

California Public Sector Retirement Programs and Compensation

**A financial analysis prepared for
The California Foundation for Fiscal Responsibility**

Capitol Matrix Consulting
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Executive Summary

California state and local pension systems face major financial shortfalls, which have resulted from retroactive benefit enhancements, shortfalls in investment returns, greater-than-expected wage increases, and other experience less favorable than had been assumed. The State and many local governments also face major looming increases in retiree health care costs as baby-boomers retire, reflecting the fact that almost no funds for this benefit are being set aside in advance. This report is prepared in response to a request by The California Foundation for Fiscal Responsibility (CFFR) for an analysis of retiree benefits and taxpayer costs for California state and local government retirement programs. We also look at the impact of two alternative CFFR reform proposals.

CFFR Alternatives

This report estimates the impact that two CFFR reform proposals would have on benefits received and on taxpayer costs.

The first reform, Alternative A, provides that current employee pension contributions must immediately increase as necessary to cover one-half of the expected cost of additional accruals. It also provides that future hires are to be covered by a retirement income program that is no more generous than a modified version of the pension and thrift savings plans that currently apply to federal employees; the modifications are a wage cap under the pension component (with an additional employer contribution for pay in excess of the cap under the thrift plan), and a requirement that employees pay at least one-half of the expected cost of future pension accruals. Retiree healthcare benefits for future hires are to be no more generous than per the program currently applicable to state employees, modified to include significantly reduced employer subsidies. Finally, Alternative A would prospectively apply the full restrictions applicable to future hires to current employees upon declaration of a Fiscal Emergency by the relevant governmental entity. We modeled Alternative A by assuming that the most generous permitted provisions would apply. For a scenario where the reform would apply to current employees, we assumed that the Fiscal Emergency would be effective in early 2013.

The second proposal, Alternative B, limits employer contributions to cover the cost of pension or defined contribution benefits earned by current or future employees for service after June 2012 to 6 percent of payroll (9 percent for safety classifications). We modeled implementation of this in terms of a dollar-for-dollar matching arrangement within a defined contribution plan. This reform does not address retiree healthcare benefits.

Both Alternatives provide for additional Social Security replacement benefits on a pension basis for employees not covered by that federal program.

Chapter 1

The first chapter compares the value of employer-provided retirement benefits among major California public sector groups with the value of the benefits provided by the federal government, and by a sample of large private sector employers in the state. It compares lifetime employer-provided benefits in present value terms, which converts future streams of payments into today's (2011) dollars. Such a methodology enables us compare different types of retirement programs (such as pensions and defined contribution programs) on a comparable basis.

The chapter also looks at the impact that the two CFFR reform alternatives would have on these comparisons for employees terminating service at different ages with varying levels of service and salary. The California public sector groups we cover are: state miscellaneous (non-safety) employees; (2) CHP employees; (3) public school teachers; (4) non-safety employees of a representative local system.

Key findings for Chapter 1 are:

- **Non-safety state employees.** For most full-career employees, public sector systems in California provide retirement income benefits that are moderately larger than the federal government provides, and substantially larger than what is available within the private sector. For state members covered by the CalPERS system, new employees hired after early 2011 receive benefits that are less than those hired before that date, but the benefits levels remain significantly above that of the private sector. Finally, employees who do not remain within state and local retirement systems for an entire career would sometimes do better in private sector programs.
- **Teachers.** Retirement benefits received by this group are significantly less generous than most other public sector employees. This is partly because teachers covered by CalSTRS are not in social security, their retiree health care is provided by school districts and tends to be less generous than the State of California, and their pension formulas for those terminating before full retirement age is less generous than other public funds.
- **Safety employees.** Safety employees receive much higher benefits than other employee groups. Compared to their federal counterparts, the comparisons are mixed. Our modeling of the system covering CHP members indicates that those hired before mid-2010 receive pension and retiree health benefits that are higher than their federal law enforcement counterparts. Those hired after that date, however, have benefits that are similar to federal law enforcement employees. We did not compare these benefits to the private sector, since there are no direct counterparts.
- **Local governments.** Though there is considerable variation, a number of local governments offer pension benefits that are significantly higher than the state. This reflects more generous benefit formulas for early retirement and employer pick-up of employee contributions.
- **Retiree healthcare.** This is a major benefit found in the public sector – particularly at the state level -- that has become increasingly rare in the private sector. Given the rise in healthcare costs, this benefit is often more valuable than the pension earned by low- and moderate-income employees.

- **CFFR reforms.** In general, the two CFFR reforms would significantly reduce benefits earned by full-career California public sector employees (a key exception being teachers, who would, in some cases, receive modestly higher benefits), but would leave benefits significantly above private sector levels. Also, both reform Alternatives would increase benefits for those who work in the California public sector only at the earlier stages of their career. Finally, both alternatives shift risks associated with investment shortfalls and other factors from the employer to the employee.

Chapter 2

The second chapter broadens the discussion by comparing total compensation (wages and benefits) earned by employees in state and local governments with compensation earned for comparable jobs in the private sector. We develop information from wage surveys by the Bureau of Labor Statistics and the State Department of Personnel Administration, statistical studies using Current Population Survey data developed by the U.S. Census Bureau, and other sources.

Among our key findings:

- **Wages – non-safety employees.** Average wages in the state and local government sector combined are roughly similar to average private sector pay levels for comparable jobs – a little above the average for all private sector workers, and a little below private sector workers employed by large firms. Relative to the private sector, public sector pay tends to be higher in less-skilled occupations, and sometimes lower in more specialized and high skilled occupations. Within occupations, there is much greater pay variability in the private sector. We also discuss the significant limitations that these occupational surveys and statistical studies have.
- **Wages – safety employees.** Public-private sector comparisons for safety employees is complicated by the fact that peace officers, firefighters, and correctional officers do not have direct private sector counterparts. Compared to safety employees employed by public agencies in other states, we find that pay rates in California are above average.
- **Non-wage benefits.** The incidence of non-wage benefits is higher in the state and local government sector than in the private sector. Moreover, when compared to the subset of private employers that offer a full range of benefits, public sector benefits are more generous. The main difference is in retirement benefits, where long-term employees of state and local governments enjoy pension and retiree healthcare benefits that are far richer than what is generally available within the private sector.
- **Total compensation.** Given that wages for comparable occupations are similar, the higher non-wage benefits can raise total compensation for a typical full-career public sector employee significantly above his or her private sector counterpart, particularly for public sector employees who receive both pension and retiree healthcare benefits. Again, these findings reflect averages. Given the greater variation in private sector pay levels, the findings for “typical” employees may or may not hold for individuals in specific occupations and job levels.

Chapter 3

The third chapter compares the costs that California government agencies incur to provide retirement benefits under current law with costs under the CFFR Alternatives. We develop detailed estimates for the groups covered in Chapter 1 (state non-safety and CHP employees, public school teachers, and several hypothetical local government groups), using the actuarial assumptions adopted by the governing bodies for each system. From these detailed calculations, we also draw more general inferences about the potential cost impact of implementing the alternatives across *all* state and local retirement funds. We also look at the impact on relative costs of alternative rates of pension investment return.

Our analysis focuses on the actuarially determined costs under current law and the Alternatives – the amounts that employers should be setting aside to fund accruals of retirement benefits. These costs provide a good indication of the ultimate impacts of the reforms that we model. However, as discussed more fully in the chapter, their impact on near-term budget outlays depends on the funding policies of the programs involved. In the majority of cases, changes in actuarially determined retirement program costs have immediate effects on budget outlays, but there are exceptions. In particular, since governments generally do not prefund retiree health benefits, reforms reducing costs for these programs would not impact budget outlays until the affected employees retire and start drawing benefits – sometimes decades in the future

Current Costs

Based on projections of historical data reported to the State Controller’s Office, we estimate that State and local governments currently contribute about \$16 billion per year to cover the cost of public pensions in California. Employee pension contributions amount to an additional \$11 billion, and other costs are a bit over \$1 billion. (Employer costs may be understated, and employee costs similarly overstated, to the extent that employer pickup of employee contributions is not fully reflected in the data being reported to the Controller.) In addition, state and local governments are accruing obligations for retiree health benefits at the rate about \$5 billion per year – although most of the budget impact for these costs is delayed, since they are not being prefunded.

Impact of Reforms

When fully implemented, the CFFR alternatives would reduce employer costs at the state and local level. Our key findings are:

- **State-level savings.** Using existing actuarial assumptions, Alternative A would result in a net reduction in employer costs for retirement income benefits in the low hundreds of millions of dollars per year. The reduction in annual costs for retiree healthcare would be about \$2 billion per year. Under Alternative B, costs for retirement income programs would be about 4 percent of payroll reduction in annual pension cost (\$2.7 billion in today’s dollars). This alternative does not affect the retiree health benefit.

- Factors behind results.** The relatively modest change in state costs for retirement income programs, particularly with respect to Alternative A, is partly the result of recent actions taken by the state that is resulting in lower CalPERS costs under existing law. These include increased employee contributions, and lower benefits for new employees. For the large non-safety group and teachers, the cost of the combined pension and defined contribution program that we modeled under Alternative A is slightly higher than the cost for current and future hires under existing law. Also, Alternative A was modeled assuming implementation of a modified version of the federal employee thrift plan provisions, with an expected employer cost of about 5 percent of payroll. However, this alternative would also accommodate a less-generous defined contribution design – for example, where the employer contribution was limited to 3 percent of pay. Each one percent reduction translates into about \$700 million in savings at the state level.
- Impact of lower investment returns.** In addition to their impact on expected costs, the reforms would substantially reduce the risk of state and local governments facing additional strains on their budgets from less-favorable-than-expected experience related to future investment returns and other factors. Savings under the alternatives expand markedly when the assumed rate of future pension investment return is lowered from the current 7.75 percent per year – as is urged by some critics. For example, if we assume only a 5.75 percent rate (generally consistent with federal law governing private sector pension sponsors), the annual savings from the pension reforms expand to over \$3 billion under Alternative A and over \$7.5 billion under Alternative B. The savings occur because both alternatives rely on defined contribution programs for part or all of the retirement income benefit, and under these plans employer costs are unaffected by future investment return.
- Local government savings.** Under Alternative A, average local government retirement costs would fall by 5.5 percent to 7.5 percent of payroll when fully phased in – or about \$3 billion to \$4 billion annually in today’s dollars. Adoption of Alternative A health reforms would produce additional savings (potentially in the high hundreds of millions annually). Under Alternative B, the savings would be 7.5 percent to 9 percent of payroll, or about \$4 billion to \$5 billion in today’s dollars.
- Factors behind results.** The relatively larger savings compared to the state is related to the richer plan designs and lower employee contributions at the local level. As with the state-level comparisons, the anticipated savings under the alternatives increase markedly as we lower the expected rate of pension investment return from the currently assumed 7.75% per year.
- Timing of savings.** If the programmatic reforms applied to future accruals of existing employees, the savings for the retirement income programs identified above would occur immediately. Given the lack of prefunding, retiree health care savings would occur only after the existing employees retired. If the reforms applied only to future employees, the savings from the programmatic changes would emerge gradually over time as the existing workforce turns over. (In the case of retiree health, the savings would occur when the newly hired employees themselves retire.) However, under Alternative A, the requirement that all employees pay one-half of the normal costs of their pensions would result in immediate local savings of over \$2 billion at the local level. (State cost reductions would be minor since employees are now paying nearly half of normal costs in many cases). And, if the employer contribution caps under Alternative B (6 percent of pay for non-safety employees and 9 percent for safety employees) were applied to existing pension systems (as opposed to just those covered by new defined contribution systems), most of the above-identified savings for this alternative would occur immediately.

Conclusion

Implementation of both CFFR reforms would result in significant savings at the state level, and relatively large savings at the local level. The timing and magnitude of the savings would depend on how the reforms were implemented. Just as important as impact on expected costs, the reforms reduce governmental (and taxpayer) exposure to major future cost increases due to less-favorable-than-expected outcomes relating to investment returns and other factors.

Chapter 1: Retirement Programs

Introduction

Public pension funds in California face massive shortfalls, which have resulted from retroactive benefit enhancements, as well as recent investment returns and other experience less favorable than assumed. The combined actuarial shortfalls for the state's ten largest public funds, which account for 90 percent of public pension fund assets in the state, is \$240 billion, or nearly one-third the combined liabilities of the funds¹. Using discount rate assumptions consistent with federal mandates for private sector funds, the shortfalls are much larger.

The state and many local governments will also face major increases in retiree health care demands as baby-boomers retire. While the problem with respect to pensions is that there are inadequate funds relative to what's been promised, the problem with retiree health care is starker: little or no money has been set aside for benefits that, for some members, are almost as significant as their pension. These rising costs and consequent fiscal pressures, coupled with a growing disparity between public and private sector retirement benefits, have generated considerable debate about reform.

Purpose of This Report

This report is in response to a request by The California Foundation for Fiscal Responsibility (CFFR) for a financial analysis of retiree benefits and taxpayer costs for California state and local government retirement programs both under existing law and under two of its proposed alternatives.

The first chapter of this report discusses recent developments relating to the provision of retirement benefits in the public and private sector, and then turns to an analysis of these benefits. Its purpose is twofold:

- To show how retirement benefits in California's state and local government sector compare to those in the private sector and under the federal system, using sample employees in a variety of circumstances.
- To show how the retirement benefits of these employees would be affected by the CFFR proposed pension reforms.

Our comparisons are based on detailed modeling of benefits received by four California public sector employee groups², employees of the federal government, and California private sector employees. We also model benefits received under the CFFR proposals, described as:

- Alternative A, which includes a modified version of the pension and thrift savings plans that apply to federal employees, and separate reforms to the current state retiree health benefit program.

¹ Source: Little Hoover Commission. Public Pensions For Retirement Security. February 2011. <http://www.lhc.ca.gov/studies/204/Report204.pdf>

² Specifically, non-safety (miscellaneous) state employees, CHP employees, public school teachers, and non-safety employees of a sample local system. CalPERS administers pension and retiree health benefits for state non-safety and CHP employees, and pension benefits for our sample local entity. CalSTRS provides pension benefits for teachers. Retiree health benefits are separately provided by the local entity for non-safety local employees, and by the employing school district for teachers.

- Alternative B, which limits employer contributions to cover the normal cost for future retirement income benefits (excluding retiree health care) to 6 percent of payroll (9 percent for safety classifications). It provides an additional benefit for those not covered by Social Security, but does not otherwise mandate a specific benefit design, and does not address retiree health care benefits. For purposes of this chapter, we model future benefits (other than the Social Security replacement benefit, if any) via a defined contribution plan where employers match employee contributions on a dollar-for-dollar basis, up to 6 percent of pay (9 percent for safety classifications).

The current programs and alternative reforms are discussed in more detail below.

The subsequent chapters of this report address the broader question of how total compensation (wages and benefits) in the state and local sector compares to the private sector, and provide estimates of the impacts of CFFR alternatives on contributions to be made by public employers and employees in the future.

Report is a Financial Analysis

The CFFR alternatives considered here would impact retirement benefits earned by California state and local government employees for service after the reform effective date, including current employees. Applying the reforms to current employees as well as to future hires is necessary in order to provide governments and taxpayers with meaningful cost relief over the coming decade. Although not modeled here, it might also be appropriate to apply at least some elements of retiree health care reform to those already retired. However, it is important to note that this report is a financial analysis, and leaves to others the critical matter of the extent to which application of these reforms to current program members would be legally feasible.

Key Findings

Our key findings with regard to existing California public sector programs are as follows:

- 1) **California public sector retirement programs are much richer than those in the private sector for full-career employees.** Members in three of the four California public employee groups we modeled receive employer-funded benefits that are considerably larger than those provided through private sector plans offered by our sample companies – often two to three times the private sector benefit level. (This includes CHP employees, although our results do not explicitly compare their benefits with those provided to private sector employees.) The exception is teachers, who receive benefits that are only modestly larger.
- 2) **They can be less generous for short-term employees.** In some scenarios involving members who terminate employment prior to minimum retirement age, the benefits accrued under the public systems are less than in the private sector. This is a characteristic of pension plans generally, where the value of benefit accruals accelerates rapidly during the latter stages of a career; private sector plans rely much more heavily on defined contribution or hybrid defined benefit plans, where benefits accumulate more proportionally through a career. In fact, at the youngest ages an employee's contribution to the public sector plans considered here is worth more than the pension being earned. This result also reflects the fact that no retiree health care benefits are provided for termination before earliest retirement age.

- 3) **The retiree health subsidy is a large benefit.** For a full career state employee, depending on age at retirement and other factors, the value of the retiree health care benefit can be several hundred thousand dollars. This partly reflects the expectation that health care cost increases will continue to outpace general inflation. The value of this benefit alone can exceed the value of the total retirement benefits that would be provided under private sector plans, which typically do not promise any future retiree health care benefit to current employees. For some low and moderate wage state employees, the retiree health benefit is worth more than the pension. This is because, in contrast to the pension benefit, the retiree health benefit is not related to wages. The value of this benefit is less dramatic, though still potentially large, for employees of many local governments and school districts, due to typically less generous post-retirement subsidies.
- 4) **Comparisons to the federal retirement system are mixed.** Full career employees of the state and the representative local system generally receive benefits that are comparable to or larger than the benefits received by federal employees. (In the case of state employees, the exact result depends on the time of hire.) In contrast, teachers retiring early earn smaller benefits under current law than they would under the federal retirement program.
- 5) **Teachers earn less generous benefits than other California public employees.** Teachers receive smaller benefits than the other California public sector employees considered here. The main reasons are (1) the pension formulas have relatively steeper payment reductions for those retiring early, (2) employer-provided health care is determined by the district, and on average is less generous than the state provides, and (3) teachers have been required to make larger pension contributions than others relative to the benefits they receive (this is especially true for past years). In addition, teachers, like CHP employees but unlike other employees considered in this report, do not participate in social security.
- 6) **Funding risks are largely borne by employer in California public sector funds.** In each of the public sector examples, all of the risks associated with investment returns and life span, and much of the risk posed by inflation, are borne by the employer (and ultimately the taxpayer). This is in contrast to the federal system and, particularly, the private sector systems, which leave some or most of this risk with the employee.

Our Key Findings with respect to the CFFR alternatives are as follows:

- 1) **CFFR alternatives provide a moderate level of benefits.** For full career employees (for example, entering service at age 27 and retiring at age 57), the benefits are still much larger than average private sector benefits – in several examples, about double. In some cases, the alternatives would increase benefits for teachers. However, for state employees, the benefits received under the alternatives are about 25 percent smaller than what is provided to those hired after early 2011, and about 40 percent less than is provided to those hired before 2011. For different reasons, each alternative produces moderately smaller benefits than the federal system.
- 2) **Alternatives offer similar levels of benefits.** Even though the two CFFR alternatives differ a great deal in their details, they produce similar levels of benefits for employees in a wide variety of circumstances.

- 3) **Impacts of alternatives on existing employees vary.** As noted above, results for mid-career employees are based on a blend of pension accruals occurring under existing law up to the operative date of the alternatives, and generally lower accruals under the alternative reforms thereafter. Not surprisingly, our comparisons show that the pension impact of these changes would be minor for late career employees, but more pronounced for younger employees, who would accrue benefits for more years after the changes are implemented. The reductions on total retirement benefits would be somewhat more significant under Alternative A for employees retiring before age 62, because that reform would scale back early retiree health care subsidies currently provided.
- 4) **Both alternatives shift funding risk to employees.** As noted above, under the existing California public sector systems included in our comparisons, investment, longevity and a large part of inflation risk are borne by the employer (taxpayers). Over time, both alternatives share these risks with the employee.
- 5) **Alternative proposals would have small effect on expected benefits for teachers.** Both Alternative A and Alternative B include a provision for social security replacement for members not currently in the social security system, including teachers and CHP employees. Net changes in benefits accruing to teachers under the alternatives would not be large, and in some cases members would receive more total benefits. In any event, at least some of the investment, longevity and inflation risk would shift to employees under these alternatives.
- 6) **Alternative A would reduce benefits to younger retirees and those without long service.** This alternative incorporates features of the federal pension system for future accruals. Unlike the California public sector plans considered here, the federal plan provides significantly reduced pension benefits to members who leave service before reaching key eligibility thresholds (for example, age 57 with 30 years of service, or age 60 with 20 years; different thresholds apply for law-enforcement and other safety employees). Alternative A also reduces employer health subsidies for early retirees. Provisions discouraging early retirement should lower employer benefit costs, although the impact on total payroll costs and workforce management should also be considered.
- 7) **Alternative A wage cap has dual effects.** A provision in alternative A limits the amount of annual earnings recognized for future pension accruals to about \$80,000 (adjusted for inflation). Income above this cap is recognized for a special employer contribution under the defined contribution component, but the benefits arising from this contribution won't fully make up for the cap's impact on a retiree's pension. Our scenarios suggest the cap has a moderate effect on overall benefits except for the most highly compensated employees. Its main effect is that over time, highly compensated employees would start to bear more investment, longevity and inflation risk than other employees.

In the subsequent sections of this chapter, we provide background on public pensions in California, discuss recent public sector and private sector developments in the retirement area, and then turn to our detailed comparisons.

