. Doing so means that most people do not make optimal use of their funds, since a large amount will go to heirs in most cases.

This is an example of a risk that a DB plan mitigates. Benefits in the DB plan will be paid for the member's lifetime, regardless of how long the member lives. DB plans also typically provide joint-annuity options, such as a Joint and 50% Survivor option. These options give members an easy way to ensure that income will be available as long as either party is alive. This is especially important, because often only one party to the marriage has any interest or ability in financial matters. So even if a member feels perfectly comfortable accepting the responsibility of managing his finances during retirement, his wife may not feel so confident if she is widowed.

Inflation Risk

A 3.00% inflation rate will reduce purchasing power by 45% over a twenty-year period. As noted above, this is less than the life expectancy for many retirees. Inflation has averaged over 3.00% for the last twenty years. Therefore, members must have a way to cope with the risk of inflation eating away at their purchasing power. Some DB plans, including ERB, provide a partial solution. ERB provides for cost-of-living increases for retirees who are at least 65. These increases will not cover the entire loss of purchasing power, but if inflation is 3.00%, retirees will receive a 2.00% increase.

If a DC plan were instituted, retired members would not only have to manage their money to last for their lifetime, through a variety of market cycles, they would also have to reduce their spending in the early retirement years so that they could deal with later price increases. If a retiree can earn 7.00% per year, she may need to spend no more than 4.00% of her income annually.

While purchasing an annuity is a way to deal with the longevity risk, historically these products did not include any inflation protection. Individuals who wanted to insure against the longevity risk could not simultaneously insure against the inflation risk. They had to combine the purchase of an annuity for part of their income while continuing to manage funds themselves to cover the need for rising income later in their life. Very few did this, meaning that they usually ignored the longevity risk.

This situation may change in the future, however. For instance, Vanguard, a well-known national financial services company has recently introduced an annuity product in which the benefit payments are linked to the Consumer Price Index.

Political Generosity Risk

One risk that applies more to DB plans than DC plans is the “generosity” risk. This is the risk that employers will improve benefits under a DB plan to the point that they become unaffordable. It has been argued that legislators who set the benefit levels for statewide plans may curry the voting favor of employees, teachers, retirees, or unions by agreeing to benefit improvements without regard to the cost, since the cost is generally amortized over many years into the future. By being able to portray themselves as worker friendly, by improving benefits without having to fund for all of this while they are in office, a hazard is created. By contrast, if DC plan improvements are granted, the cost is apparent and must generally be paid almost immediately.

Aging and Incompetence and Fraud

Retirees are subject to the risk of diminishing capabilities, including the risk of incompetence due to Alzheimer’s or other diseases of the brain. Retirees who may be capable of managing their finances at age 70 may find themselves unable to cope at 80 or 90. Under a DB plan, the income continues during this period without interruption, and a relative or caretaker can take over the payment of bills. Under a DC plan, if no annuity is purchased, someone else must take over the management of the investment portfolio.

Associated with the risk of incompetence is the risk of fraud and scams. The elderly are a favorite target of the unscrupulous. If a retiree falls victim to a scam, and is receiving benefits under a DB plan, he or she may lose a significant amount of money, but he/she will not lose everything. The amounts at risk are much larger when the member is managing a large investment portfolio.

Variability of DB Contributions

Of course one of the main differences between the two kinds of plans is that DC costs to the employer are fixed or nearly so, while DB costs, as we have experienced with ERB, can rise significantly. This risk is an outcome of the fact that the employer contribution rate is an estimate of the amount needed to fund the benefits, and estimates can and do change.

Heirs and Inheritance

It is sometimes argued that DC plans are preferable to DB plans because an estate can be created for the member’s heirs. However, we believe this point of view ignores the fact that the “estate” is an unintended byproduct of the investment and longevity risk. First, there will be no estate in a DC plan if the member purchases an annuity at retirement in order to eliminate the longevity risk. Second, among retirees who choose to manage their own funds in retirement, it is the members who are successful investors or who die earlier than expected who will leave an estate. Members who are poor investors or who are poor managers of their expenses or who live beyond their life expectancy may not leave any estate.

Conclusion

Both types of plans introduce risks. Under DC plans, the individual retiree is required to deal with bad outcomes, while in a DB plan, the bad outcomes are borne by the plan, and in turn by the taxpayers and citizens. Therefore, the DB plan performs the central task of insurance; it shifts the risk of poor outcomes from the individual or the few to the larger group, with each member of the larger group only bearing a small piece of the risk.