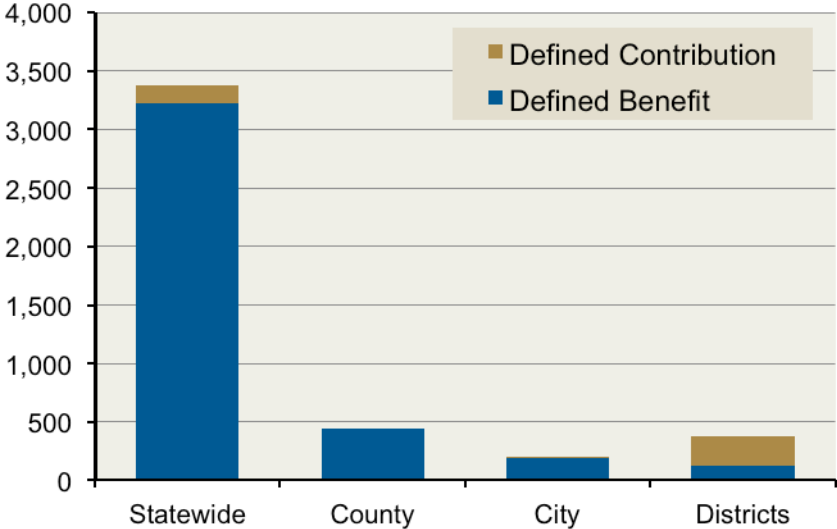
Retirement Systems In California

The California State Controller reports that the state has 131 public retirement systems, including 10 state systems, 20 systems operating under the County Employees Retirement Law of 1937 (1937 Act), 1 independent county system (San Luis Obispo County), 36 city systems, 55 special district systems, 4 school district systems, and 5 other systems. The remainder of cities, counties,

and special districts contract with the California Public Retirement System (CalPERS) to administer their retirement benefits (some individually and others through pools).³

Of these 131 systems reported to the State Controller, 85 are defined benefit pension systems and 46 are defined contribution systems. (These figures exclude an unknown but significant number of supplemental defined contribution plans maintained by local agencies but not reported to the Controller). Defined benefit plans account for the vast majority of public sector retirement coverage, whether measured by fund assets or membership. About 81 percent of public employees in the state are covered through defined benefit plans about 20 percent are covered by defined contributions. In some cases there is overlap, where the defined contribution plan supplements the defined benefit program. As shown in Figure 1, members in defined contribution plans account for marginal or non-existent shares of the total in all categories except special districts.

Figure 1
Participants in California Public Sector Retirement Programs
(Thousands of Members)



Four-fifths Of California Public Members In 5 Funds

About 80 percent of state and local employees in California are covered through five large pension funds. As shown in Figure 2, the largest is CalPERS, with 1.6 million members that are divided roughly equally between State of California members, school district classified members, and local contracting agency members. The contracting agencies represent over 2,100 cities, counties, special districts, housing authorities and other governmental entities that contract with CalPERS to administer their benefits.

The second largest is the California State Teachers’ Retirement System (CalSTRS), which is a statewide system that provides benefits to K-12 and community college teachers. The remainder of the top five consists of the University of California, Los Angeles County, and the City and County of San Francisco.

³ Source: Public Retirement Systems Annual Report, 2007-08. California State Controller’s Office. http://www.sco.ca.gov/ard_locrep_retirement.html

Figure 2
Largest Public Pension Systems In California
(Dollars in billions)

Public Pension System	Recent Assets	Recent Funded Status
Public Employees' Retirement System	\$231	61%
State Teachers' Retirement System	\$141	63%
University of California	\$45	73%
Los Angeles County Employees' Retirement Assn.	\$40	69%
San Francisco City and County Retirement System	\$16	74%

California Public Pension Funds Face Major Actuarial Shortfalls

The combination of retroactive benefit enhancements, lengthening lifespan, and some weaker than expected investment returns during recent years has led to deterioration in the condition of public funds in California. As of 2010, the five largest public pension systems are only between 61 percent and 74 percent funded for benefits earned for past service, based on the actuarial assumptions used by those systems. These measures would be even lower if they instead reflected the assumptions mandated for use by private sector plans, or those used by the United States with respect to federal employee pensions. The funded status amounts also do not reflect liabilities, if any, for outstanding pension obligation bonds.

Retiree Health Care Costs Also Rising

Retiree health care presents a massive financial challenge. Unlike pensions, which are prefunded through contributions and investment earnings over the employee's working career, retiree health care has largely been financed on a pay-as-you-go basis. This means that state and local governments have been making significant benefit commitments without undertaking the current financial sacrifices needed to meet these commitments.

In 2004, the Governmental Accounting Standards Board issued a directive requiring that state and local governments report the annual costs of retiree health care on an actuarial basis similar to that used for pensions. The most recent actuarial valuation for the state of California found that its retirement health care program has an unfunded liability of \$60 billion⁴. The figure represents the present value of the portion of future retiree health benefits for employees and retirees that is attributable to their past service, for which no money has been set aside. Earlier estimates suggest that the total unfunded liability for other public agencies may rival that of the state of California.⁵

⁴ Source: State of California Retiree Benefits Program, GASB # 43 & 45, Actual Valuation Report as of June 30, 2010. Prepared by Gabriel Roeder Smith & Co. for the State of California. March 4, 2011. The valuation also found that the normal cost (that is, the amount it would take to cover just the benefits being accrued for service during 2011-12) would be \$2.2 billion, and the current year cost to amortize the unfunded liability over 30 years would be an additional \$2.5 billion.

⁵ Local jurisdictions report that they are beginning to prefund systems, but generally at rates that are well below that needed to make a dent in the large unfunded liabilities. At the state level, the California Highway Patrol (Bargaining Unit 5) 2008 contract included a small set aside to start prefunding retiree health benefits. Under the 2010 contract, this set aside is redirected to the CHP pension until 2013, when contributions will resume at a 4% rate. Even the 4% rate will be only 20% of what would be needed to meet the actuarially required contribution.

Bottom Line—Major Cost Increases Ahead

The pension shortfalls, combined with the impact of rising retiree health care costs, imply sharp increases in state and local retirement related expenditures over the next decade. Recent estimates by CalPERS actuaries indicate that state employer contributions will need to increase from 16 percent of payroll in 2009-10 to 25 percent by the middle of the next decade to amortize its \$49 billion state unfunded liability. The increase in future CalSTRS contributions would need to be even greater to cover its \$56 billion funding shortfall. On the health care side, based on moderate assumptions about retirements and medical price inflation, we estimate that annual cash flow costs for State of California retirees, which are about \$1.4 billion in 2010-11, will quadruple by the middle of the next decade.

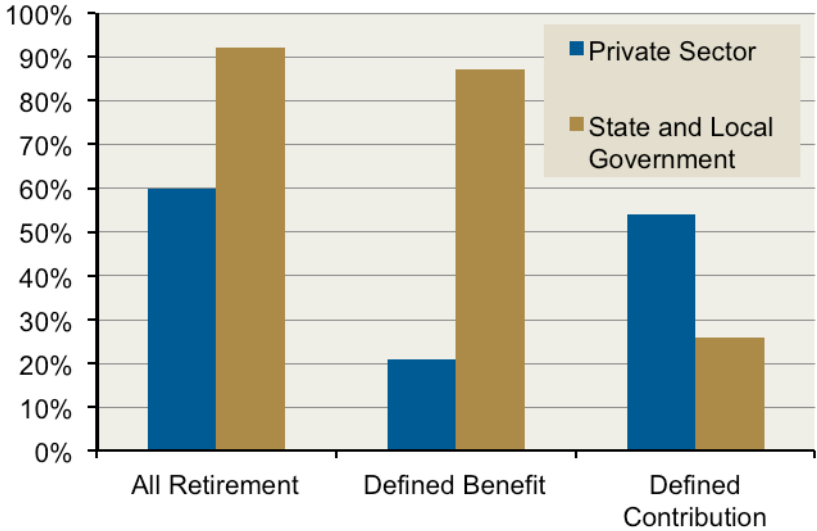
In short, absent significant changes to benefit accruals, public employer obligations for retirement benefits will rise sharply over the next decade, further squeezing governmental budgets that are already facing enormous pressures.

Trends In Retirement Coverage

In this section, we review the current status of, and recent trends in, the provision of retirement benefits in the public and private sector. There are stark differences between the two sectors in this area:

- 1) **Public sector is more likely to have retirement benefits.** According to the BLS National Compensation Survey, the share of state and local employees with access to retirement coverage is 92 percent in the Pacific Region of the U.S. (which is dominated by California) compared to 60 percent for all private sector employees.⁶ Retirement coverage is more prevalent for workers in large firms. The access percentage for firms with more than 100 employees is about 80 percent.

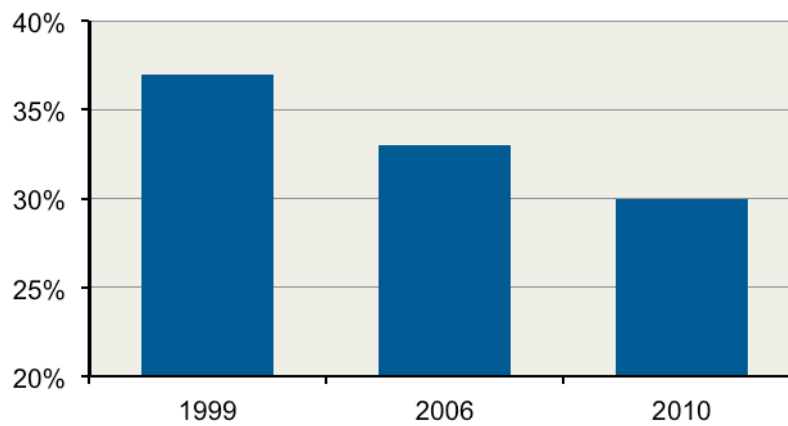
Figure 3
Percentage of Employees With Access To Employer-Provided Retirement Coverage Pacific Region



⁶ Source: BLS, Employee Benefits Survey, March 2010

- 2) **And it is much more likely to have pensions.** About 87 percent of state and local employees have access to defined benefit plans, versus just 20 percent of private sector employees in the Pacific Region of the U.S. Furthermore, the private sector trend for this benefit is downward. Figure 4 shows that participation in defined benefit plans by private sector employees of medium and large sized companies (those with 100 or more employees) fell from 37 percent in 1999 to 30 percent in 2010. This trend will continue as new firms rely on defined contribution plans and existing firms continue to close participation to new hires or freeze pension accruals for all employees. Nationally, 23 percent of private sector defined benefit plans in companies with 100 or more employees have been frozen.⁷

Figure 4
Recent Trends in Private Sector
Percentage Participation in Defined Benefit Plans



- 3) **Remaining private sector pensions are less generous.** Even before the freezes and benefit reductions, a typical private sector plan was based on less generous formulas, had steeper earlier retirement reductions, and less than 4 percent promised inflationary adjustments to pension payments. A BLS survey of private sector defined benefit plans in the 1990s found that an average plan replaced less than one-third of the salary of a worker retiring at age 65 with 30 years of service.⁸ Under the CalPERS “2 percent at 55” formula, the replacement rate would be more than twice that level. The nearby box shows the key elements accounting for the added value of a CalPERS pension, relative to a private sector design that was typical when private sector pension plans were still common.

⁷ Source: BLS, Employee Benefits Survey, March 2010.
http://www.bls.gov/ncs/ebs/benefits/2010/benefits_retirement.htm

⁸ Source: Public and Private Sector Defined Benefit Pensions: In Compensation and Working Conditions, Summer, 1997. Bureau of Labor Statistics.

4) **Retiree health benefits are offered to majority of public sector employees.**

Although precise figures are not available, it appears that about three-quarters of state and local government employees in California receive some type of post-retirement health care benefit. The state and UC offer retiree health coverage comparable to what is offered to active employees through age 64, and medical supplement plans for retirees age 65 and over.

For teachers, CalSTRS does not provide statewide retiree health care coverage. Instead coverage for teachers is on a district-by-district basis. Precise data is not available for school districts but recent surveys found that districts covering well over one-half of the members provided some type of post retirement health care, though coverage after age 65 is uncommon. Most local governments offer retiree health care, though the subsidies vary a great deal.

5) **Retiree health benefits are disappearing in the private sector.** A key factor affecting the private sector coverage is accounting rules that began to apply to private sector employers in the early 1990s. They require companies to charge against earnings the full cost of an employee's expected post-retirement health benefits over his working career, and to make detailed disclosures about liabilities.⁹ According to the Employee Benefit Research Institute, 22 percent of workers were employed at a private establishment that offered health benefits to early retirees in 2008, down from 31 percent in 1997, while 17 percent of workers were employed at a private establishment that offered health benefits to Medicare-eligible retirees, down from 28 percent in 1997. Where offered, the subsidies provided by private sector retirement plans are much more limited.

Recent Developments

The large pension shortfalls and the threats they pose to public services in California have generated considerable interest in pension reform. Interest has also been sparked by outrage over pension abuses, such as extreme pension spiking.

Some actions have been taken. At the state level, bargaining agreements and legislation passed in 2010 created less generous benefit formulas for new employees, and higher contributions for members covered by CalPERS. These changes are recognized in our comparisons below. CalPERS reports that after years of benefit enhancements that applied to current workers, local agencies are starting to adopt changes that reduce benefits for future hires. Local voters also passed nine local pension reform initiatives in November 2010, and many more are being considered.

For example, the San Diego mayor and a city councilmember announced a pension reform measure in April 2011, which would be put on the June 2012 ballot. The measure would require all new city employees except police officers be provided with a defined contribution plan, and that existing employee's pensionable pay be capped for 5 years. It would also remove special pay items from eligibility for pension calculations. Reform measures are being developed in other local communities, including San Jose, Los Angeles, and San Francisco.

One of the questions raised by the local efforts is whether such a piecemeal approach will adequately address broader California's challenges. The rationale behind the CFFR proposals is that a statewide solution is needed for this purpose.

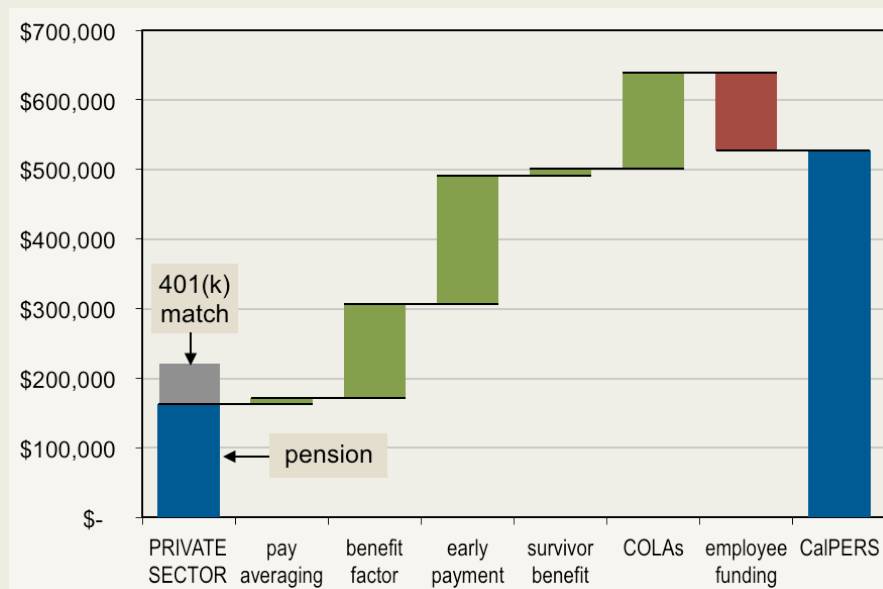
⁹ Source: Paul Fronstin, "Implications of Health Reform for Retiree Health Benefits," EBRI Issue Brief, no. 338 (January 2010). www.ebri.org.

Comparing CalPERS to Private Sector Pensions

As the results in this chapter show, California public sector retirement benefits are larger than those provided by private sector employers. One reason is that pensions are disappearing from the private sector. Equally important, however, public sector plans are more generous even when compared with traditional private sector pensions. Consider a state employee retiring at age 55 with 25 years of service, and final year's pay of \$75,000. The employer-provided portion of his CalPERS pension has a present value of \$527,000.

Under a common private sector design used by employers 20 years ago, this employee would retire today with a pension worth \$163,000, plus accumulated 401(k) matching contributions of \$58,000 — a total employer-provided value of \$221,000.

What makes the CalPERS pension so much more valuable? The following chart starts with the private sector pension on the left and builds to the CalPERS value in steps.



Pay averaging. CalPERS uses one-year averaging versus five years under most private sector plans. This boosts the CalPERS benefit.

Benefit factor. At full retirement age, the factor is 2.5 percent under CalPERS, compared to 1.4 percent under our sample private sector plan.

Early payment. A smaller payment reduction for retiring early in CalPERS — 20 percent reduction at age 55 under CalPERS versus a 50 percent reduction in this private sector plan.

Survivor benefit. A “free” 25-percent benefit continuation (plus \$2,000 lump sum) for survivor under CalPERS. Typically no comparable benefit in private sector plan.

COLAs. Guaranteed cost of living adjustments are provided by CalPERS but not by private sector plans.

Employee funding. Employee contributions reduce the net employer-provided value under CalPERS, but private sector pensions are almost always 100-percent employer funded.

Note that order matters: for example, the pay averaging step would be larger (and the other steps smaller) if it were considered later rather than first.

Little Hoover Commission Report

In February 2011, the Little Hoover Commission released a report that documented these challenges, provided history on how they developed, and set forth a general approach for dealing with them. The report asserted that public pension funds are so dangerously underfunded that aggressive statewide reforms are needed.

To address these problems, the report recommended that the Legislature pursue structural changes that include, for both state and local governments, (1) a reduction to future pension accruals of current employees and (2) the development of a hybrid model similar to the Federal Employees Retirement System. Such a model would contain a reduced defined benefit program along with defined contribution program. The purpose would be to both lower costs and shift some of the funding risks to employees. The report also recommends that wages subject to the defined benefit program be capped, in order to further reduce employer risk. Their report does not address retiree health care benefits.

The CFFR has put forth two proposals that would implement statewide reform. The CFFR “Alternative A” proposal embodies many of the Little Hoover Commission’s recommendations. Alternative B takes a more permissive approach, merely setting caps on the normal costs that public employers can incur for retirement income benefits.

Pension Systems Modeled In Our Comparisons

Our comparisons are based on the application of the specific provisions of each of the retirement systems to sample employees. The features of each system and of the alternatives modeled in this chapter are briefly summarized in the following sections. Additional detail is contained in the appendix.

State Miscellaneous (Non-Safety) Employees

Pension. A member with five years of service is eligible to draw a pension as early as age 50. The amount equals the product of years of service, highest average monthly pay rate and a benefit factor based on age when payments begin. A member in a “2 percent at age 55” formula retiring at age 55 with 30 years of service and \$6,000 final monthly average pay would receive an initial unmodified allowance of $30 \times 2\% \times \$6,000$, or \$3,600 per month.

Pay is averaged over 12 months if the member was first hired before 2007, and 36 months for those hired subsequently. For those hired before 2011, the benefit factor ranges from 1.1 percent at age 50 to 2.5 percent at age 63 or older. Less generous factors apply to those hired thereafter.

A lump sum of \$2,000 is paid upon the member’s death, and 25 percent of the member’s pension continues for the beneficiary’s remaining lifetime; the member’s pension is not reduced unless he or she elects additional survivor protection. There is an annual cost of living increase of up to 2 percent (compounded), and further increases as necessary to maintain 75 percent of the pension’s initial purchasing power. Members contribute a percentage of monthly base pay in excess of \$513. The rate was 5 percent until November 2010, and is 8 percent thereafter.

Retiree Health. A member who starts a CalPERS pension within four months of leaving service can continue participating in the medical and dental plans covering active employees; after age 65, medical coverage is provided under a Medicare supplement plan. Coverage is available for member, spouse and certain other eligible dependents.

Existing law defines a “maximum state contribution” tied to average costs for plans used by active employees. For 2011, the state maximum contribution rate is \$542 for one-party coverage, \$1,030 for two-party coverage and \$1,326 for other coverage. A retiree is eligible for a state contribution equal to a portion of this maximum amount. For current employees, this portion is 0 percent with less than ten years of service, and increases in steps from 50 percent at ten years until it reaches 100 percent with 20 years of service.

A retiree's premium equals the difference between the state-determined cost of the health plan providing the retiree's coverage and the state contribution that the retiree qualifies for.

The state-determined health plan cost rates are based on the pooled experience of active and retired members. Because actual retiree costs are generally higher than this pooled rate, there is an implicit subsidy from the state that is over and above the explicit "state contribution".

For members 65 and older, the state contribution is first used to cover the cost of the Medicare supplement and dental coverage; after covering these payments, any excess is used to offset the member's Medicare Part B premium.

CalPERS Highway Patrol Employees

CHP employees receive an enhanced pension benefit, but do not participate in Social Security as a result of their employment. The benefit factor is 3 percent beginning at age 50 — except that for those first hired after 2010, it is 3 percent reduced by 0.12 percent for each year payments begin before age 55. The maximum benefit is 90 percent of average pay. The average is taken over 12 months for those first hired before 2011, and 36 months for others. Effective July 1, 2010, members contribute 10 percent of pay; significantly smaller contribution rates applied before then. Other provisions mirror those for State non-safety employees, except that the free survivor pension continuation is 50 percent rather than 25 percent.

The retiree health provisions applicable to CHP are similar to the provisions applicable to State non-safety employees.

Public School Teachers: CalSTRS and School District

Pension. Members of this system do not participate in Social Security as a result of their employment. After termination, a member with five years of service can start to draw a pension as early as age 55, or age 50 with 30 years of service. The monthly amount equals the product of highest average monthly pay rate, years of service and a benefit factor based on the age payments begin. An additional "longevity bonus" of between \$200 and \$400 is available to members with at least 30 years of service before 2011.

Pay is averaged over 12 months for those with at least 25 years of service, and over 36 months for others. The benefit factor increases from 1.1 percent at age 50 to 2.4 percent at age 63 or older; 0.2 percent is added for those with at least 30 years of service, with the result limited to 2.4 percent. A \$6,163 lump sum is paid upon the member's death. In contrast to CalPERS, where the employer pays the cost of an automatic 25 percent pension continuation to a survivor (50 percent for CHP survivors), CalSTRS members bear the cost of any survivor continuation through a reduced monthly benefit.

The benefit is increased by 2 percent (not compounded) annually regardless of inflation, and by a supplemental payment needed to maintain 85 percent of the pension's initial purchasing power. Members contribute 8 percent of pay (6 percent from 2001 through 2010).

Retiree Health. Benefits vary significantly among school districts. For our analysis, we assume that benefits mirror those provided to state non-safety employees, except that we assumed that no subsidy applies after age 65 (this benefit is relatively uncommon in school districts), and that the maximum school district contribution is equal to two-thirds of the maximum state contribution for coverage before age 65. The latter assumption is intended to reflect the wide range of pre-age 65 benefit levels offered by districts.

Local Agency Contracting With CalPERS: Miscellaneous (Non-Safety) Employees

Retirement plans provided by local governments in California vary from entity to entity. They can differ sharply in terms of benefit formulas, what is included in "pensionable" compensation, and in their retiree health benefits. Many contract with CalPERS to provide pensions based on design choices authorized by statute.

To illustrate the impact of the CFFR reform proposals on a more generous program than we have so far considered, for the local non-safety system we model a pension design that includes some (but not all) of the optional enhancements available to a contracting agency. The benefit factor is equal to 2.5 percent less 0.1 percent for each year that payments begin before age 55. Pay is averaged over 12 months, and includes certain items of “special compensation”. Members contribute 8 percent of monthly base pay, except to the extent that employers have agreed to pick up some or all of the employee’s share. Other features parallel those that apply to state members, except that cost of living increases protect 80 percent of initial purchasing power (rather than 75 percent).

We assume that retiree health benefits mirror those provided to state employees, except that the maximum employer contribution equals three-fourths of the maximum state contribution. This reflects our observation that local retiree health plans vary a great deal and tend, on average, to be less generous than the state.

Federal Employees System

The benefits described here apply to Federal employees first hired after 1983. These employees participate in Social Security as a result of their employment.

Under this system, a member with five years of service can start to draw a pension as early as age 62, or, with ten years of service, as early as an age between 55 and 57, depending on year of birth.

The monthly amount is the product of highest average monthly pay rate, years of service, a benefit factor and an early payment factor. Pay is averaged over 36 months. The benefit factor is 1.0 percent, except that it becomes 1.1 percent if the employee terminates at age 62 or older with 20 years of service. There are a variety of provisions related to early retirement, including a temporary supplement payable until age 62 if certain conditions are met, and special provisions if termination is in connection with a reduction in force or agency reorganization. There is an annual cost-of-living increase after age 62 equal to the lesser of price inflation and 2 percent where inflation is 3 percent or less, and inflation less 1 percent otherwise. Members contribute 0.8 percent of base pay.

Law enforcement members, who must generally retire by age 57, are subject to a variety of special provisions. Their contribution rate is 1.3 percent of base pay. If they have sufficient years of service (25, or 20 if retiring at age 50 or older) they receive significantly enhanced benefits compared to other federal employees.

Federal employees also participate in a defined contribution plan. The employer matches employee contributions up to 3 percent of base pay on a dollar-per-dollar basis, and on a 50-cent-per-dollar basis for contribution between 3 percent and 5 percent of base pay. There is an additional employer contribution of 1 percent of pay on a non-matching basis.

Those who draw a pension immediately after terminating service and their dependents can continue to participate in the health plans covering active employees. Retirees pay the same premiums for this coverage as employees.

Private Sector Comparison Group

Results for this group reflect an un-weighted average of the benefits provided for the general workforces of six large private sector employers based in California: Chevron; Cisco; McKesson; Northrop Grumman; Qualcomm; and Safeway. As noted earlier, large employers tend to provide more generous benefits than their smaller counterparts, and we believe this group, as a whole, provides benefit levels that are consistent with larger employers generally. This group also reflects private sector trends previously noted:

- **Movement away from defined benefit plans – especially traditional pensions:** While all of the California public sector employees considered in this report continue to earn benefits under traditional pension plans, among our private sector group this is the case only for Chevron employees hired before 2008. Chevron employees hired after 2007, Safeway employees, and Northrop Grumman employees hired before July 2008 accrue defined benefits under “hybrid” designs that differ significantly from a traditional pension. Like traditional pensions, hybrid plans provide a benefit based on a formula. However, the benefits accrue in a generally age neutral pattern, whereas a key characteristic of a traditional pension plan is that a large portion of the total value is earned in late career. Also, benefits under a hybrid plan are generally paid as a lump sum. Thus, while investment risk under a hybrid design remains with the employer, longevity and inflation risk are usually borne by the retiree.

Employees of Cisco, McKesson and Qualcomm, and Northrop Grumman employees hired since June 2008 do not earn benefits under any sort of defined benefit design.
- **Increased reliance on defined contribution plans.** Unlike the California public sector employees considered in this report, employees in our private sector group earn some or all of their employer-provided retirement income benefits under a defined contribution plan, such as a 401 (k) arrangement.¹⁰ These plans provide age-neutral accruals, and employees bear all investment, longevity and inflation risk. Employees who use the plans to save for their own retirement receive employer-matching contributions that can be as large as 8% of pay (in the case of Chevron), though the maximum employer match for most companies in the sample is closer to 5% of pay. Under the typical arrangement, the first dollars an employee contributes are matched more generously than additional employee contributions. Northrop Grumman employees receive an additional employer contribution of between 3% and 5% of pay on a non-matching basis, as a pension replacement benefit.
- **Movement away from providing retiree health benefits:** Only Chevron still provides an ongoing program; even here, the employer obligation is limited to the portion of future costs that reflect no more than 4 percent annual health inflation since retirement. Otherwise *no* benefit is available to employees within the sample group (except for isolated employees who met grandfathering age and service requirements as of a past threshold date, who may still become eligible for coverage upon future retirement).

Information about the private sector programs modeled in this report was taken from a variety of publicly available sources, including descriptions provided to participants, summaries attached to annual information returns filed with the Department of Labor, and various disclosure documents filed with the Securities and Exchange Commission. If detailed historical information was not available, we treated provisions in effect at a subsequent time as also applying to prior periods.

CFFR Alternatives

Both CFRF reform proposals would apply to current as well as future employees, beginning on the respective effective dates. Alternative A applies to all employees upon declaration of a fiscal emergency, which for purposes of our modeling is assumed to be January 2013. Alternative B is implemented with respect to service and earnings after mid-2012; for modeling purposes, we treated this effective date as January 2012.

Pension benefits accrued up to these operative dates are preserved. However, retirement income benefits earned after that date will generally accrue more slowly, and under Alternative A some employer retiree health care subsidies are reduced.

¹⁰ The exception is Safeway, which relies exclusively on a hybrid defined benefit design. This design, though, closely resembles benefits provided by a defined contribution plan.

As a result, the pension amounts in our detailed comparisons under Alternatives A and B are a combination of the benefits earned under the existing system for service up to the reform effective date and the new system thereafter.

Alternative A

Retirement Income Benefits. This alternative bases retirement income benefits for service after the fiscal emergency trigger date on the program covering federal employees (described above), with the following modifications.

- **Pay cap.** Pensions for future service would reflect only the portion of base pay up to 75 percent of the Social Security wage base (as defined on the effective date of the measure). This cap would currently be about \$80,000. The employer would contribute 3 percent (4 percent for safety members) of pay in excess of the cap to the employee’s defined contribution account.
- **Higher employee contributions.** Employees would be required to contribute a percentage of pay that reflects one-half of the normal cost for pension accruals. For purposes of our modeling, we assumed this would result in a 3 percent of pay employee contribution (7.5 percent for CHP), compared with 0.8 percent under the federal pension program (1.3 percent for law enforcement). This contribution would apply to total base pay, including any portion in excess of 75 percent of the Social Security wage base.
- **Social Security replacement.** For employees not covered by Social Security, including teachers and CHP employees, an additional pension would be provided with a value approximating that of the employer-provided portion of a Social Security benefit allocable to the years of service in the new system.

Retiree Health Care. Health plan rates would be determined based on the experience of retirees and their dependents only. Other things being equal, this change will increase premiums for retirees and reduce them somewhat for employees. For purposes of determining retiree premiums for coverage prior to age 65, the percentage of the maximum state contribution that otherwise applies is reduced by 5 percent for each year that retirement precedes age 62.

Post-65 retiree health coverage will not be available for the member’s spouse or other dependents, and coverage for the member will be contingent on the member having made additional pre-retirement contributions.

Alternative B

Retirement Income Benefits. This alternative places a limit on the amount of employer funding associated with retirement income benefits to be earned after June 30, 2012. It does not mandate a particular design under which those benefits accrue. For purposes of this study, it is assumed that no pension benefits are earned for service after June 30, 2012, except for employees not covered by Social Security. For the period after June 30, 2012, employees would earn employer matching contributions under a defined contribution arrangement equal to the employee’s own contribution up to 6 percent of base pay (9 percent for CHP employees); the account balance based on these employer contributions would be vested after five years of service.

For the period after June 30, 2012, teachers would earn additional pension benefits that approximate the value of a Social Security benefit first payable at age 62, and CHP employees would earn additional pension benefits that approximate the value of a benefit first payable at age 57 equal to the estimated Social Security benefit first payable at age 62 without early payment discount. Employees would contribute half the normal cost associated with this benefit. We interpreted Alternative B to require normal costs for this purpose to be based on the assumptions that apply to private sector employers.

Retiree Health Care. This alternative leaves existing law provisions unchanged.

Results of Our Detailed Comparisons

This section presents the results of our detailed retirement benefit calculations. The results are expressed in present value terms. As discussed in the accompanying box, the present value calculations convert future streams of payments into today's (2011) dollars. It enables us to present different types of benefits on a comparable basis.

The graphs that follow include stacked columns that can be measured via the scale on the left of each chart. Suppose a scenario involves an employee who is now (say) age 42 and who will terminate service at age 57 in 2026. If the top of a column labeled “CA Private Sector” corresponds to “\$400,000” on the left axis, it can be read as follows:

“As of the employee’s termination of service in 2026, the value of his total retirement benefits under the composite private sector program considered in this study is \$400,000 (in 2011 dollars), based on the assumptions used here.”

The value would be different using different assumptions about such factors as how future benefit payments should be discounted to reflect the time value of money. The focus should be on the relative values for different programs, rather than particular dollar amounts. We also note that the age, years of service, and pay amounts shown in the charts are as of January 2011. The pay amounts are assumed to increase over time consistent with the actuarial assumptions used by CalPERS and/or CalSTRS.

Comparison #1 – Public Systems and Private Sector

Here we compare benefits under three of our four public sector groups; results for state non-safety employees are shown for two designs, depending on whether the hire date was prior to January 14, 2011. We also include benefits under the federal employee program and our composite private sector program. Other than teachers, each employee group participates in Social Security.

This first set of comparisons excludes both state (CHP) and federal law enforcement employees, who receive significantly higher pensions than non-safety employees. We excluded them because the sample of private sector benefit programs are for general (non-safety) employees.

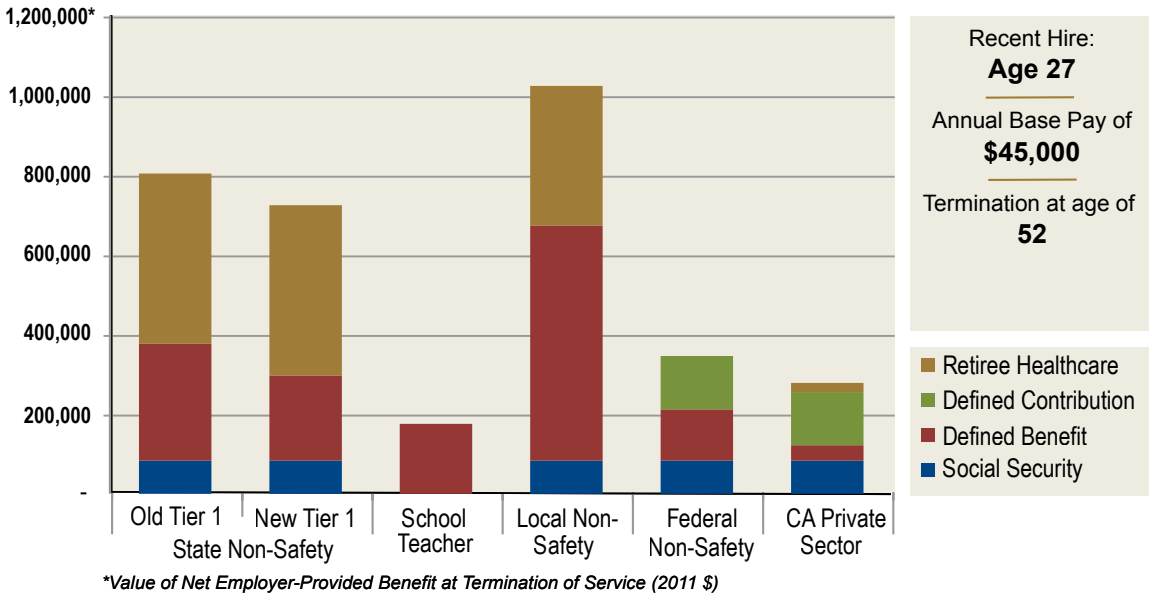
Comparisons involve a current or recent hire at age 27 with an initial annual salary of \$45,000. We consider retirement at age 52, age 57, and age 62. We also look at early termination at age 35.

Note that the employer-provided pension is less generous for this newly hired state employee than for past hires, including those considered later in this chapter. Pensions for a new employee are based on 36-month pay averaging, vs. 12-month for those hired before 2007. The recent increase in employee contribution rate — from almost 5% of pay to almost 8% — will apply for the entire career of a new hire.

The charts below show that the California local employee generally fares better than his counterparts. This advantage would be still larger if, as in some jurisdictions, this local government agency picked up some or all of the employee contribution.

Figure 6A provides comparisons for an employee who retires at age 52. For the public sector funds, it shows that total employer-provided value is largest for the employee of our local California public sector employer, and smallest for the public school teacher. The private sector system yields benefits that are less than the state and local funds, but similar to the federal and state teacher systems.

Figure 6A
Early Retirement at Age 52



Pensions under the CalPERS design used by the local employer include generous early retirement benefits that are important in this scenario. This is in contrast to CalSTRS, which has a benefit formula that does not include generous early retirement factors.

The figure also shows that, for an employee who is not highly paid and retires early, retiree health care benefits can easily be as valuable as the pension benefit; this is the case for the workers covered by the state and local pension systems. By comparison, members covered under the CalSTRS and federal programs do not receive any retiree medical benefits. The teacher in this example has less than 30 years of service so pension payments cannot begin until age 55 (three years after termination), and under the assumed school district design, retiree health care benefits are therefore not available. For the non-safety federal employee, retiree health care benefits are generally not available for termination before age 57.

Figure 6B shows comparisons for employees retiring at age 57. Under this scenario, both federal and teacher employees' benefits are improved relative to the previous figure. The federal employee here qualifies for retiree health care benefits as well as a supplemental pension payable until age 62. The teacher qualifies for certain pension enhancements tied to reaching 30 years of service, and becomes eligible for immediate pension payment upon reaching age 55, triggering retiree health care eligibility under the assumed school district design. Note that the pension advantage of the local over the state program begins to diminish as the employee remains in service beyond his early 50s, where early retirement subsidies under the local program are greatest. All public systems provide benefits that are above the private sector system.

Figure 6B
Early Retirement at Age 57

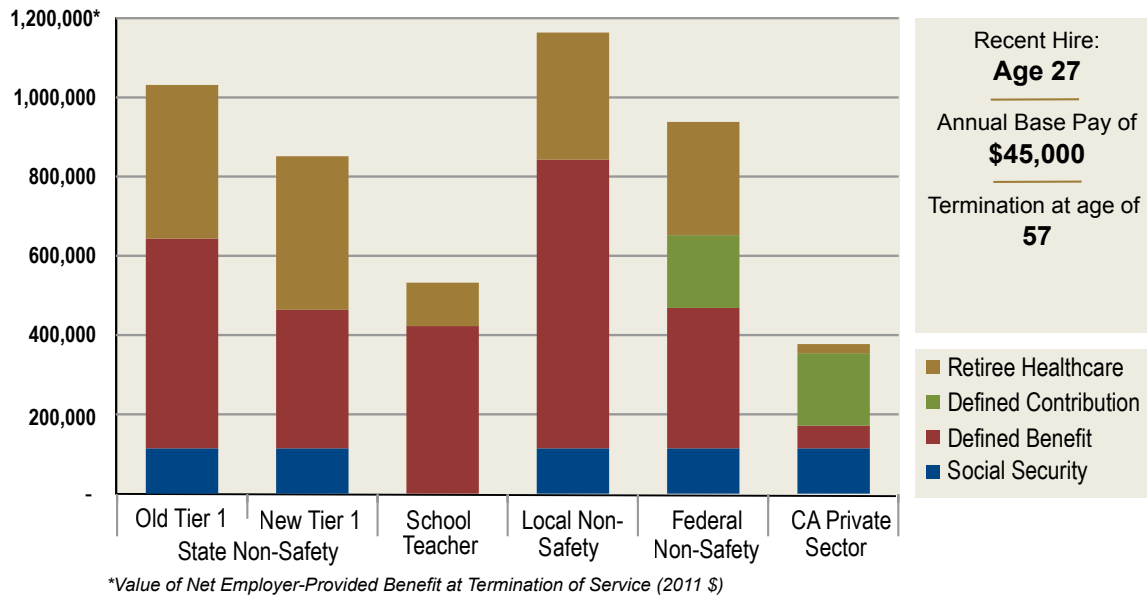


Figure 6C shows comparisons for employees who retire at age 62. For retirement at older ages, the teacher’s pension is roughly on a par with the pensions for the other California public sector employees considered here. But the absence of Social Security and the fact that few school districts provide subsidized retiree health care coverage after age 65 means that the teacher’s total employer-funded retirement benefit is still significantly smaller than what the public sector comparators provide. The generous early retirement provisions under the California state and — especially — local public sector pension designs are no longer a significant factor for age 62 retirements. The federal pension includes a 10% increase for retirement at age 62 with 20 years of service, which more than replaces the value of the temporary supplement that is no longer available.

Figure 6C
Retirement at Age 62

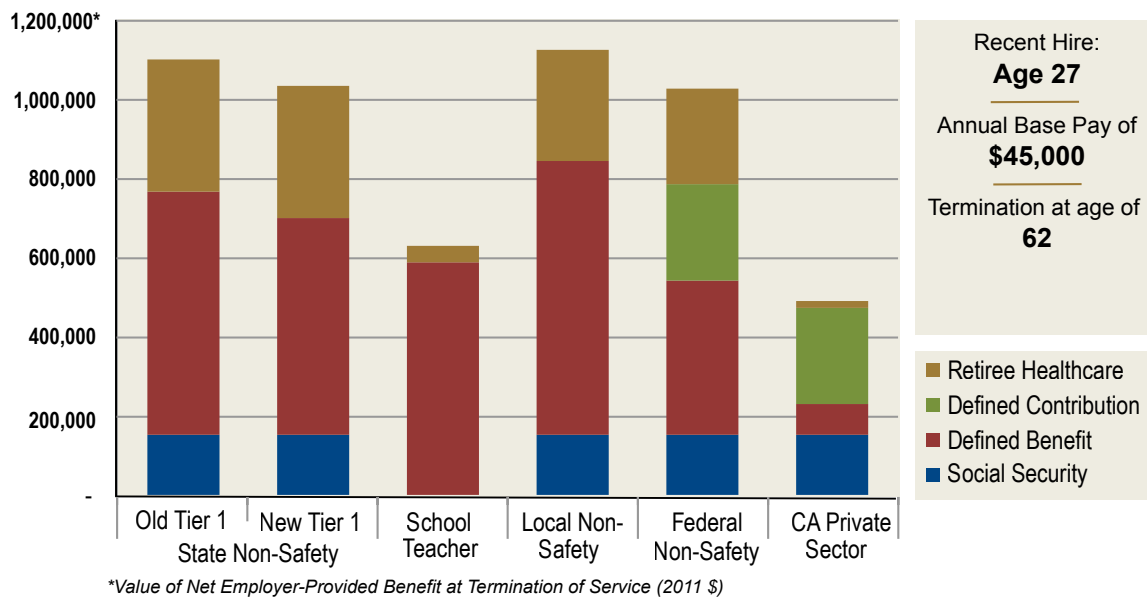
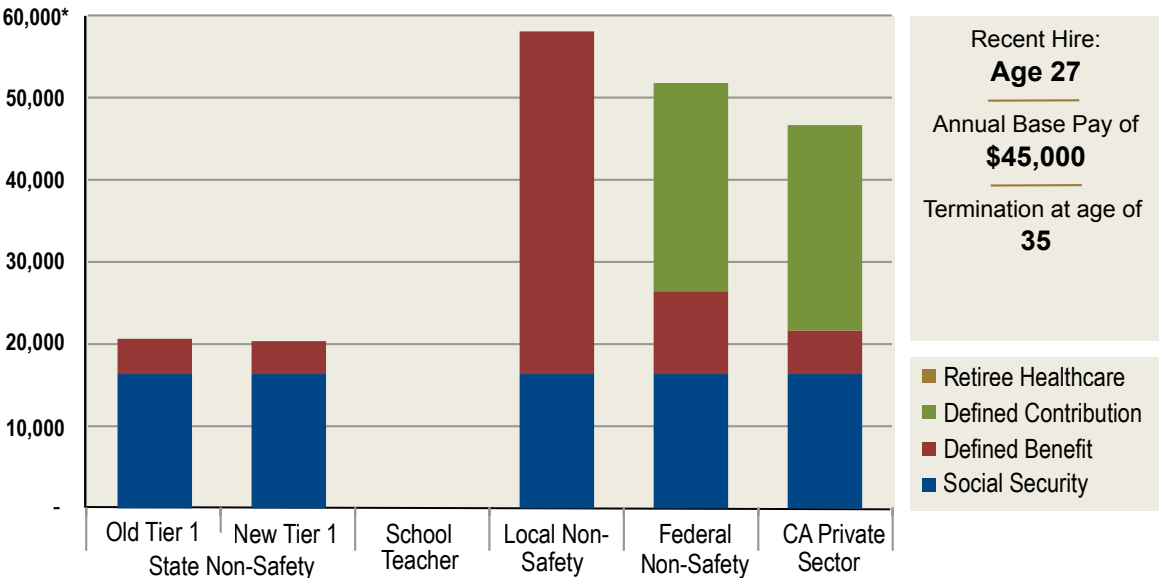


Figure 6D provides comparisons for employees who terminate service at age 35. In all cases, the employee terminates service before eligibility for retiree health benefits. As noted elsewhere in this chapter, the value of pension accruals is low at younger ages, and accelerates rapidly later in an employee’s career; on the other hand, employees contribute the same percentage of pay at all ages. For the state non-safety employee, the member’s own contributions between ages 27 and 35 fund almost all of the pension, leaving only a small employer-provided value; for the teacher, those employee contributions fund *more* than the value of the earned pension, leaving no employer-provided value (despite “vested” status). The exception is the local employee, who benefits from the more generous formulas provided by his or her local agency.