SECTION VII
CONCLUSION

Section VII

Conclusion

The request in the Joint Memorials was to study DB/DC plans and to see if a system could be developed where future educational employees have the same or better benefits as current retirees, and that the new system be more financially sound.

Section V enumerated many advantages for DC plans and many advantages for DB plans. Section III (Costs) calculated that in order to meet the “more financially sound” criteria, the contribution toward a DC program would be limited to 13.56% of payroll with another 8.24% of payroll going to the closed DB plan. This DC plan would be more financially sound because the costs would be the same as the current scheduled ERB costs, yet more stable than current costs.

As illustrated by the benefit illustration section (Section IV), the two objectives cannot be met simultaneously. In most cases, the DC plan would not produce “same or better” benefits. Although some members whose pay increases at a rate that is less than typical who terminate prior to retirement could tend to earn better benefits under DC than DB, most members would not.

Consequently, our finding is that the adoption of a defined contribution retirement plan for future members of ERB would either result in:

1. decreased retirement benefits,
2. increased total costs,
3. deteriorated funded position of the remaining ERB defined benefit program, or
4. some combination of the above.

APPENDICES

APPENDIX A
House Joint Memorial 9

Appendix A
House Joint Memorial 9
A JOINT MEMORIAL

REQUESTING THE EDUCATIONAL RETIREMENT BOARD TO STUDY THE
IMPLICATIONS OF CHANGING THE EDUCATIONAL RETIREMENT SYSTEM
FROM A DEFINED BENEFIT PLAN TO A DEFINED CONTRIBUTION PLAN FOR
NEW EDUCATION EMPLOYEES.

WHEREAS, New Mexico's current educational retirement system established by the Educational Retirement Act is a "defined benefit plan"; and

WHEREAS, in a defined benefit plan, a retired employee receives a fixed periodic amount of money based on employer and employee contributions to the plan, the employee's salary history and the employee's years of service, and the employer bears the investment risk of meeting the fixed retirement benefit; and

WHEREAS, the educational retirement system is experiencing solvency problems, including a funding ratio expressed as a percentage of actuarial value of assets to actuarial accrued liabilities of seventy-six percent, and an unfunded actuarial liability of two billion three hundred million dollars (\$2,300,000,000); and

WHEREAS, another plan for a retirement system is a "defined contribution plan", in which an employer guarantees to make a predetermined fixed contribution into an account established by the employer for the employee and into which an employee may elect to defer some part of the employee's compensation, and in which plan the employee bears the investment risk of meeting the employee's retirement income goals; and

WHEREAS, the defined benefit plan and the defined contribution plan each have advantages and disadvantages for the employer and employee, and those advantages and disadvantages should be compared to determine if a defined contribution plan for new education employees would result in a more financially sound retirement system that provides the same or better retirement benefits as those now received by retired educational retirement system members;

NOW, THEREFORE, BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO that the educational retirement board be requested to study the implications of moving to a defined contribution plan for new education employees and submit its findings to the legislative finance committee by September 30, 2005; and

BE IT FURTHER RESOLVED that copies of this memorial be transmitted to the educational retirement board and the legislative finance committee.

APPENDIX B

Senate Joint Memorial 17

Appendix B
Senate Joint Memorial 17
A JOINT MEMORIAL

REQUESTING THE EDUCATIONAL RETIREMENT BOARD TO STUDY THE IMPLICATIONS OF CHANGING THE EDUCATIONAL RETIREMENT SYSTEM FROM A DEFINED BENEFIT PLAN TO A DEFINED CONTRIBUTION PLAN FOR NEW EDUCATION EMPLOYEES.

WHEREAS, New Mexico's current educational retirement system established by the Educational Retirement Act is a "defined benefit plan"; and

WHEREAS, in a defined benefit plan, a retired employee receives a fixed periodic amount of money based on employer and employee contributions to the plan, the employee's salary history and the employee's years of service, and the employer bears the investment risk of meeting the fixed retirement benefit; and

WHEREAS, the educational retirement system is experiencing solvency problems, including a funding ratio expressed as a percentage of actuarial value of assets to actuarial accrued liabilities of seventy-six percent, and an unfunded actuarial liability of two billion three hundred million dollars (\$2,300,000,000); and

WHEREAS, another plan for a retirement system is a "defined contribution plan", in which an employer guarantees to make a predetermined fixed contribution into an account established by the employer for the employee and into which an employee may elect to defer some part of the employee's compensation, and in which plan the employee bears the investment risk of meeting the employee's retirement income goals; and