Because their defined contribution accruals are age-neutral, the federal and private sector programs compare favorably to the state and teacher programs in this scenario.

Figure 6D
Termination at Age 35



*Value of Net Employer-Provided Benefit at Termination of Service (2011 \$)

Assumptions for Present Value Calculations

Results in this chapter show employer-provided retirement benefits in terms of their present (lump sum) value at termination of service, expressed in today’s dollars. Comparison via present value puts amounts with different payment terms — pensions, defined contribution balances and retiree health benefits — onto a common basis. It also captures the value of important pension features like cost-of-living adjustments, survivor benefits and temporary supplements.

The Appendix to this chapter contains detailed information on the assumptions used to determine present value. Some of the key assumptions that go into present value calculations are: the discount rate; future price inflation (general); future price inflation (health care); retiree health care cost adjustment; investment return; and salary increases.

Discount Rate. This rate discounts for the time value of money, for the period between termination of employment and each future benefit or premium payment. A rate of 6 percent per year was used. Use of a higher rate would reduce the value of pension and retiree health benefits but leave defined contribution values unaffected, and so would reduce the value of total benefits more sharply for California public sector employees than for others. Use of a lower rate would have the opposite effect.

Actuarial valuations of the California public sector pension plans considered here, which serve to determine current employer costs, use a higher rate: 7.75 percent per year. This reflects expected long-term investment returns. Consistent with guidance from the Government Accounting Standards Board, a lower rate is generally used in determining costs for California's unfunded retiree health benefits: 4.50 percent per year.

This chapter does not attempt to measure benefit *cost*. Ultimately, the cost of a pension or retiree health benefit varies from one employer to another, depending on factors like each employer's prefunding policy and investment policy, and its luck and skill in executing those policies.

Rather, the assumptions here are used to assign a *value* to the benefit. A retiree's pension can be considered to have a current value that is independent of whether future investment results and other events mean that it will ultimately turn out to have cost her employer 5 percent of her career pay or, instead, 15 percent. This value can be approached by considering what she would have to pay to purchase the annuity stream from a private insurer.

The discount rates used by highly-rated insurance companies to price annuities have been 6 percent or less for a number of years. In the current market (March 2011), the rates range from 4.00 percent to 4.50 percent.

Although use of a lower discount rate could be justified based on current conditions, 6 percent was chosen as an appropriate long-term assumption.

Future Price Inflation (General). This assumption is used in modeling the value of future pension and Social Security cost of living adjustments. It is also used to express benefit values as of a future termination of service in current dollars. A rate of 3.25 percent per year was used in this study. A 3.00 percent rate is currently used in actuarial valuations of the California public sector pension plans considered in this chapter, and a 3.50 percent rate is assumed in determining costs for the pension plan covering federal employees.

Future Price Inflation (Health Care). This is a key assumption in modeling the value of retiree healthcare benefits. A rate of 5 percent per year was used. In determining current costs, California assumes an inflation rate that is 9.00 percent for 2012 and gradually reduces to 4.50 percent for 2019 and beyond, except that 4.50 percent is used for all years for dental benefits and Medicare Part B premiums. Use of the exact California assumptions would result in larger retiree health care values.

Retiree Health Care Cost Adjustment. Results in this study reflect the assumption that per capita health care costs for retiree coverage prior to age 65 will exceed the cost that the state assigns to that coverage for member premium purposes by 20 percent. The state-developed health care cost rates reflect blended claims data covering both employees and retirees. Experience shows that average costs for a retiree group are higher than for a group that also includes a large number of employees, due to the increase in health care costs associated with increasing age. Information provided in connection with the actuarial valuation of the State of California Retiree Health Benefits Program indicates that an adjustment larger than 20 percent is supported by claims data for CalPERS members, and was used in generating those valuation results; see the report on the June 30, 2010 valuation prepared by Gabriel Roeder Smith & Company, pages 59-60. Use of a larger adjustment in this study would further increase the value of early retiree health care benefits presented here.

Investment Return. This assumption is used to accumulate the value of employer contributions under defined contribution plans, and employee contributions under pension plans, or where employee prefunding of retiree health benefits is relevant. A rate of 7.25 percent per year was used.

In determining the amount paid upon a refund of accumulated contributions, the California public sector pension plans considered in this chapter credit interest at rates lower than 7.25 percent. But the purpose of the assumption here is to capture the economic sacrifice represented by the employee contribution, rather than potential refund amounts.

Salary Increases. The stated assumptions in the actuarial valuations of the respective California public sector pension plans were used. This means, for example, that a non-safety state or local employee, a CHP employee and a public school teacher with the same current salary have assumed pay levels that differ from one another in past and future years. The assumed increase for a year is generally a function of the employee’s age and service.

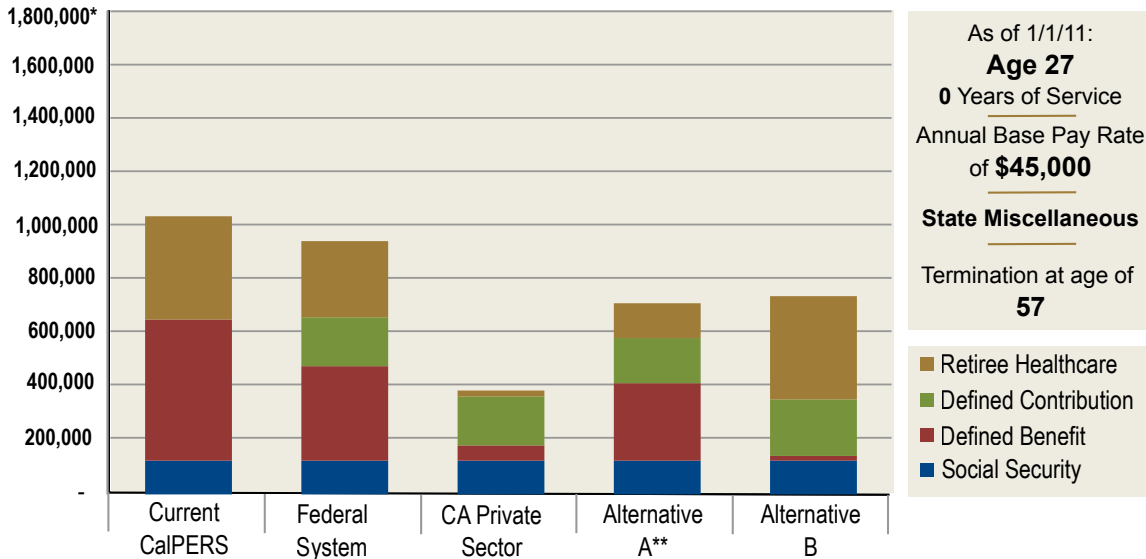
Comparison #2 — CalPERS State Employees

Here we look at retirement benefits for six employees in the CalPERS state miscellaneous (non-safety) pension system, in various career stages and with different income levels and retirement ages. We compare their benefits to those received under the federal system, our private sector group, and to CFFR’s alternatives.

New member hired under 2 percent at age 55 formula

Figure 7A shows the comparisons for a new employee, aged 27, who was hired prior to January, 2011, and thus is covered by the old “2 percent at age 55” formula. This employee works for 30 years before retiring at age 57. The employee is subject to the new 8 percent of pay contribution rate for his whole career, and the 36-month average pay rule that applies to those hired after 2006.

Figure 7A
CalPERS State: Full Career Employee
2 percent at Age 55



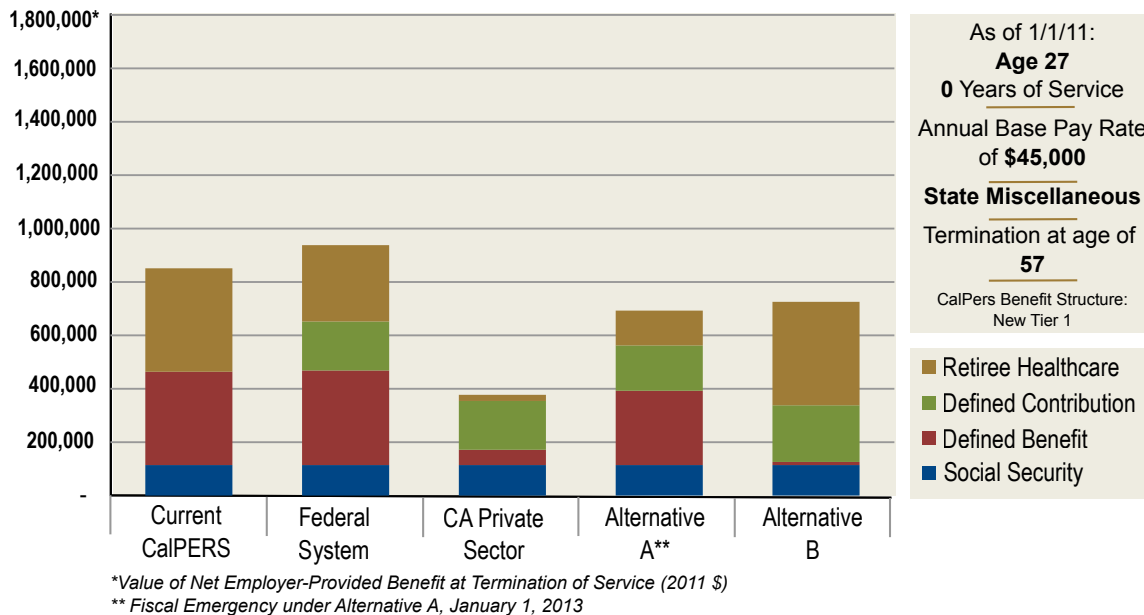
*Value of Net Employer-Provided Benefit at Termination of Service (2011 \$)
 ** Fiscal Emergency under Alternative A, January 1, 2013

- Value of benefits.** For this employee, the value of the employer-funded portion of total CalPERS retirement benefits at termination of service in 30 years will be slightly over \$1 million, expressed in 2011 dollars. About 11 percent reflects the value of one-half (the employer-funded part) of the portion of the expected Social Security benefit attributable to his or her service for the state, 51 percent reflects the employer-funded portion of the CalPERS pension, and the remaining 38 percent reflects the value of state subsidies for lifetime retiree health coverage.
- Comparison to federal system and private sector.** Federal program benefits are only 9 percent less than those under the state program for this scenario. Note, however, that if termination occurs any earlier than age 57 this gap would be far wider: for example, federal benefits are 53 percent less for termination at age 56; this reflects that certain important pension rights under the federal plan are earned all at once upon reaching key age and service thresholds. The total state program benefit is well more than twice as large as the private sector value.
- Impact of CFFR alternatives.** Each of the CFFR’s alternatives would reduce total values under the state program by roughly 30 percent. But that would still leave the employee with a 90 percent advantage over our private sector comparator.
- Other issues.** Compared to the CalPERS state program, all of the systems in the comparison group have more risk sharing between the employer and employee.

New member hired under 2 percent at age 60 formula

Figure 7B provides similar comparisons, except that this employee was hired after 1/14/2011, and thus is subject to the less generous “2 percent at age 60” formula under the new “tier 1” design.

Figure 7B
CalPERS State: Full Career Employee
New Tier 1

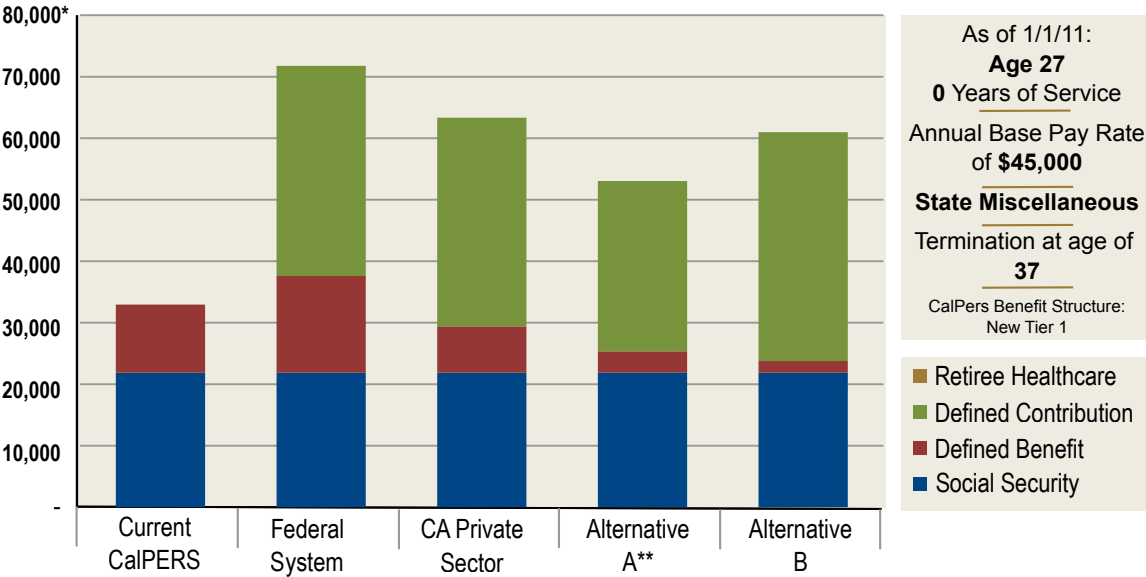


- Value of benefits.** The value of benefits under the state program is about 17 percent less than for the same employee hired right before January 14, 2011.¹¹ For this scenario, the value of the retiree health benefit is almost equal to the value of the pension.
- Comparison to federal system and private sector.** The new tier 1 system provides modestly less benefits than the federal system. Although the CalPERS formula is more generous than the federal system formula, that is largely offset by a higher state-level employee contribution (8 percent of pay, versus less than 1 percent for the federal employee). State program benefits are still more than double the private sector values.
- Impact of CFFR Alternatives.** The CFFR alternatives would reduce this employee’s benefit by about 19 percent in the case of Alternative A and 15 percent in the case of Alternative B.

Young member working 10 years

Figure 7C shows a member who starts at age 27 and works for 10 years before leaving state service.

Figure 7C
CalPERS State: Partial Career Employee



*Value of Net Employer-Provided Benefit at Termination of Service (2011 \$)
** Fiscal Emergency under Alternative A, January 1, 2013

¹¹ Employees hired after January 14, 2011 have an option of a “new tier 1”, shown here, or a “tier 2”, which has a less generous benefit formula but no employee contributions. For the employee in this example, the present value of lifetime employer provided benefits under tier 2 would be modestly lower than under new tier 1 shown in the chart.

- **Value of benefits.** Given the importance of age under pension plans, the shortfall in pension value for an employee who terminates service at a relatively young age like 37 is much greater than the proportional reduction in service years. In addition, the employee is not old enough to earn retiree health care benefits.

Recall that the value of a pension grows very slowly in early years and accelerates rapidly in later years. This pattern is exaggerated in cases where employee contributions are significant. This is the case under the new tier 1 system, where employees contribute 8 percent of pay. This contribution exceeds the value of the entire pension earned during the employee's first few years of service. An employee that terminates at a younger age will have made significant contributions to the system and missed out on rapid accumulation of benefits that occurs in the late stages of a career. Under the tier 2 (not shown), this employee would have earned a larger net pension value despite the less generous formula, as no contributions are required under tier 2.

- **Comparison to federal system and private sector.** This employee would receive larger total benefits under both the federal system and the average private sector plan. This reflects the age-neutral accruals under defined contribution plans.
- **Impact of CFFR Alternatives.** This employee would earn larger benefits under each reform alternative, largely because of the defined contribution features in each plan.

Member in Mid Career

This scenario reflects application of the provisions of Alternative A as of the assumed Fiscal Emergency date (January 1, 2013) and the provisions of Alternative B as of July 1, 2012 to an employee already in mid-career at those times.

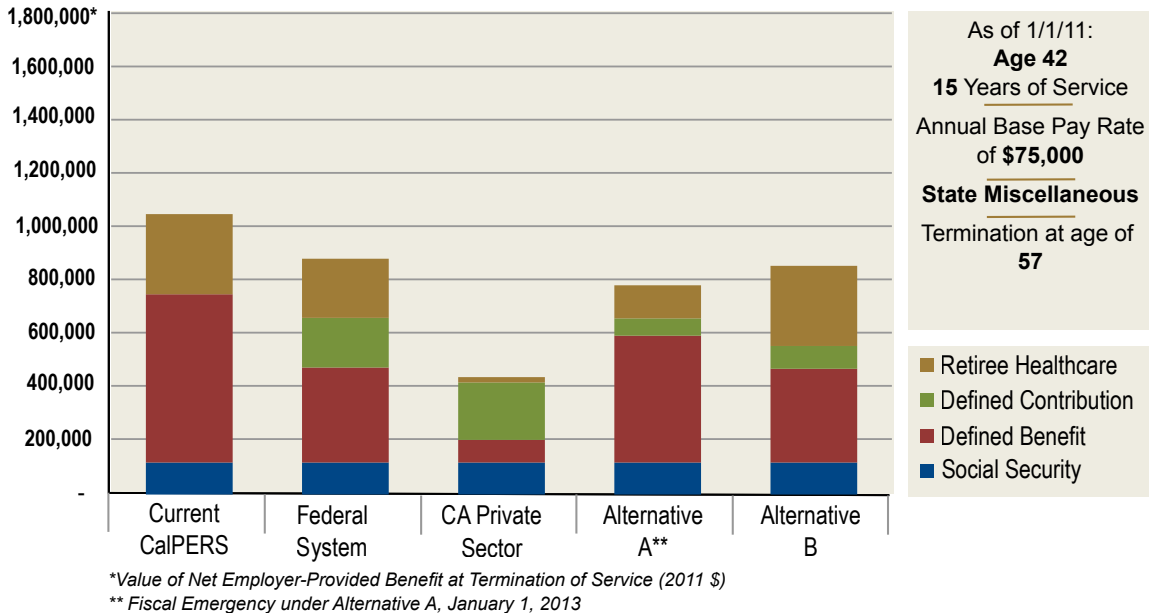
Pension benefits accrued prior to the effective date of the reforms are preserved, and will continue to grow with wage increases. However, benefits earned after that date will accrue more slowly, based on the Alternative A and Alternative B provisions. The pension components for these two alternatives represent a blend of benefits accumulated under the CalPERS Non-Safety employee formula up to the effective dates, and under the alternatives thereafter.

Alternative A health care reforms operate differently than the pension reforms. An employee retiring right after the effective date of the fiscal emergency might pay larger premiums for retiree coverage than if she had retired right before that effective date. Although it is not considered in this report, imposing comparable premium increases for those already retired at the effective date would eliminate this imbalance. As mentioned previously, legal issues raised by the reforms, especially as they apply to current system members, are outside the scope of this study.

The results for the federal system and the California private sector systems remain for reference. They assume that benefits are accrued under these systems for the employee's full career.

Figure 7D shows the impact on a mid-career employee who is now age 42 with 15 years of service and \$75,000 annual income. This employee is assumed to retire at age 57 (the last 13 or 14 years of which would be under the alternative retirement systems).

Figure 7D
CalPERS State: Mid Career Employee

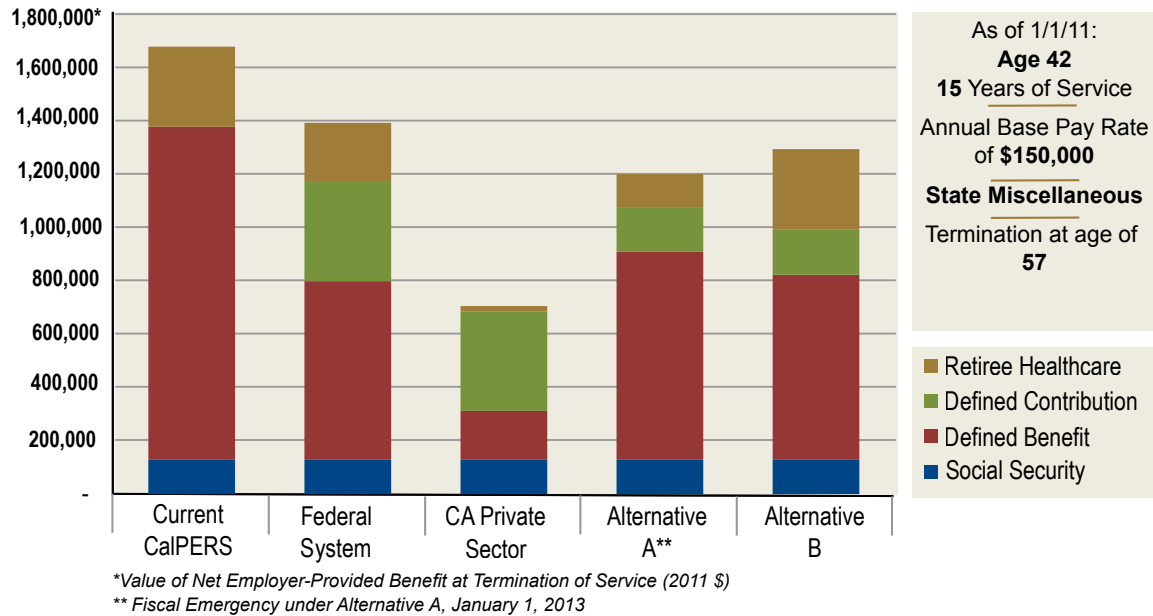


- **Value of benefits.** The total benefit value if current law provisions remain in place would exceed the total federal system value by 19 percent, and would be well more than twice the composite private sector value.
- **Effects of CFFR alternatives applied to future accruals.** Application of Alternative A for the final 13 years of the employee’s career would reduce his benefit value by about 24 percent. Application of Alternative B for the final 13.5 years would result in a somewhat smaller reduction: Alternative B does not attempt to reform retiree health care benefits. The result of these reforms in this case would leave the employee slightly below the federal system value, but still close to double the private sector benefit.

Highly Compensated Member In Mid-Career

This example illustrates the impact of the wage cap included in Alternative A. The employee in this example has the same characteristics as the previous one, except for being more highly compensated, earning \$150,000 per year. Relative results are not much changed. However, compared with the lower-paid employee just considered, more of this employee’s total retirement benefit is delivered via the defined contribution plan, and so Alternative A further reallocates risk to those most able to bear it.

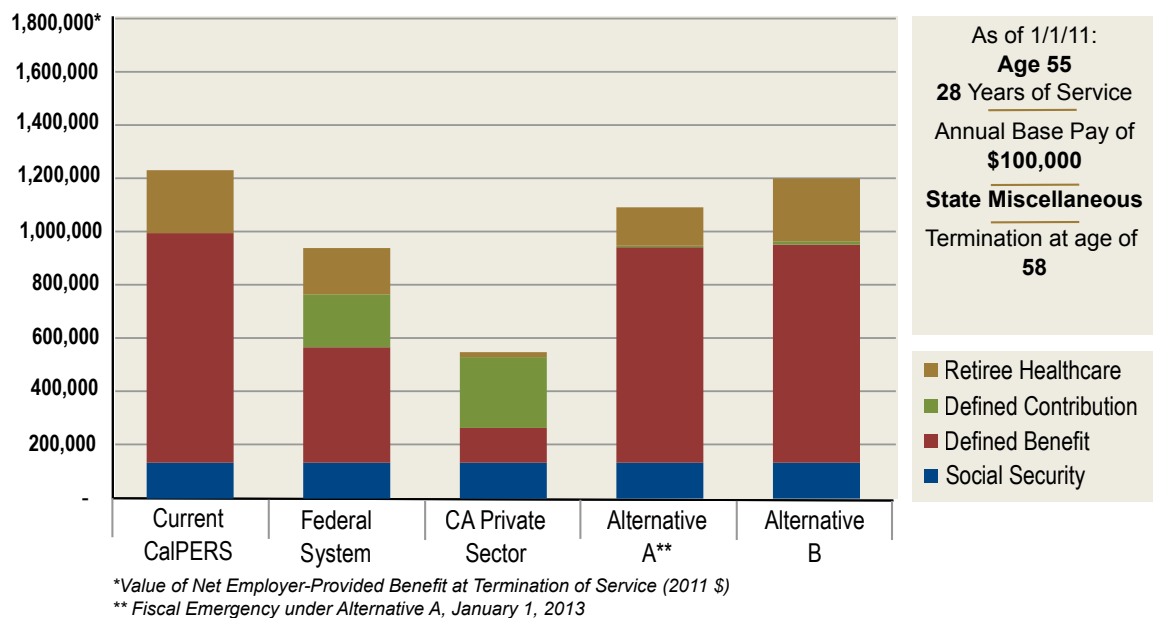
Figure 7E
CalPERS State: Mid-Career Employee
Highly Compensated



Member in Late Career

This final example for state employees shows the impact of the alternative proposals on an employee late in his career. This worker is 55, has 28 years of service as of January 2011, and is retiring in three years at age 58. Since the fiscal emergency is assumed to apply only to service and earnings after January 1, 2013, only the final year of this individual’s pension would be subject to the reduced accrual.

Figure 7F
CalPERS State: Late Career Employee



- **Value of benefits.** The value of net employer-provided retirement benefits under current law exceeds those provided under the federal system by 31 percent, and exceeds those provided under the average private sector plan by 124 percent.

- Impact of CFFR alternatives.** Prospective application of Alternative A would reduce this member’s employer provided retirement benefit by about 11 percent to just under \$1.1 million. The impact on the cash (pension) benefit would be minor, but the employee would lose some retiree health subsidy. The reduction in benefits under Alternative B would be small, as retiree health benefits would be unaffected.

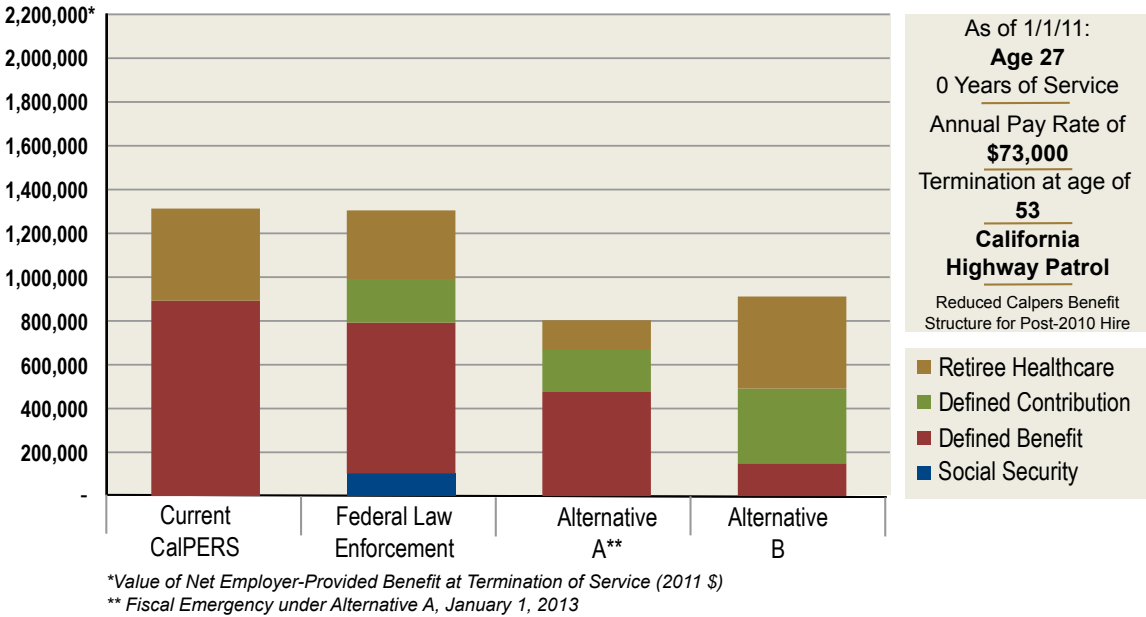
Comparison #3: CalPERS California Highway Patrol Members

This section compares retirement benefits for five representative California Highway Patrol (CHP) members to the amounts that peace officers (including the FBI) would receive under the federal pension system. We also compare benefits under existing law to those earned under the CFFR proposed Alternative A (modified federal system with Social Security replacement) and Alternative B (a defined contribution system with an up to 9-percent employer match and significantly enhanced Social Security replacement). We do not include the private sector group in these comparisons because of the unique circumstances and job requirements applying to peace officers.

New Member—Full Career

Figure 8A shows the comparisons for a new employee, aged 27, who is hired under the new “3 percent at age 55” formula. This employee works for 26 years and retires at age 53.

Figure 8A
CalPERS CHP: Full Career Employee
Post 2010 Hire (3 percent at age 55)



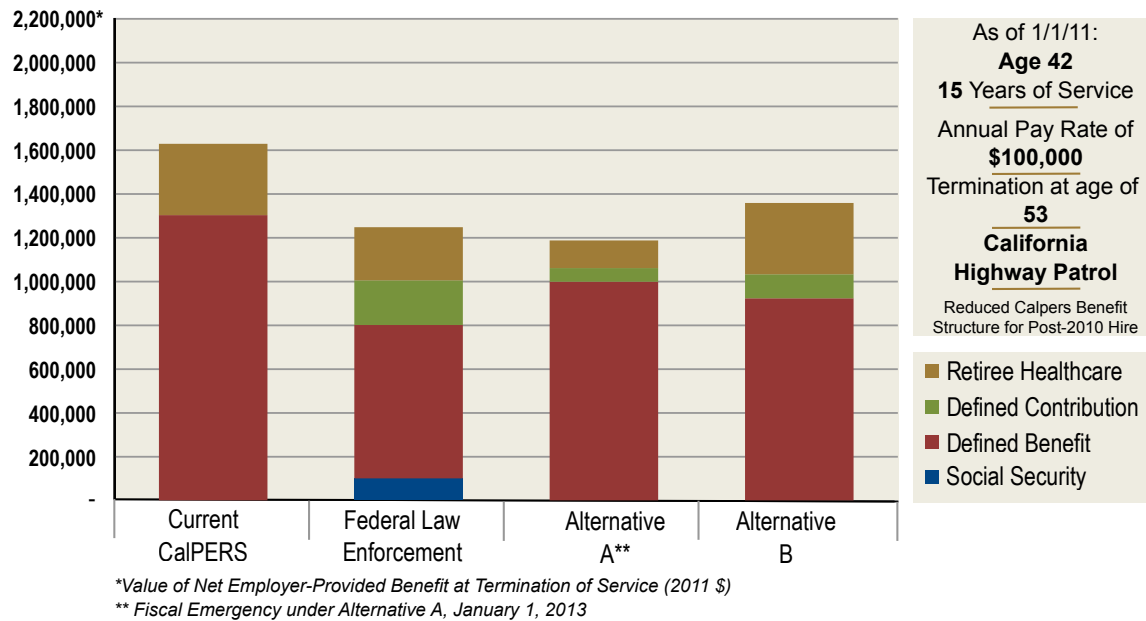
- Current law benefits.** CHP employer-provided benefits are substantial, even after the reduction in pre-age 55 pensions for a new hire like this example, and even though the recent significant increase in employee contribution rates applies throughout his career.
- Comparison to federal system.** The total CalPERS benefit in this scenario is about even with the total benefit provided to a career law enforcement employee under the federal system.
- Effect of CFFR alternatives.** The benefits would be reduced by about 39 percent under CFFR’s Alternative A, and by about 32 percent under CFFR Alternative B. Under Alternative A, most of the reduction results from changes in retiree health care cost-sharing. Under Alternative B the reduction is entirely due to smaller retirement income accruals.

- **Other issues.** Defined contribution benefits play a significant role in the Federal system, as well as the two CFFR alternatives. As noted earlier, unlike pension plans, defined contribution plans leave various risks with the employee.

Member In Mid Career

This scenario involves the impact of prospective application of Alternative A and Alternative B to an existing employee. Figure 8B shows the effect for an age 42 CHP member who has 15 years of service as of January 2011, earns \$100,000 per year, and retires at age 53.

Figure 8B
CalPERS CHP: Mid-Career Employee

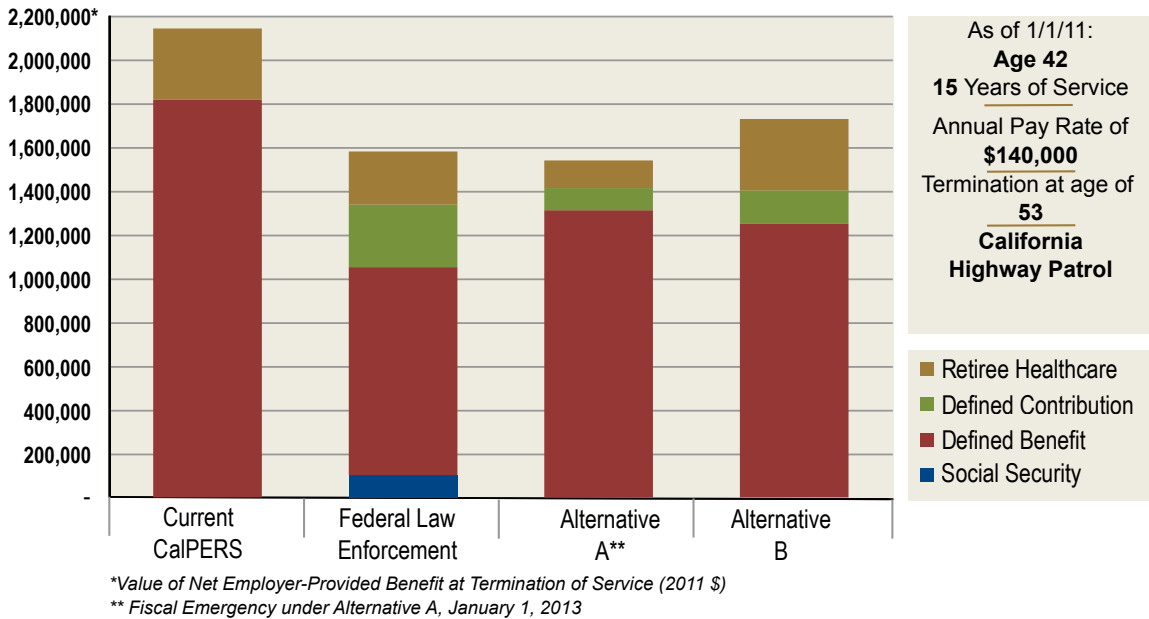


- **Value of benefits.** In this scenario, because the employee was hired before 2011, the full 3 percent factor applies at age 53 retirement. This employee also benefits from having paid lower contributions during the first half of his career (employer pickup of some or all of employee contributions was a common feature of bargaining agreements prior to 2011). As a result of these factors, the employer-provided benefit received by this employee is significantly higher than the federal counterpart.
- **Effect of prospective application of CFFR alternatives.** If a fiscal emergency is declared and retirement accruals after January 1, 2013 are determined under Alternative A, the present value of lifetime retirement benefits would be reduced by about 25 percent. Under prospective application of Alternative B, they would be reduced by 17 percent. Again, this difference in impact relates to the retiree health care reforms included in Alternative A but not Alternative B. The two reform measures would have similar impacts on retirement income benefits (though greater risk would be borne by the employee under Alternative B, given that more of the total benefit would derive from defined contribution amounts).

Highly Paid Mid-Career Employee

This scenario shows the impact of prospective application of Alternative A and Alternative B to a highly compensated member in mid-career. Figure 8C shows the effect for a CHP member age 42 with 15 years of service in 2011, who plans to retire at age 53.

Figure 8C
CalPERS CHP: Highly Paid Mid-Career Employee

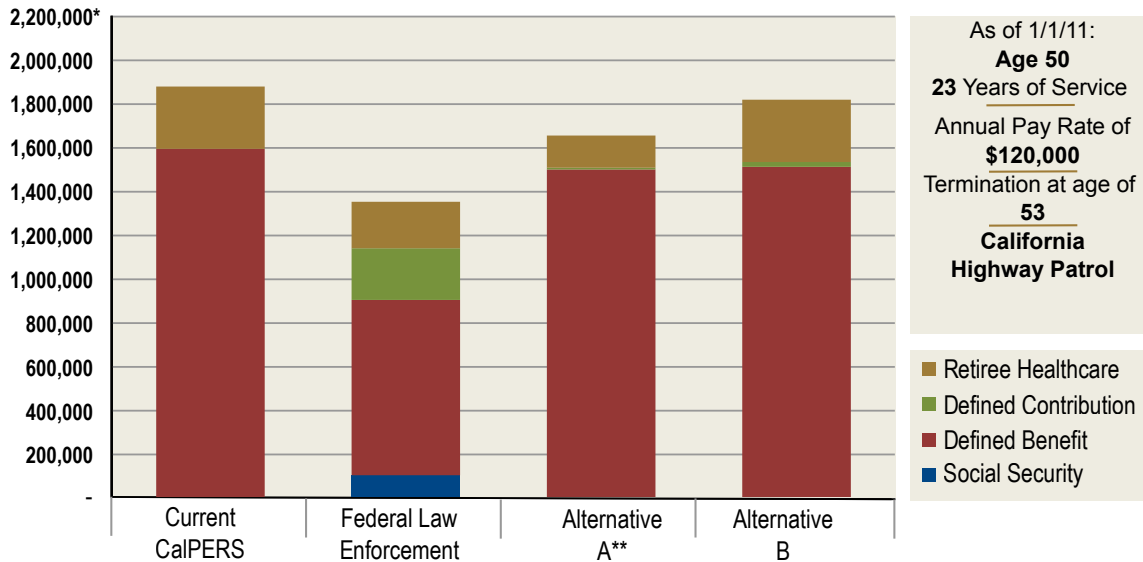


- **Value of benefits.** Under current law, this CHP employee retires with total employer-provided benefits that are over one-third more than his federal counterpart has earned.
- **Effect of CFFR alternatives.** Prospective application of Alternative A would reduce this member’s benefit by about 30 percent, due to the lower accruals under the modified federal system, the operation of the wage cap, and a reduction in the state subsidy for retiree health benefits. The reduction under Alternative B would be 25 percent, due to the lower accrual of cash retirement benefits.

Member in Late Career

This scenario shows the impact of prospective application of Alternative A and Alternative B to an existing employee nearing the end of his career. Figure 8D shows the effect for a CHP member age 50 with 23 years of service in 2011, who retires in 2014 at age 53.

Figure 8D
CalPERS CHP: Late Career Employee



As of 1/1/11:
Age 50
23 Years of Service
 Annual Pay Rate of
\$120,000
 Termination at age of
53
California Highway Patrol

■ Retiree Healthcare
 ■ Defined Contribution
 ■ Defined Benefit
 ■ Social Security

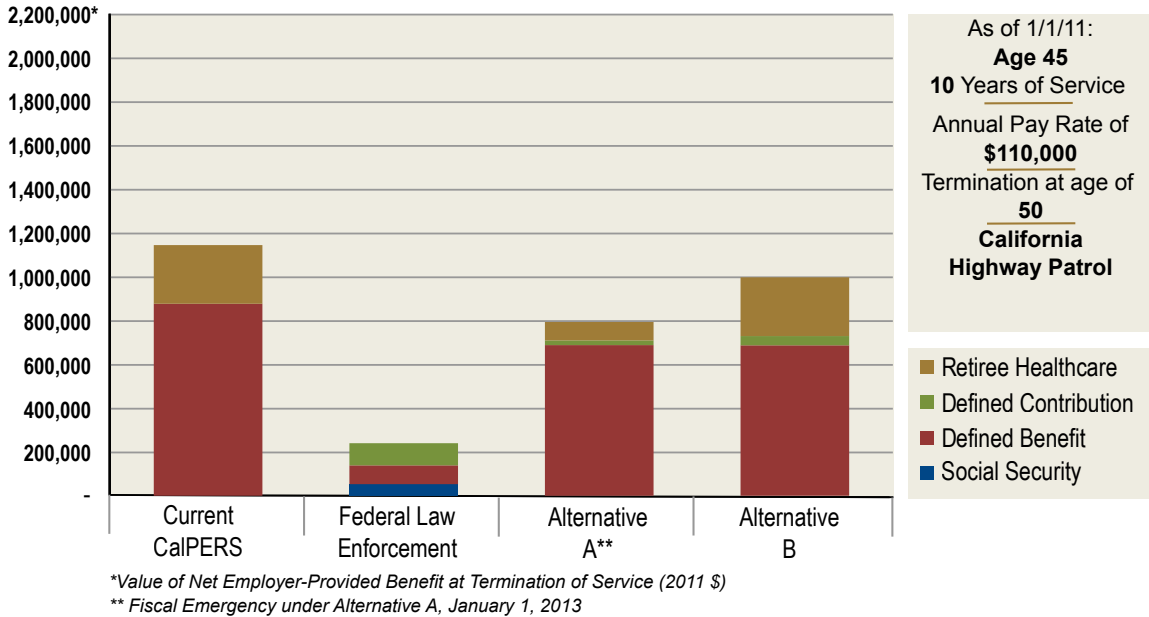
*Value of Net Employer-Provided Benefit at Termination of Service (2011 \$)
 ** Fiscal Emergency under Alternative A, January 1, 2013

- **Value of benefits.** Under current law, this CHP employee retires with total employer-provided benefits that are about 40 percent more valuable than his federal counterpart has earned.
- **Effect of CFFR alternatives.** Prospective application of Alternative A would reduce this member’s benefit by about 12 percent, mostly due to an immediate reduction in the state subsidy for retiree health benefits. However, a portion is attributable to reduced retirement income benefit accrual during his final year of service, given the wage cap under this reform. The reduction under Alternative B would be just 3 percent, as there is no retiree health benefit impact.

Member Separating Before 20 Years

Figure 8E shows comparisons for a mid-career employee who is now age 45 with 10 years of service, has annual pay of \$110,000, and who retires at age 50 with 15 years of service.

Figure 8E
CalPERS CHP: Mid Career Employee Retiring at Age 50



- Value of benefits.** The comparison with federal system benefits becomes dramatic in this scenario. This employee would need to have 20 years of service to qualify for the very significant law enforcement pension enhancements under the federal system (absent termination due to a layoff or similar event), and so receives only the modest benefits pictured here. The CalPERS plan does not have this sort of eligibility cliff.
- Impact of CFFR alternatives.** This member would experience a significant 30-percent benefit decline under Alternative A. Because he does not satisfy the 20-year requirement, his pension accruals under Alternative A are sharply reduced from the CalPERS rates. Changes to retiree medical further impact this employee. Alternative B would reduce the member’s benefits by a more modest 13 percent, given the lack of retiree health benefit impact.
- Caveat.** An employee faced with these circumstances would be highly unlikely to retire voluntarily at age fifty. However the alternative does illustrate the cliff effect in the federal pension program, which is included in Alternative A for accruals after the triggering date. Such an effect would strongly encourage peace officers to remain employed until the eligibility threshold is met (20 years in this case).