WHEREAS, the defined benefit plan and the defined contribution plan each have advantages and disadvantages for the employer and employee, and those advantages and disadvantages should be compared to determine if a defined contribution plan for new education employees would result in a more financially sound retirement system that provides the same or better retirement benefits as those now received by retired educational retirement system members;

NOW, THEREFORE, BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF NEW MEXICO that the educational retirement board be requested to study the implications of moving to a defined contribution plan for new education employees and submit its findings to the legislative finance committee by September 30, 2005; and

BE IT FURTHER RESOLVED that copies of this memorial be transmitted to the educational retirement board and the legislative finance committee.

APPENDIX C

Selected Public Sector Retirement Systems with DC Components

Appendix C - Selected Public Sector Retirement Systems with DC Components (by Year Established)

State	System	Year	Type	Groups	Participation	% DB Electing to Join	Employee DC Contribution Rate	Employer Contribution Rate	Vesting in ER Funds	Disability Benefits	In Service Death Benefits	Notes
TX	Texas Municipal Retirement System	1948	CB	General	Mandatory	NA - No Other Option	5% to 7%	ER Elects Match: 1:1, 1.5:1, 2:1	5 Years (10 Years in a Few Cities)	DB Disability Benefit	Monthly Annuity or Refund of Member Deposits	-
IN	Indiana Teacher's Retirement Fund - Annuity Savings Account	1955	DB/DC	Teachers	Mandatory	NA - No Other Option	3% Min. (Picked-Up), 13% Max.	ER Funds 1.1% DB Multiplier	10 Years for DB Benefit	DB Disability Benefit	Account Balance + Annuities for Dependents	-
DC	District of Columbia Defined Contribution Pension Plan	1987	DC	General	Mandatory (new hires)	Not Available	None. However 457 plan is available	5% (5.5% for Detention Officers)	5 Years For Full Vesting	Separately Provided By City	Account Balance	Under Review
WV	West Virginia Teachers DC Retirement Plan	1991	DC	Teachers	Mandatory (new hires)	Plan covered ~50% of active teachers when closed in 2005	4.50%	7.50%	12 Years For Full Vesting	Account Balance	Account Balance	Closed in 2005
WA	Washington TRS Plan 3	1995	DB/DC	Teachers	Mandatory (new hires)	Plan 3 covers apx. 70% of active TRS members	5% - 15%	ER Funds 1.0% DB Multiplier	5 Years Vesting for DB Benefit	DB Disability Benefit	Annuity Benefit	-
MI	Michigan State Employees	1996	401(k)	General	Mandatory (new hires)	Apx 6% of DB members elected to join	Up to 401(k) limit	4% + 3% Match	4 Years For Full Vesting	DB Disability Benefit	Group Life Insurance	-
VA	Virginia Optional Retirement Plan for Political Appointees	1998	DC	Political Appointees	Optional	Not Available	None	10.40%	Immediate	Separately Provided By State	Account Balance	Extended to public school officials in 2001
WA	Washington SERS Plan 3	2000	DB/DC	School Employees	Mandatory (new hires)	Plan 3 covers apx. 56% of active SERS members	5% - 15%	ER Funds 1.0% DB Multiplier	5 Years Vesting for DB Benefit	DB Disability Benefit	Annuity Benefit	-
SC	South Carolina Retirement Systems - State Optional Retirement Program	2000	DC	General, Teachers	Optional (new hires)	Not Available	6%	5.00% + 2.55% to SCRS	Immediate	Account Balance	Account Balance	Extended to new state and local govt. employees in 2002
ND	North Dakota PERS Defined Contribution Plan	2000	DC	Staff to elected officials	Optional	Not Available	4.0% (picked-up)	4.12%	4 Years For Full Vesting	Account Balance	Account Balance	-
FL	Florida Public Employee Optional Retirement Program	2000	DC	General, Teachers, Public Safety	Optional	Apx 4% of DB members; 12% new hires	None	9% General, 20% Public Safety	1 Year For Full Vesting	DB Disability Benefit - After Xfer of DC Account to FRS	Account Balance	-
AZ	Arizona State Retirement System	2001	DC	General, Teachers	Supplemental	Apx. 20% in supplemental plan	1% - 40%	ER May Elect to Match	5 Years For Full Vesting	DB Disability Benefit	DB Death Benefit	-
LA	Teachers Retirement System of Louisiana Alternative Contribution Plan	2001	DB/DC	Teachers	Optional (new hires)	NA - Not Implemented	6%	ER Funds 1.25% DB Multiplier	5 Years for DB Benefit	DB Disability Benefit	DB Death Benefit	TLRS Board postponed implementation in 2003
OH	State Teachers Retirement System of Ohio DC Plan	2001	DC	Teachers	Optional	Apx 5% of eligible DB members	9.30%	10.50%	1 Year For Full Vesting	Account Balance (Other Options At Age 50)	Account Balance	-
OH	State Teachers Retirement System of Ohio Combined Plan	2001	DB/DC	Teachers	Optional	Not Available	9.30%	ER Funds 1.0% DB Multiplier	5 Years Vesting for DB Benefit	DB Disability Benefit	Account Balance	-