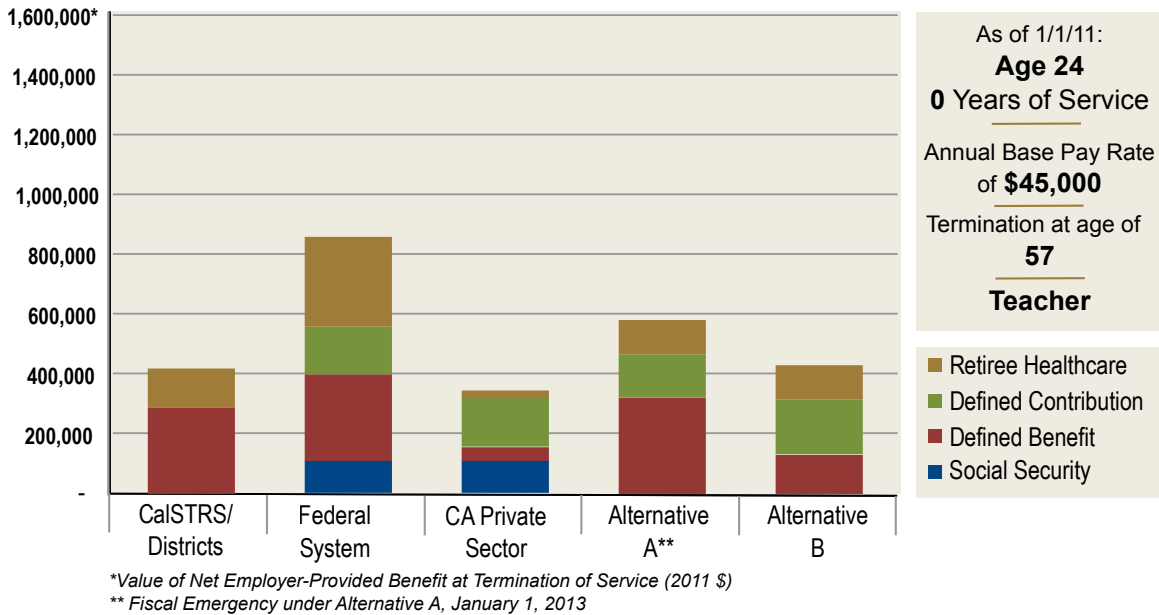
Comparison #4: CalSTRS (Teachers)

This section considers current program retirement benefits for three public school teachers and compares them with those available to federal and private sector employees, and models the impact of the reforms under alternatives A and B. For purposes of these examples, we assume the member is employed by a school district that provides pre-age 65 retiree health benefits with about two-thirds of the explicit employer subsidy that the state provides, and no subsidy after age 65. As applied to teachers, Alternative A is assumed to have no impact on retiree health benefits.

New Member—Full Career

Figure 9A is an example for a new hire, aged 27, who earns \$45,000 and retires at age 57.

Figure 9A
CalSTRS: Full Career Employee

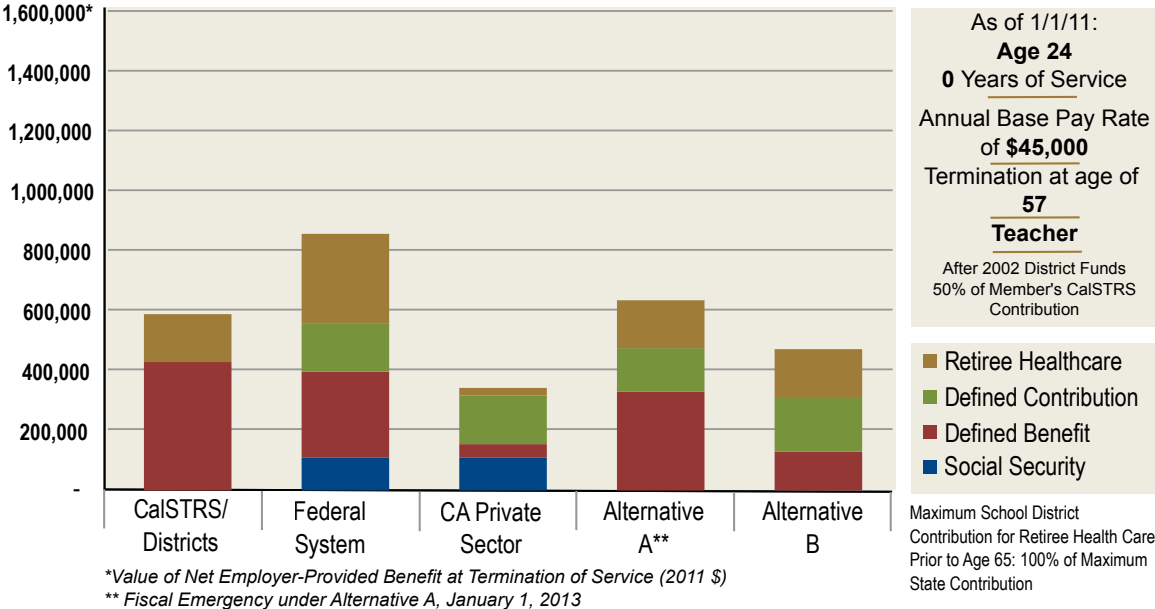


- **Value of benefits.** Unlike the state employee previously considered, this teacher would receive employer provided retirement benefits that are considerably less than would be provided under the federal system, and only marginally greater than private sector benefits.
- **Effect of CFFR alternatives.** The member would receive appreciably larger benefits under Alternative A, which is to be expected given that the federal system provides greater values than the teacher’s current program. There is a smaller increase under Alternative B.

New Member—Full Career In District With Higher Subsidies

School district policies can have a significant impact on the net amount of retirement benefits received by teachers. The employee shown in Figure 9B is identical to the previous one, but is in a district that (1) picks up a half of the required 8-percent employee pension contribution (employer pickup of member contributions has been authorized since 2003, but our understanding is that it is not common) and (2) provides retiree health care subsidies at similar levels to the State (up to age 65). These district policies increase the value of current program benefits by about 40 percent.

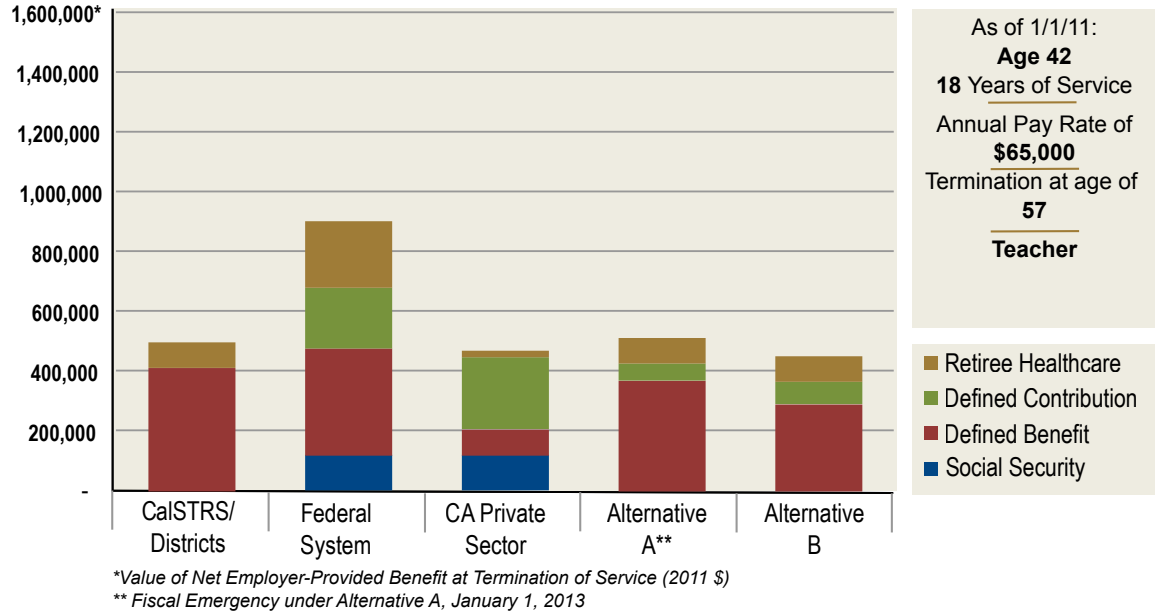
Figure 9B
CalSTRS: Full Career Employee in District With Higher Subsidies



Mid Career Member

Figure 9C looks at the prospective application of the CFFR alternatives to a teacher that is in mid-career: now 42 years old with 18 years of service and annual income of \$65,000, retiring at age 57.

Figure 9C
CalSTRS: Mid Career Employee



This scenario demonstrates that a mid-career teacher is not significantly impacted by the reforms considered here, though they face modestly higher investment risk.

Comparison # 5 – Local Government

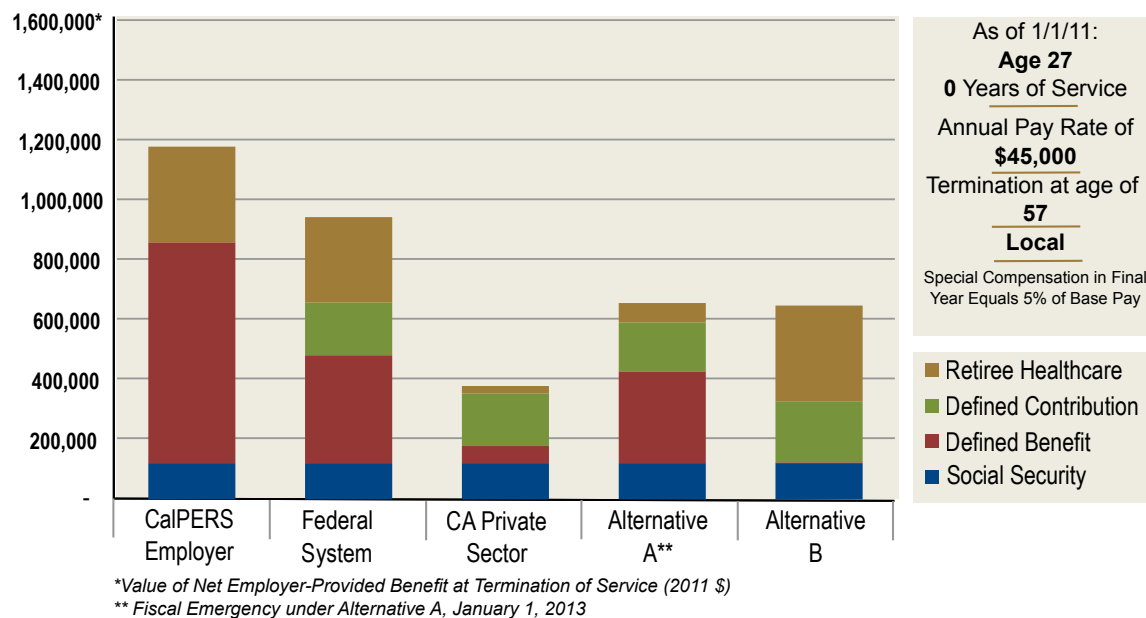
In this set of comparisons, we look at the effects of alternatives on four representative non-safety members employed by a local public sector employer in California (“agency”). The benefit provisions used for modeling purposes were summarized earlier, and are further described in the Appendix to this chapter. Note that the pension formula recognizes certain elements of “special compensation” in the employee’s final year; we assume that the includable special compensation items boost final pay by 5 percent.

Some local employers agree to make some or all of the required employee pension contribution (8 percent of pay for the agency considered here), as a means of increasing the employee’s total compensation. We measure the potential impact of this feature in what follows.

New Member Working Full Career

Figure 10A shows the comparisons for a current hire, aged 27, now earning \$45,000 annually. This employee works for 30 years before retiring at age 57. In this example, the employee funds the required pension contribution from his stated salary.

Figure 10A
CalPERS: Local Contracting Agency
Full Career Employee



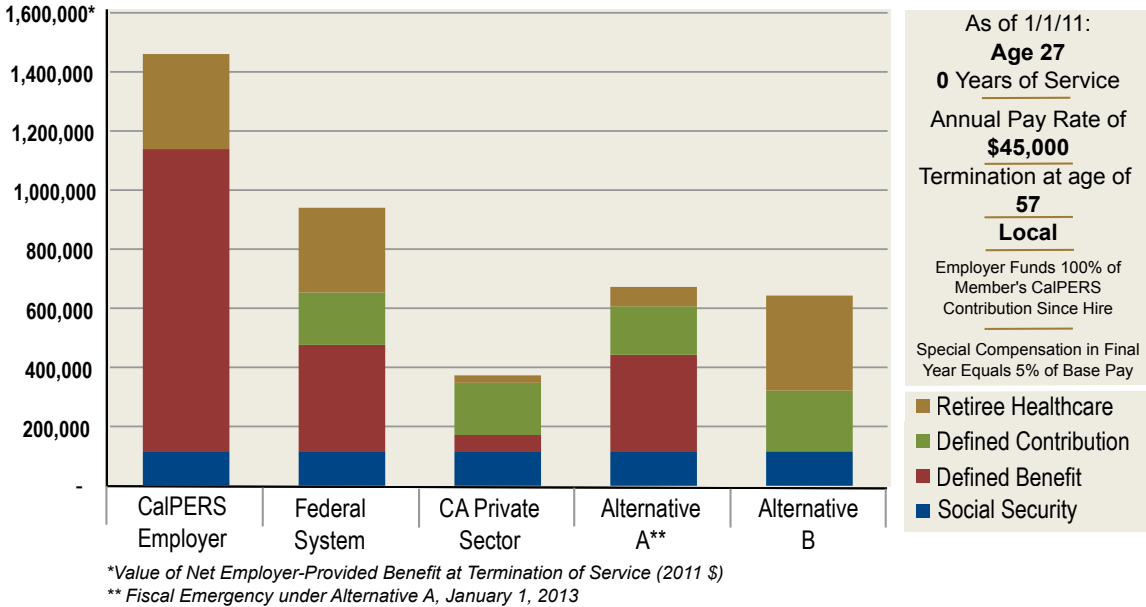
- **Value of benefits.** Values for the current program are clearly larger than those for the federal system and private sector comparators. As we saw in Figure 6B, the value also surpasses benefits earned by the parallel state employee (even if under the richer “2 percent at 55” old tier 1 structure).
- **Effect of the CFFR alternatives.** The CFFR alternatives would each reduce total benefits for this employee by about 45 percent. Both cash (retirement income) and retiree health benefits would be reduced under Alternative A, while all of the reduction in Alternative B would be from reduced cash benefits. (Since alternative B takes effect shortly after this member is hired, virtually all of his cash benefits are earned under the defined contribution plan.)

New Member In Local Agency With Employer Pickup

Some local employers agree to make some or all of the required employee pension contribution (8 percent of pay for the agency considered here), as a means of increasing the employee’s total compensation. This can have a substantial effect on the value of the employer-provided portion of the pension benefit. The employee in Figure 10B is identical in all respects to the employee in the

previous example, except that his local agency funds his entire 8 percent of pay contribution in addition to his stated pay level. (It is assumed that this employer funding is not itself treated as additional retirement-eligible compensation.)

Figure 10B
CalPERS: Local Contracting Agency
Full Career Employee, Employer Picks Up Contributions

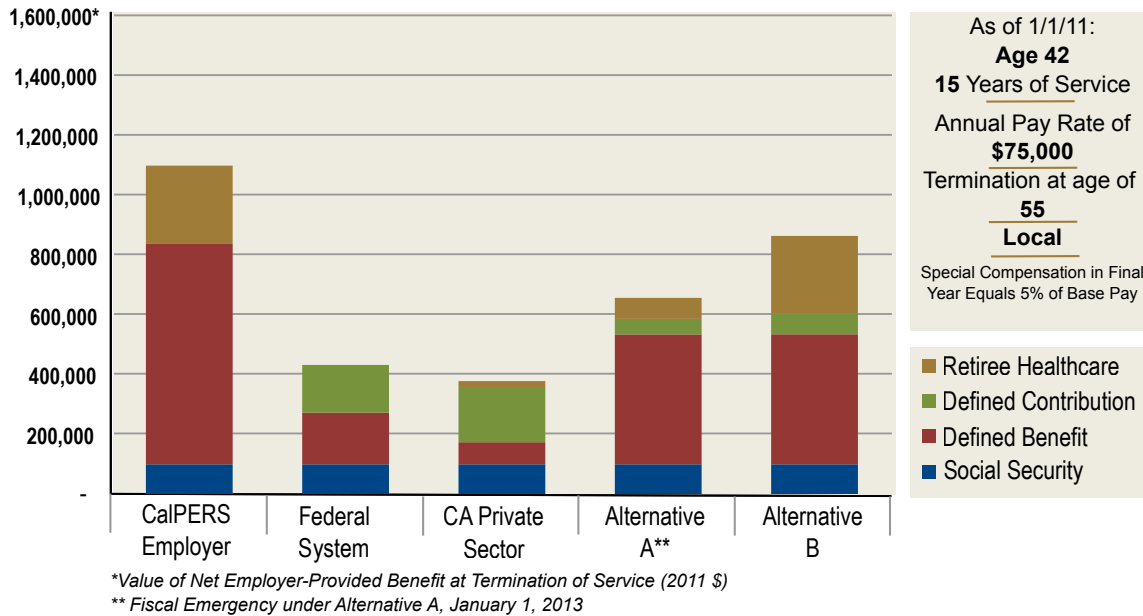


The impact of the employer pick-up in this scenario is a 40 percent increase in the employer-provided pension value, and a 25 percent increase in the total employer-provided value for all benefits combined. The CFFR alternatives would have proportionally greater impacts on this employee, reducing total retirement benefits by over one-half. These reforms do not accommodate employer agreements to pick up a member's required pension contribution.

Mid Career Member

Figure 10C shows the impact on a mid-career employee who is currently age 42 with 15 years of service and who now earns \$75,000 annually. This employee is assumed to retire at age 57 — a little less than half of his career service would take place after the effective dates of the reforms considered here.

Figure 10C
CalPERS: Local Contracting Agency
Mid-Career Employee



- Value of benefits.** In this scenario, current program benefits exceed federal system (as well as private sector) values by a dramatic margin. Here, termination prior to age 57 (absent a layoff, major reorganization or similar event) would mean that the employee would not be entitled to unreduced early payment of his basic pension, the temporary pension supplement or retiree health care benefits under the federal system; so it is unlikely that the federal employee in this scenario would actually terminate two years before age 57. A key message of this scenario is that the federal program provides an employee with less retirement flexibility than the CalPERS design.
- Effects of CFFR alternatives.** Application of Alternative A for the final 13 years of the employee’s career would reduce his benefit by about 40 percent relative to the current system, reflecting both the diminished value of pension accruals based on the federal program (for the 13 years after a Fiscal Emergency is effective) for termination before age 57, and reductions in employer retiree health care subsidies. The reduction under prospective application of Alternative B would be 21 percent. Nevertheless, this employee still fares better under the reform alternatives than under the full federal program or the composite private sector program.

Illustration of “Modest” Pension Spiking

There have been numerous accounts in the news media during recent years of extreme cases of pension spiking at the local level, involving dramatic increases in final compensation due to late-career pay increases and/or conversions of unused paid-leave entitlements. While the extreme cases have been widely reported, it is important to note that even modest increases in final year compensation can have a major impact on the lifetime value of a member’s pension.

Consider a 55 year old employee retiring after a 30-year career under the local agency plan just considered (assuming no employer pick-up of member contributions). Suppose that her final average pay reflects her final year’s base salary rate of \$100,000. Her initial pension under the “Unmodified Allowance” option is then \$6,232/month. Taking into account the time value of money (discount rate), life expectancy, future cost of living adjustments, survivor benefits and other factors, this lifetime pension has a present value of about \$1,333,000. Her own contributions, accumulated with 7.25 percent interest, fund \$376,000 of this total. So the net employer-provided pension value is \$956,000.

What if she is able to boost her final year’s pay for pension purposes by 10 percent? Her initial monthly pension is then 10 percent larger at \$6,865/month, and the lifetime value of the pension also grows by 10 percent, to \$1,468,000. But there is no change to her past contributions: the accumulated value is still approximately \$376,000. The net employer-provided pension value is now \$1,092,000 — an increase of over 14 percent.

Looked at another way, the \$10,000 of actual or imputed earnings that are used to boost her final pay for pension purposes yields \$136,000 in additional pension value.

Conclusion

The numerous scenarios in this chapter show the large disparity in pension benefits received by state and local employees relative to private sector funds, and in most cases relative to federal law with respect to early retirees. The one notable exception concerns teachers, where benefits are only modestly higher than the private sector, and significantly below other California public sector employees. The results also demonstrate the significant value of retiree health care subsidies.

Adoption of proposed alternative A would result in benefits levels that more closely align with the federal system, though it is modestly less generous due to higher employee contribution rates and the cap on pensionable compensation. Compared with benefits if the current programs continue without change, this reform results in retirement benefit reductions in most scenarios we modeled. The one exception is teachers, who would receive similar or larger benefits under the proposal.

Of course, no member would receive smaller pension benefits than already earned up to the effective date of the reform.

Alternative B provides results similar to Alternative A in many of the scenarios. From a cash (retirement income) benefit perspective, Alternative B is relatively more favorable to those leaving at younger ages since (as modeled here) it relies mostly on defined contribution benefits for future accruals. But the major difference between the impact of the two reforms stems from the fact Alternative A includes important changes to retiree health programs, while Alternative B does not address that benefit.

This chapter showed the effects of proposed pension changes on members of existing public sector systems. Chapter 2 will look at the question of total compensation in the public sector versus private sector, and Chapter 3 will model the effects of the CFFR alternatives on public sector employer costs.

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Chapter 1: Appendices

Benefit Provisions Reflected

Only provisions applicable to termination of service other than as a result of death or disability are covered.

State Miscellaneous Employees

Defined Benefit Retirement Plans

CalPERS

These provisions apply to employees of the state of California who are members of SEIU Local 1000 and are covered by Social Security as a result of their employment. Unless electing Tier 2 coverage, Old Tier 1 applies to those hired before January 15, 2011 and New Tier 1 applies to others.

Basic Pension Amount

A monthly pension beginning no earlier than the later of age 50 and the month following termination of service is payable if the employee has at least five years of service and does not receive a refund of accumulated contributions. The basic monthly amount is the product of years of covered service, average pay, and a benefit factor.

- *Service* includes 0.004 years for each day of unused sick or education leave at termination of employment
- *Average pay* is the average of the member's full-time equivalent monthly pay rate during the 12 consecutive months (36 consecutive months if first hired after 2006) over which the average is highest, less \$133.33
- *Benefit factor* depends on age when payments begin:

Age	Old Tier 1	New Tier 1	Tier 2
50	1.100%	1.092%	0.50%
51	1.280%	1.156%	0.55%
52	1.460%	1.224%	0.60%
53	1.640%	1.296%	0.65%
54	1.820%	1.376%	0.70%
55	2.000%	1.460%	0.75%
56	2.064%	1.552%	0.80%
57	2.126%	1.650%	0.85%
58	2.188%	1.758%	0.90%
59	2.250%	1.874%	0.95%
60	2.314%	2.000%	1.00%
61	2.376%	2.134%	1.05%
62	2.438%	2.272%	1.10%
63	2.500%	2.418%	1.15%
64	2.500%	2.418%	1.20%
65 +	2.500%	2.418%	1.25%

Post-Retirement Death Benefits

The basic amount determined above is payable for the retiree’s lifetime, and 25% of that amount continues for the remaining lifetime, if any, of the surviving spouse (or certain other statutory beneficiaries). The retiree can elect to reduce the benefit so as to provide additional survivor protection; conversion factors are significantly more generous for members first hired before July 1, 1982.

In addition, a \$2,000 lump sum is paid upon the retiree’s death.

Cost of Living Increases

- Beginning the second calendar year following pension commencement, payments are increased 2% annually on a compound basis — provided that the cumulative increase does not exceed cumulative price inflation since commencement.
- An additional increase applies each year to the extent necessary to preserve 75% of the pension’s initial purchasing power — provided that the total increase among all members for a year does not exceed 1.1% of accumulated member contributions.

Member Contributions

- *Old Tier 1:* prior to November 2, 2010, 5% of monthly base compensation in excess of \$513; subsequently, 8% of monthly base compensation in excess of \$513
- *New Tier 1:* 8% of monthly base compensation in excess of \$513
- *Tier 2:* Members do not contribute.

Contributions are accumulated with 6% annual interest and are returned where a pension benefit is not payable.

Federal Employees Retirement System (FERS)

These provisions apply to federal employees first hired after 1983, other than firefighters, law enforcement employees and members of certain other special groups.

Basic Pension

A monthly pension beginning no earlier than the later of the *earliest commencement age* and the month following termination of service is payable if the employee has at least five years of service and does not receive a refund of accumulated member contributions.

Earliest commencement age

- A. if the employee has less than ten years of service, age 62
- B. if (1) termination is in connection with a major reorganization, reduction in force or transfer of function (“special circumstances termination”), and (2) either the member has at least 20 years of service and is at least age 50 at termination, or the member has at least 25 years of service regardless of age at termination, any age
- C. otherwise, the Minimum Retirement Age (“MRA”):
 - age 55 for members born before 1948
 - age 55 plus two months for each year that the member was born after 1947, for members born after 1947 and before 1953
 - age 56 for members born after 1952 and before 1965
 - age 56 plus two months for each year that the member was born after 1964, for members born after 1964 and before 1970
 - age 57 for members born after 1969

Prior to adjustment for form of payment, the monthly amount is the product of years of covered service, average pay, a benefit factor and an *early payment factor*.

- Covered service is rounded down to completed months; 50% of unused sick leave hours at termination (100% for terminations after 2013) convert to additional service based on a 2087-hour year.
- Average pay is an average of the member’s basic pay rate over the period of 36 consecutive months producing the highest such average.
- The benefit factor is 1.0% — except that it is instead 1.1% if the member is at least age 62 with at least 20 years of service at termination of employment.

Early payment factor

- Factor is 100% if (i) payments begin on or after age 62, or (ii) payments begin on or after age 60 and the member has at least 20 years of service, or (iii) the member has at least 30 years of service, or (iv) in the case of a special circumstances termination, payments begin on or after age 55 and the member has at least 20 years of service.
- Otherwise the factor is 100% less

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- 1/6 of 1% for each month by which commencement precedes age 55 in the case of a special circumstances termination, or
- 5/12 of 1% for each month by which commencement precedes age 62 in all other cases.

Temporary Supplement

A supplement is payable in addition to the basic pension if the member

- commences his basic pension with no early payment reduction, or
- retires with at least 20 years of service after a special circumstances termination.

Payment of the supplement begins at the later of the time the basic pension commences and the MRA. It ends at age 62, or upon the member's death if earlier.

The supplement is a pro-rated portion of the estimated Social Security benefit earned as of termination of service. For purposes of the estimate, Average Indexed Monthly Earnings are determined as if

- the period of included years equaled years from age 22 through termination of service, less five
- for each included year after hire and prior to termination, covered wages equaled the member's retirement eligible earnings (rather than actual FICA wages)
- the member had no covered wages during or after the year of termination, and
- for each year prior to hire and after age 22, if any, the member had covered wages that progressed to assumed covered wages for the year of hire per past annual increases in national average wages.

The estimated Social Security benefit is otherwise determined as if the member were age 62 at the time supplemental payments begin. The pro-rated portion is 1/40 for each year of FERS service. Payments can be forfeited if certain earnings limitations are exceeded.

Post-Retirement Death Benefits

The amount determined under the basic pension formula is the amount payable for the retiree's life only. In lieu of that the member can elect to receive a reduced basic pension:

- 90% of the formula amount during the retiree's lifetime, with 50% of the formula amount continued for the remaining lifetime, if any, of the designated beneficiary
- 95% of the formula amount during the retiree's lifetime, with 25% of the formula amount continued for the remaining lifetime, if any, of the designated beneficiary.

Cost of Living Increases

No increase is provided prior to age 62. Subsequently the basic pension is increased annually by the lesser of (i) the rate of price inflation and (ii) the greater of (1) 2% and (2) the rate of price inflation less 1%.

Member Contributions

Employee contributes a percentage of base pay equal to the excess of 7.00% over the OASDI percentage (applicable to the employee's base pay up to that year's Social Security taxable wage

base) for the year. This employee contribution rate is 0.80% except as follows: 1.30% for 1987, 0.94% for 1988 and 1989, 1.05% for 1999, and 1.20% for 2000.

Contributions are accumulated with interest and returned to the member where a pension benefit is not payable.

Alternative A

If a Financial Emergency (“FE”) is declared by the State, a member’s pension will generally be the sum of a pension based on CalPERS provisions with respect to service prior to the FE, and a pension based on FERS provisions with respect to service after the FE. The following clarifications or exceptions apply:

- 1) The pension based on CalPERS provisions will reflect the member’s service as of the FE (as if he or she terminated service on that date), the applicable CalPERS benefit factor based on age at future pension commencement, and the larger of
 - average pay under the applicable CalPERS rules, determined as of the FE
 - average pay under FERS rules, determined as of termination of service.

The currently applicable CalPERS cost of living and post-retirement death benefit rules apply to this benefit.

- 2) In determining the benefit based on FERS provisions, only service after the FE (as per FERS rules) is used in computing the basic pension and in the pro-ration used to calculate the temporary supplement.

The basic pension based on FERS provisions reflects a modified version of FERS average pay. Under the modification, average pay is determined after limiting the member’s pay rate for each month before or after the FE to 75% of 1/12 of the Social Security taxable wage base (as determined under the law in effect as of March 31, 2011) for the year in which the month falls.

The FERS cost of living and post-retirement death benefit rules apply to the resulting basic pension.

- 3) Vesting in the pension based on CalPERS provisions is based on service through termination of employment under CalPERS rules.
- 4) Vesting and other service-based eligibility requirements under the FERS provisions — i.e., whether the member satisfies eligibility thresholds based on having 5, 10, 20, 25 or 30 years of service — are based on the member’s service both before and after the FE, determined under FERS rules.
- 5) For the period after the FE, the employee contribution rate equals one-half of the normal cost rate for the benefit in 2., as determined for contribution purposes with respect to this group.

Alternative B

Alternative B places a limit on the amount of employer funding associated with retirement income benefits to be earned after 2011. It does not mandate a particular design under which those benefits accrue.

For purposes of this study, it is assumed that no pension benefits are earned for service after 2011. A member’s pension would be based on:

- service as of December 31, 2011, as if the employee terminated service on that date,

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- average pay under the applicable CalPERS provisions determined as of future termination of service, and
- the applicable CalPERS benefit factor based on age at future pension commencement.

Vesting in that pension is based on service through termination of employment under CalPERS rules. The CalPERS cost of living and post-retirement death benefit rules continue to apply to this benefit. Employee contributions discontinue after 2011.

Defined Contribution Retirement Plans

CalPERS

No employer-funded benefit

FERS

The Thrift Saving Plan (“TSP”) provides the following employer-funded benefits, subject to the limits in Sections 402(g) and 415(c) of the Internal Revenue Code.

- *the account balance based on employer contributions of 1% of the member’s base pay.* This benefit vests after three years of service.
- *the account balance based on employer matching contributions.* The employer matches an employee’s contributions that are not in excess of 3% of base pay on a dollar-per-dollar basis, and matches an employee’s contributions that are in excess of 3% of base pay but not in excess of 5% of base pay on a 50-cent-per-dollar basis. Prior to June 2010, matching contributions were not available prior to completion of one year of service. This benefit is fully vested at all times.

Alternative A

For periods that follow the FE, members earn benefits on the same basis as TSP participants. However, the account balance based on employer contributions of 1% of the member’s base pay vests after five years of service (including service before and after the FE), rather than after three years of service. In addition, the following benefit is provided:

- The account balance based on employer contributions equal to 3% of the excess (if any) of the member’s base salary for the month over 75% of 1/12 of the Social Security taxable wage base for the year in which the month falls. This benefit vests after five years of service (including service before and after the FE).

Alternative B

Members with five or more years of service (including service before and after July 1, 2012) are vested in the account balance based on employer matching contributions. The match equals the member’s own contributions made after June 30, 2012, up to 6% base salary.

Retiree Health Care Benefits

CalPERS

Eligibility: commence CalPERS pension within 120 days of separation from service

Coverage: retiree can elect coverage for self, spouse or certain other qualifying individuals; coverage generally can continue for the individual’s lifetime, provided that any required premiums are paid

Benefits: participation in any of the medical plans available to active employees prior to age 65, and in a Medicare supplement plan thereafter; participation in any of the dental plans available to active employees

Health Plan Rate: assigned monthly cost of participation for a year, determined by pooling experience of active and retired populations

MSC: a monthly dollar amount determined by statute and updated annually; for 2011, the MSC is \$542 for one-party coverage, \$1,030 for two-party coverage and \$1,326 for other coverage

State %:

Date of First Hire	State % (maximum is 100%)
Before 1985	100%
After 1984 but not after January 1, 1989	10% for each year of service
After January 1, 1989	0% if less than ten years of service; otherwise, 50% plus 5% for each year of service in excess of ten years

Retiree Premium: the monthly premium for retiree or dependent for coverage equals

- 1) the excess, if any, of the total of the applicable Health Plan Rates over the product of the State % and the applicable MSC

less
- 2) the lesser of each covered individual’s Medicare Part B premium and the excess, if any, of the product of the State % and the applicable MSC over the total of the applicable Health Plan Rates

FERS

Eligibility: commence FERS pension upon separation from service

Coverage: retiree can elect coverage for self, spouse or certain other qualifying individuals; coverage generally can continue for the individual’s lifetime, provided that any required premiums are paid

Benefits: participation in any of the health plans available to active employees

Health Plan Rate: assigned monthly cost of participation for a year, determined by pooling experience of active and retired populations

Retiree Premium: retirees are charged the same premium for participation in a given health plan as active employees are charged

Alternative A

For those retiring after the FE, in determining retiree premiums for coverage prior to age 65:

- 1) The applicable Health Plan Rate reflects experience only for retirees and their covered dependents.
- 2) The State % is the State % under current rules, reduced by subtracting 5% for each year that pre-65 coverage begins prior to age 62.
For example, a member first hired in 2000 who retires with 18 years of service will have a State % of 90% under current rules; if retiring at age 55 after the FE, the State % with respect to premiums for pre-65 coverage would instead be 55% [= 90% – 35% (= 5% x 7 years (= age 62 – age 55))].

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For those retiring after the FE, in addition to payment of retiree premiums for post-65 coverage, such coverage will be available only for the member (and not for any of the member's dependents), and only if the member makes the required contribution for the minimum period prior to retirement. The required contribution for a month is 50% of the average of the monthly Health Care Rates among available Medicare Supplement plans for the year in which the month falls. The minimum period is the lesser of ten years and the entire period from FE until termination of service.

Alternative B

No provision

California Highway Patrol Employees

Defined Benefit Retirement Plans

CalPERS

Basic Pension Amount

California Highway Patrol officers are not covered under Social Security as a result of their employment.

A monthly pension beginning no earlier than the later of age 50 and the month following termination of service is payable if the member has at least five years of service and does not receive a refund of accumulated contributions. The basic monthly amount equals average pay times the lesser of (i) 90% and (ii) the product of years of covered service and the benefit factor.

- *average pay* is the average of the member's full-time equivalent monthly pay rate during the 12 consecutive months (36 consecutive months if first hired after 2010) over which the average is highest
- *service* includes 0.004 years for each day of unused sick leave at termination of employment
- *benefit factor* is 3% — reduced, if first hired after 2010, by 0.12% for each year by which payments commence before age 55

Post-Retirement Death Benefits

The basic amount determined above is paid for the retiree's lifetime, and 50% of it continues for the remaining lifetime, if any, of the surviving spouse (or certain other statutory beneficiaries). The retiree can elect to reduce the benefit to provide additional survivor protection. In addition, a \$2,000 lump sum is paid upon the retiree's death.

Cost of Living Increases

- Beginning the second calendar year following pension commencement, payments are increased 2% annually on a compound basis — provided that the cumulative increase does not exceed cumulative price inflation since commencement.
- An additional increase applies each year to the extent necessary to preserve 75% of the pension's initial purchasing power — provided that the total increase among all members for a year does not exceed 1.1% of accumulated member contributions.

Member Contributions

The member is assumed to contribute, or to have contributed in the past, a percentage of monthly base compensation in excess of \$863:

- prior to July 1, 1995: 2.6%
- from July 1, 1995 through June 30, 2007: 0.0%
- from July 1, 2007 through June 30, 2008: 2.0%
- from July 1, 2008 through June 30, 2009: 4.0%
- from July 1, 2009 through June 30, 2010: 6.0%
- after June 30, 2010: 10.0%

Contributions are accumulated with 6% annual interest and are returned where a pension benefit is not payable.

Federal Employees Retirement System (FERS) for Law Enforcement Employees

These provisions apply to federal law enforcement employees first hired after 1983.

These employees participate in Social Security. They are generally subject to mandatory retirement at the later of age 57 and completion of 20 years of service.

A qualifying law enforcement employee (“QLEO”) is at least age 50 with 20 years of service at termination, or has at least 25 years of service regardless of age.

Basic Pension

A monthly pension beginning no earlier than the later of the *earliest commencement age* and the month following termination of service is payable if the member has at least five years of service and does not receive a refund of accumulated member contributions

Earliest commencement age

- A. if the member has less than ten years of service, age 62
- B. if the member is a QLEO, any age
- C. otherwise, the Minimum Retirement Age (“MRA”):
 - age 55 for members born before 1948
 - age 55 plus two months for each year that the member was born after 1947, for members born after 1947 and before 1953
 - age 56 for members born after 1952 and before 1965
 - age 56 plus two months for each year that the member was born after 1964, for members born after 1964 and before 1970
 - age 57 for members born after 1969

Prior to adjustment for form of payment, the basic monthly amount is the product of average pay, a benefit factor and an early payment factor.

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- Average pay is an average of the member's basic pay rate over the period of 36 consecutive months producing the highest such average.
- The benefit factor is 1% times years of covered service plus, if the member is a QLEO, 0.7% times 20 years of covered service (i.e., an additional 14%). Covered service is rounded down to completed months; 50% of unused sick leave hours at termination (100% for terminations after 2013) convert to additional service based on a 2087-hour year.
- Early payment factor:
 - The factor is 100% if the member is a QLEO.
 - Otherwise it is 100% less 5/12 of 1% for each month by which commencement precedes age 62.

Temporary Supplement

A supplement is payable in addition to the basic pension if the member is a QLEO who commences his basic pension immediately after termination.

Payment of the supplement begins immediately and ends at age 62, or upon the member's death if earlier.

The supplement is a pro-rated portion of the estimated Social Security benefit earned as of termination of service. For purposes of the estimate, Average Indexed Monthly Earnings are determined as if

- the period of included years equaled years from age 22 through termination of service, less five
- for each included year after hire and prior to termination, covered wages equaled the member's retirement eligible earnings (rather than actual FICA wages)
- the member has no covered wages during or after the year of termination, and
- for each year prior to hire and after age 22, if any, the member had covered wages that progressed to assumed covered wages for the year of hire per past annual increases in national average wages.

The estimated Social Security benefit is determined as if the member were age 62 at termination. The pro-rated portion is 1/40 for each year of FERS service. Payments can be forfeited if certain earnings limitations are exceeded after the MRA.

Post-Retirement Death Benefits

The amount determined under the basic pension formula is the amount payable for the retiree's life only. In lieu of that the member can elect to receive a reduced basic pension:

- 90% of the formula amount during the retiree's lifetime, with 50% of the formula amount continued for the remaining lifetime, if any, of the designated beneficiary
- 95% of the formula amount during the retiree's lifetime, with 25% of the formula amount continued for the remaining lifetime, if any, of the designated beneficiary.

Post-Retirement Cost of Living Increases

If the member is a QLEO, increases apply both before and after age 62; otherwise they do not apply prior to age 62. Increases apply to the basic pension only (not to the temporary supplement). The annual increase is the lesser of (i) the rate of price inflation and (ii) the greater of (1) 2% and (2) the rate of price inflation less 1%.

Member Contributions

Employee contributes a percentage of base pay equal to the excess of 7.50% over the OASDI percentage (applicable to the employee's base pay up to that year's Social Security taxable wage base) for the year. This employee contribution rate is 1.30% except as follows: 1.80% for 1987, 1.44% for 1988 and 1989, 1.55% for 1999, and 1.70% for 2000.

Contributions are accumulated with interest and returned to the member where a pension benefit is not payable.

Alternative A

If a Financial Emergency ("FE") is declared by the State, a member's pension will generally be the sum of a pension based on CalPERS provisions with respect to service prior to the effective date of the FE, and a pension based on FERS provisions with respect to service after that effective date. The following clarifications or exceptions apply:

- The pension based on CalPERS provisions will reflect the member's service as of the FE (as if he or she terminated service on that date), the applicable CalPERS benefit factor based on age at future pension commencement, and the larger of
 - average pay under the applicable CalPERS rules, determined as of the FE effective date
 - average pay under FERS rules, determined as of termination of service.

The currently applicable CalPERS cost of living and post-retirement death benefit rules apply to this benefit.

- In determining the benefit based on FERS provisions, only service after the FE effective date (as per FERS rules) is used in computing the basic pension and in the pro-ration used to calculate the temporary supplement. For purposes of the additional 0.7% benefit factor per each of the first 20 covered years of benefit service applicable to a member meeting the QLEO age and service requirements, only the excess, if any, of 20 years over the member's service as of the FE effective date under CalPERS provisions is reflected.

The basic pension based on FERS provisions reflects a modified version of FERS average pay. Under the modification, average pay is determined after limiting the member's pay rate for each month before or after the FE effective date to 75% of 1/12 of the Social Security taxable wage base (as determined under the law in effect as of March 31, 2011) for the year in which the month falls.

The FERS cost of living and post-retirement death benefit rules apply to the resulting basic pension.

- Vesting in the pension based on CalPERS provisions is based on service through termination of employment under CalPERS rules.
- Vesting and other service-based eligibility requirements under the FERS provisions — i.e., whether the member satisfies eligibility thresholds based on having 5, 10, 20 or 25

years of service — are based on the member’s service both before and after the FE, determined under FERS rules.

- For the period after the FE effective date, the employee contribution rate equals one-half of the normal cost rate for the FERS-related benefit, as determined for contribution purposes with respect to this group.
- An additional pension benefit is provided whose value equals one-half (i.e., the employer-funded portion) of the value of the Social Security benefit that the member would become entitled to at age 62 or later termination if he or she had always been covered by Social Security, to the extent attributable to service after the FE effective date. For purposes of this study, this value was deemed to equal the value of the employer-funded Social Security benefit earned by the Federal employee and attributable to his or her FERS service, times the ratio of the CHP Officer’s post-FE effective date service to his or her total service. It is expected that, as actually implemented, this benefit would be based on alternative (simpler) provisions that provide a comparable value.

Alternative B

Alternative B generally places a limit on the amount of employer funding associated with retirement income benefits to be earned after July 1, 2012, but does not mandate a particular design under which those benefits accrue.

For purposes of this study, it is assumed that for an employee terminating service after June 30, 2012, pension benefits equal the sum of A and B below.

A. A pension based on:

- service as of June 30, 2012 based on CalPERS provisions, as if the employee had terminated service on that date
- average pay under the applicable CalPERS provisions determined as of future termination of service, and
- the applicable CalPERS benefit factor based on age at future pension commencement.

Vesting in this pension is based on service through termination of employment, determined under CalPERS rules. The CalPERS cost of living and post-retirement death benefit rules continue to apply to this benefit.

Employee contributions with respect to this benefit discontinue after June 30, 2012.

- #### B. A pension whose value is comparable to the value of the following: a monthly benefit equal to a pro-rated portion of the estimated Social Security Primary Insurance Amount that the member would have earned as of termination of employment with the State had he or she been covered by Social Security since age 22, commencing at the later of age 57 and termination of service and payable for the member’s life only, and subject to the same annual cost of living increase as Social Security benefits then in payment status. The pro-rated portion equals service after June 30, 2012 (as determined based on CalPERS provisions), limited to no more than 35 years, divided by 35 years. The estimated Primary Insurance Amount is determined as the amount first payable at the later of age 62 and termination of service, without applying an early payment reduction and without projecting changes to the bend points in effect for the year the member terminates service. Average Indexed Monthly Earnings are determined as if

- the period of included years equaled years from age 22 through the earlier of age 62 and termination of service, less five
- for each included year after hire and prior to termination, covered wages equaled the member's base earnings
- the member has no covered wages during or after the year of termination with the State, and
- for each year prior to hire and after age 22, if any, the member had covered wages that progressed to assumed covered wages for the year of hire per past annual increases in national average wages.