Appendix C - Selected Public Sector Retirement Systems with DC Components (by Year Established)

State	System	Year	Type	Groups	Participation	% DB Electing to Join	Employee DC Contribution Rate	Employer Contribution Rate	Vesting in ER Funds	Disability Benefits	In Service Death Benefits	Notes
NB	Nebraska Public Employees' Retirement System	2002	CB	General	Optional	Not Available	4.33% - 4.80%	6.75% - 7.48%	2 Years For Full Vesting	Account Balance	Account Balance	Converted from DC to CB
MT	Montana Defined Contribution Retirement Plan	2002	DC	General, Teachers	Optional	3%	6.90%	6.90%	5 Years For Full Vesting	Disability Benefits from DC Plan	Account Balance	-
OH	Ohio Public Employee Retirement System Member-Directed Plan	2003	DC	General	Optional	1.2% (6,596) of eligible members elected to join	8.5% Minimum	13.31% or 13.55% (8.5% to DC Account, Remainder for Ret. Health)	5 Years For Full Vesting	Account Balance	Account Balance	-
OH	Ohio Public Employee Retirement System Combined Plan	2003	DB/DC	General	Optional	1.01% (5,538) of eligible members elected to join	8.5% Minimum	ER Funds 1.0% DB Multiplier 1st 30 Yrs, 1.25% After 30	10 Years for 67% ER Match of EE Balance	DB Disability Benefit	Lump Sum Death Benefit Based on Service	-
OR	Oregon Public Service Retirement Plan	2003	DB/DC	General, Public Safety, Elected Officials	Mandatory (new hires)	Not Available	6% (ERs may pick-up)	ER Funds 1.5% DB Multiplier (1.8% for Public Safety)	5 Years for DB Benefit	DB Disability Benefit	DB Death Benefit	-
HI	Hawaii Employee Retirement System Hybrid Plan	2006	DB/CB	General, Teachers, Others (Not Public Safety)	Mandatory (new hires)	NA - Not Yet Effective	6% General, Teachers, 9.75% Specified Others	ER Funds 2.0% DB Multiplier	5 Years for DB Benefit	DB Disability Benefit	DB Death Benefit	-
CO	Colorado Public Employees Retirement System	2006	DB/DC	General, Teachers	Optional	NA - Not Yet Effective	8% Minimum	10.15% plus 0-3% for DB liability	5 Years For Full Vesting	DB Disability Benefit	DB Death Benefit	Effective 2006
AK	Alaska Defined Contribution Plan (SB 141)	2006	DC	General, Teachers, Public Safety	Mandatory (new hires)	NA - Not Yet Effective	8% Minimum	3.5% Match	5 Years For Full Vesting	DB Disability Benefit	Account Balance	Legislation Enacted May 2005
Notes												
Type: DB = Defined Benefit; DC = Defined Contribution; CB = Cash Balance; DB/DC = Combined												

APPENDIX D

Actuarial Assumptions for Purposes of Benefit Illustrations

Appendix D

Actuarial Assumptions for Benefit Illustrations

In developing these graphs, actuarial assumptions are made in order to compare DB plans with DC plans. These assumptions include:

- Investment return of 8% (baseline)
- a 6% post-retirement investment return rate for converting the DC balance at retirement to an annuity
- UP 94 female mortality table for converting the DC balance at retirement to an annuity
- 2% COLA in the DB projections and for converting the DC balance at retirement to an annuity
- Salary growth as illustrated in the following table:

Years of Service	Salary Growth Rate
0	13.50%
1	7.75%
2	6.75%
3	6.25%
4	6.00%
5	5.75%
6	5.50%
7	5.25%
8	5.25%
9	5.25%
10 or more	5.00%