Effective July 1, 2012, members contribute one-half of the normal cost associated with this benefit, as determined under methods and assumptions consistent with those applicable to private sector pension plans.

Defined Contribution Retirement Plans

CalPERS

No employer-funded benefit

FERS

See the benefit summary for State Miscellaneous employees.

Alternative A

For periods that follow the FE, members earn benefits on the same basis as TSP participants. However, the account balance based on employer contributions of 1% of the member's base pay vests after five years of service (including service before and after the FE), rather than after three years of service. In addition, the following benefit is provided:

- The account balance based on employer contributions equal to 4% of the excess (if any) of the member's base salary for the month over 75% of 1/12 of the Social Security taxable wage base for the year in which the month falls. This benefit vests after five years of service (including service before and after the FE).

Alternative B

Members with five or more years of service (including service before and after July 1, 2012) are vested in the account balance based on employer matching contributions. The match equals the member's own contributions made after June 30, 2012, up to 9% base salary.

Retiree Health Care Benefits

CalPERS

Eligibility: commence CalPERS pension within 120 days of separation from service

Coverage: retiree can elect coverage for self, spouse or certain other qualifying individuals; coverage generally can continue for the individual's lifetime, provided that any required premiums are paid

Benefits: participation in any of the medical plans available to active employees prior to age 65, and in a Medicare supplement plan thereafter; participation in any of the dental plans available to active employees

Health Plan Rate: assigned monthly cost of participation for a year, determined by CalPERS by pooling experience of active and retired populations

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MSC: a monthly dollar amount determined by statute and updated annually; for 2011, the MSC is \$542 for one-party coverage, \$1,030 for two-party coverage and \$1,326 for other coverage

State %:

Date of First Hire	State % (maximum is 100%)
<i>Before 1985</i>	<i>100%</i>
<i>After 1984 but not after January 1, 1989</i>	<i>10% for each year of service</i>
<i>After January 1, 1989</i>	<i>0% if less than ten years of service; otherwise, 50% plus 5% for each year of service in excess of ten years</i>

Retiree Premium: the monthly premium for retiree or dependent for coverage equals

- 1) the excess, if any, of the total of the applicable Health Plan Rates over the product of the State % and the applicable MSC
less
- 2) the lesser of each covered individual's Medicare Part B premium and the excess, if any, of the product of the State % and the applicable MSC over the total of the applicable Health Plan Rates

Employee Contributions: Beginning in July 2009, contributions to pre-fund retiree medical benefits for California Highway Patrol officers began to be placed in an irrevocable trust. These contributions were suspended in mid-2010, and are scheduled to resume in the future. Because these contributions are either funded directly by the State, or via foregone salary increases (rather than via reduction to the stated salary level used in the modeling undertaken here), the value of employer-provided retiree health benefits was determined without regard to the projected value of pre-funding contributions.

FERS

See the benefit summary for State Miscellaneous employees.

Alternative A

See the benefit summary for State Miscellaneous employees.

Alternative B

No provision.

Teachers

Defined Benefit Retirement Plans

CalSTRS

These provisions apply to full-time teachers under the Defined Benefit Program. Their employment does not give rise to participation in Social Security.

Service

Service is granted for the period for which the member makes contributions. Additional service is granted equal to the ratio of unused sick leave days at termination of employment to the number of days (excluding school and legal holidays) in the most recent school year. The member can also purchase additional service periods. Primary eligibility service equals service, excluding purchased service amounts and service derived from unused sick leave. Secondary eligibility service equals primary eligibility service, plus up to 0.2 years derived from unused sick leave.

Basic Pension Amount

A monthly pension beginning no earlier than the later of age 55 (age 50 if the member has at least 30 years of service) and the month following termination of service is payable if the employee has at least five years of primary eligibility service and does not receive a refund of accumulated contributions. The basic monthly amount is (i) the product of years of service, average pay, and an adjusted benefit factor, plus (ii) if the member had at least 30 years of secondary eligibility service before 2011, a longevity bonus.

- *average pay.* Average pay is the average of the member’s full-time equivalent monthly pay rate during the period of 36 consecutive months over which the average is highest. The period is instead 12 consecutive months if the member has at least 25 years of secondary eligibility service. The period is also 12 consecutive months for certain classroom teachers, if so provided under the applicable collective bargaining agreement; for purposes of this study, no such bargaining provision is assumed.
- *adjusted benefit factor.* The adjusted benefit factor is the lesser of (i) the factor from the following table (based on age when payments begin) plus, if the member has at least 30 years of secondary eligibility service, 0.2%, and (ii) 2.4%.

Age	Factor	Age	Factor
50	1.100%	57	1.640%
51	1.160%	58	1.760%
52	1.220%	59	1.880%
53	1.280%	60	2.000%
54	1.340%	61	2.133%
55	1.400%	62	2.267%
56	1.520%	63 +	2.400%

- *longevity bonus.* The bonus is the lesser of (i) \$200 plus \$100 for each year by which total secondary eligibility service exceeds of 30 years, and (ii) \$400.

Post-Retirement Death Benefits

The monthly amount determined above is payable for the retiree’s lifetime only. The retiree can elect to reduce the benefit so as to provide survivor protection. In addition to the pension, a \$6,163 lump sum is paid upon the retiree’s death.

Post-Retirement Increases

- As of each September 1 following the first anniversary of pension commencement, payments are increased by 2% of the initial pension amount, without regard to the rate of price inflation, if any.
- Each year an additional increase applies to the pension (other than the portion, if any, based on a longevity bonus) to the extent necessary to preserve 85% of the initial purchasing power — provided that adequate funds are available within the State School Lands Bank Fund and the Supplemental Benefit Maintenance Account.

Member Contributions

Effective January 1, 2011, members contribute 8% of creditable compensation. They contributed 6% of creditable compensation during the period after 2000 and before 2011, and 8% of creditable compensation prior to that. School districts may pay all or a portion of the contribution on the member's behalf, either as a device for reducing the portion of the member's compensation that is currently taxable, or (since 2003) as a means of also increasing the member's total (non-retirement eligible) compensation.

Contributions are accumulated with interest and are returned where a pension benefit is not payable. Currently, the interest crediting rate for this purpose approximates the yield on two-year Treasury notes.

Federal Employees Retirement System (FERS)

See the benefit summary for State Miscellaneous employees.

Alternative A

If a Financial Emergency ("FE") is declared by the State, a member's pension will generally be the sum of a pension based on CalSTRS provisions with respect to service prior to the FE, and a pension based on FERS provisions with respect to service after the FE. The following clarifications or exceptions apply:

- The pension based on CalSTRS provisions will reflect the member's service as of the FE (as if he or she terminated service on that date), the applicable CalSTRS adjusted benefit factor based on age at future pension commencement, and the larger of
 - average pay under the applicable CalSTRS rules, determined as of the FE
 - average pay under FERS rules, determined as of termination of service.

The currently applicable CalSTRS post-retirement death benefit and post-retirement benefit increase rules apply to this benefit.

- In determining the benefit based on FERS provisions, only service after the FE (as per FERS rules) is used in computing the basic pension and in the pro-ration used to calculate the temporary supplement.

The basic pension based on FERS provisions reflects a modified version of FERS average pay. Under the modification, average pay is determined after limiting the member's pay rate for each month before or after the FE to 75% of 1/12 of the Social Security taxable wage base (as determined under the law in effect as of March 31, 2011) for the year in which the month falls.

The FERS cost of living and post-retirement death benefit rules apply to the resulting basic pension.

- Vesting and other service-based eligibility requirements with respect to the benefit based on CalSTRS provisions — i.e., whether the member satisfies eligibility thresholds based on having 5, 25 or 30 years of service — are based on the member’s service both before and after the FE, determined under CalSTRS rules.
- Vesting and other service-based eligibility requirements with respect to the benefit based on Fers provisions — i.e., whether the member satisfies eligibility thresholds based on having 5, 10, 20, 25 or 30 years of service — are based on the member’s service both before and after the FE, determined under FERS rules.
- For the period after the FE, the employee contribution rate equals one-half of the normal cost rate for the benefit based on Fers provisions, as determined for contribution purposes with respect to this group.
- An additional pension benefit is provided whose value equals one-half (i.e., the employer-funded portion) of the value of the Social Security benefit that the member would become entitled to at age 62 or later termination if he or she had always been covered by Social Security, to the extent attributable to service after the FE effective date. For purposes of this study, this value was deemed to equal the value of the employer-funded Social Security benefit earned by the Federal employee and attributable to his or her FERS service, times the ratio of the educator’s post-FE effective date service to his or her total service. It is expected that, as actually implemented, this benefit would be based on alternative (simpler) provisions that provide a comparable value.

Alternative B

Alternative B places a limit on the amount of employer funding associated with retirement income benefits to be earned after July 1, 2012. It does not mandate a particular design under which those benefits accrue.

For purposes of this study, it is assumed that for an employee terminating service after June 30, 2012, pension benefits equal the sum of A and B below.

A. A pension based on:

- service as of June 30, 2012 based on CalSTRS provisions, as if the employee had terminated service on that date
- average pay under the applicable CalSTRS provisions determined as of future termination of service, and
- the applicable CalSTRS benefit factor based on age at future pension commencement.

Vesting in this pension is based on service through termination of employment, determined under CalSTRS rules. The currently applicable CalSTRS post-retirement death benefit and post-retirement benefit increase rules apply to this benefit. Employee contributions with respect to this benefit discontinue after June 30, 2012.

- B. A pension whose value is comparable to the value of the following: a monthly benefit equal to a pro-rated portion of the estimated Social Security Primary Insurance Amount that the member would have earned as of termination of employment with the State had he or she been covered by Social Security since age 22, commencing at the later of age 62 and termination of service and payable for the member’s life only, and subject to the same annual cost of living increase

as Social Security benefits then in payment status. The pro-rated portion equals service after June 30, 2012 (as determined based on CalPERS provisions), limited to no more than 35 years, divided by 35 years. The estimated Primary Insurance Amount is determined as the amount first payable at the later of age 62 and termination of service, without projecting changes to the bend points in effect for the year the member terminates service. Average Indexed Monthly Earnings are determined as if

- the period of included years equaled years from age 22 through the earlier of age 62 and termination of service, less five
- for each included year after hire and prior to termination, covered wages equaled the member's base earnings
- the member has no covered wages during or after the year of termination with the State, and
- for each year prior to hire and after age 22, if any, the member had covered wages that progressed to assumed covered wages for the year of hire per past annual increases in national average wages.

Effective July 1, 2012, members contribute one-half of the normal cost associated with this benefit, as determined under methods and assumptions consistent with those applicable to private sector pension plans.

Defined Contribution Retirement Plans

CalSTRS

No employer-funded benefit

FERS

See the benefit summary for State Miscellaneous employees.

Alternative A

See the benefit summary for State Miscellaneous employees.

Alternative B

See the benefit summary for State Miscellaneous employees.

Retiree Health Care Benefits

CalSTRS

Except for payment of Medicare Part A premiums in certain cases, no benefit is provided by CalSTRS. Employer-subsidized retiree health care benefits are provided by certain school districts. The eligibility, cost-sharing and benefit provisions of these arrangements differ significantly from district to district.

For purposes of this study it is assumed that the member's district provides retiree health care benefits prior to age 65 under eligibility and cost-sharing rules that are comparable to those provided to State Miscellaneous employees, but with a maximum district contribution equal to two-thirds (unless indicated otherwise) of the maximum state contribution, and with no employer-subsidized benefits after age 65. See the benefit summary for State Miscellaneous employees for information on pre-age 65 retiree health care benefits available to those employees.

FERS

See the benefit summary for State Miscellaneous employees.

Alternative A

No provision

Alternative B

No provision

Local Non-Safety Employees

Retirement plans provided by local governmental units in California — counties, municipalities, agencies — vary from entity to entity. Some contract with CalPERS to provide retirement benefits based on design choices within a limited menu of options authorized by statute. The contracting-in design summarized here is neither the most nor the least generous available. It is assumed to apply to miscellaneous (e.g., non-safety) employees who participate in Social Security as a result of their employment. Only provisions applicable to termination of service other than as a result of death or disability are covered.

Defined Benefit Retirement Plans**CalPERS****Basic Pension Amount**

A monthly pension beginning no earlier than the later of age 50 and the month following termination of service is payable if the employee has at least five years of service and does not receive a refund of accumulated contributions. The basic monthly amount is the product of years of covered service, average pay, and a benefit factor.

- *service* includes 0.004 years for each day of unused sick leave at termination of employment
- *average pay* is the average of the member's full-time equivalent monthly pay rate and certain items of special compensation during the 12 consecutive months over which the average is highest, less \$133.33
- *benefit factor* is 2.5%, less 0.1% for each year payments begin before age 55

Post-Retirement Death Benefits

The basic amount determined above is payable for the retiree's lifetime, and 25% of that amount continues for the remaining lifetime, if any, of the surviving spouse (or certain other statutory beneficiaries). The retiree can elect to reduce the benefit so as to provide additional survivor protection.

Cost of Living Increase

- Beginning the second calendar year following pension commencement, payments are increased 2% annually on a compound basis — provided that the cumulative increase does not exceed cumulative price inflation since commencement.
- An additional increase applies each year to the extent necessary to preserve 80% of the pension's initial purchasing power.

Member Contributions

Members contribute 8% of eligible compensation. Employers may pay all or a portion of the contribution on the member’s behalf, either as a device for reducing the portion of the member’s compensation that is currently taxable, or as a means of also increasing the member’s total (non-retirement eligible) compensation. Contributions are accumulated with 6% annual interest and are returned where a pension is not payable.

Federal Employees Retirement System (FERS)

See the benefit summary for State Miscellaneous employees.

Alternative A

See the benefit summary for State Miscellaneous employees.

Alternative B

See the benefit summary for State Miscellaneous employees.

Defined Contribution Retirement Plans

CalSTRS

No employer-funded benefit

FERS

See the benefit summary for State Miscellaneous employees.

Alternative A

See the benefit summary for State Miscellaneous employees.

Alternative B

See the benefit summary for State Miscellaneous employees.

Retiree Health Care Benefits

Current

Like other retirement benefits, the level of employer-subsidy for retiree health care varies significantly among local governmental entities. For purposes of this study it is assumed that the member’s employer provides retiree health care benefits under eligibility and cost-sharing rules comparable to those provided for State Miscellaneous retirees, but with a maximum employer contribution equal to 75% of the maximum state contribution. See the benefit summary for State Miscellaneous employees for information on retiree health care benefits available to those employees.

FERS

See the benefit summary for State Miscellaneous employees.

Alternative A

No provision

Alternative B

No provision

Method and Assumptions

The results show the present value of net employer-provided retirement benefits as of future termination of service, expressed in 2011 dollars. Accumulated employee contributions and retiree premium payments toward funding the benefit are subtracted to arrive at the net employer-provided value, and amounts separately contributed by the employee (for example, to attract employer matching contributions) are not included. The net value as of future termination of service is expressed in 2011 dollars by discounting for projected price inflation.

Sample Employee

Results for each scenario indicate the employee's age, years of service and annual base pay rate as of January 1, 2011, and age as of termination of service. Unless explicitly indicated otherwise, it is assumed that termination is not in connection with a major reorganization, reduction in force or transfer of function ("special circumstances"), increasing FERS-based benefits.

State Miscellaneous Employees

Unless indicated otherwise, the employee is assumed to have been hired prior to January 15, 2011.

General

- annual discount rate: 6%
- mortality: for the period after payment commencement, the static healthy annuitant mortality rates, by gender, mandated for use by large private sector employers in determining required contributions to tax-qualified pension plans for years beginning in 2011, as per Internal Revenue Service Notice 2008-85; no mortality prior to commencement
- annual base pay increases: per the rates applicable to State Miscellaneous Tier 1 & Tier 2 members summarized on page A-4 of the report on the June 30, 2009 CalPERS State and Schools Actuarial Valuation (rates not shown derived by linear interpolation/extrapolation), with increases effective as of each January 1
- retirement eligible non-base pay, where relevant: 10% of base pay
- employee gender: male
- future annual price inflation: 3.25%
- continuity of service: participant entered plans at earliest eligibility after hire and was employed in a covered position on a full-time basis until termination
- value of employer contributions under defined contribution plans and employee contributions under defined benefit plans: accumulated to termination with 7.25%/year interest from assumed semi-monthly deposit
- Alternative A: Fiscal Emergency as of January 1, 2013
- Alternative B: treated as if effective January 1, 2012 rather than July 1, 2012

Pension

- *time of benefit payment or benefit commencement*: the earliest eligible date following termination of service (Chevron employee first hired before 2008: not earlier than age 50)
- *marital status*: married to spouse of same age

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- *elected form of payment:*
 - CalPERS: Option 2W, spouse is designated beneficiary
 - FERS-based: joint & 5/9 survivorship annuity, spouse is designated beneficiary
 - Chevron employee first hired before 2008: single life annuity
 - all others: lump sum
- *future annual increases in national average wages:* 3.50%
- *annualized rate of return on 30-year Treasuries (Safeway):* 4.25%
- *Social Security wages:* 112% of base pay; for each year prior to hire and after age 22, if any, employee is assumed to have covered wages that progressed to covered wages for year of hire in keeping with past annual increases in national average wages; for each year after termination and prior to age 62, if any, employee is assumed to have covered wages that progress from covered wages for final year prior to termination in accordance with assumed future annual increases in national average wages
- *Social Security benefit:* the amount payable for the member's life, assuming that the spouse is entitled to an equal benefit based on his or her own covered wage history
- *employer-provided portion of Social Security benefit:* 50% times the ratio (not in excess of 100%) of years of service with the employer to 35 years
- *limit on CalPERS Purchasing Power Protection Allowance:* the annual limit based on 1.1% of accumulated member contributions is assumed not to apply
- *unused sick leave at termination of employment:* three days per year of service
- *CalPERS program elections:*
 - four years after enrolling in the Alternate Retirement Program, employee did or will transfer Program funds to CalPERS
 - employees subject to Tier 2 provisions did or will convert to Tier 1
 - purchase of additional CalPERS service credits: none
 - gross normal cost rate for post-FE Alternative A accruals, for purposes of "employees pay half" member contributions: 6% of base pay
 - earnings limitation with respect to FERS temporary supplement: assumed not to apply

Defined Contribution and Retiree Health Benefits

- *matching contribution arrangements:* employee always contributes the amount necessary to attract the maximum employer matching contribution
- *pre-retirement withdrawals:* none
- *retiree health benefits:*
 - whenever eligible, medical, prescription drug and dental coverage for retiree will be elected, and continue until death; value of retiree-only coverage increased by 65% to reflect expected incidence of coverage of retiree's spouse or other eligible dependents
 - employee will make contribution required for post-65 coverage during the initial period following a Fiscal Emergency, for up to ten years (Alternative A)
 - after 2011, all measures tied to health care cost will increase by 5%/year
 - under CalPERS, the total of the applicable medical and dental plan rates will equal 100% of the MSC for coverage prior to age 65, and 67% of the MSC thereafter

- the Federal retiree will elect the Blue Cross and Blue Shield Service Benefit Plan (Standard) for pre-65 health coverage (rate = \$578.61/month and member premium = \$187.18/month for one-party coverage in 2011), and the Blue Cross and Blue Shield Service Benefit Plan (Basic) for post-65 health coverage (rate = \$453.48/month and member premium = \$113.37/month for one-party coverage in 2011)
- retiree claims cost will be 120% of the health plan rate where the coverage is primary and the rate is based on blended active and retired population experience, and 100% of the rate otherwise
- Medicare Part B premium is the amount without increase due to income in excess of threshold, or due to payment other than via Social Security withholding

California Highway Patrol Employees

General

- annual discount rate: 6%
- mortality: for the period after payment commencement, the static healthy annuitant mortality rates, by gender, mandated for use by large private sector employers in determining required contributions to tax-qualified pension plans for plan years beginning in 2011, as per Internal Revenue Service Notice 2008-85; no mortality prior to commencement
- *annual base pay increases*: per the rates applicable to CHP members summarized on page A-5 of the report on the June 30, 2009 CalPERS State and Schools Actuarial Valuation (rates not shown derived by linear interpolation/extrapolation), with increases effective annually as of each January 1
- *employee gender*: male
- *future annual price inflation*: 3.25%
- *continuity of service*: participant entered plans at earliest eligibility after hire and was employed in a covered position on a full-time basis until termination
- *value of employer contributions under defined contribution plans and employee contributions under defined benefit plans*: accumulated to termination with 7.0%/year interest from assumed semi-monthly deposit
- Alternative A: Fiscal Emergency as of January 1, 2013
- *Alternative B*: treated as if effective January 1, 2012 rather than July 1, 2012

Pension

- *time of benefit payment or benefit commencement*: the earliest eligible date following termination of service
- *marital status*: married to spouse of same age
- *elected form of payment, where applicable*: life annuity, with 50% of the amount payable during member's life (50% of the amount payable prior to reduction for joint & survivor form, for FERS-based pension) continuing for surviving spouse's remaining lifetime, if any
- *future annual increases in national average wages*: 3.50%

- *Social Security wages*: 112% of base pay; for each year prior to hire and after age 22, if any, employee is assumed to have covered wages that progressed to covered wages for year of hire in keeping with past annual increases in national average wages; for each year after termination and prior to age 62, if any, employee is assumed to have covered wages that progress from covered wages for final year prior to termination in accordance with assumed future annual increases in national average wages
- *Social Security benefit*: the amount payable for the member's life, assuming that the spouse is entitled to an equal benefit based on his or her own covered wage history
- *employer-provided portion of Social Security benefit*: 50% times the ratio (not in excess of 100%) of years of service with the employer to 35 years
- *limit on CalPERS Purchasing Power Protection Allowance*: the annual limit based on 1.1% of accumulated member contributions is assumed not to apply
- *unused sick and education leave at termination of employment*: three days per year of service
- *purchase of additional CalPERS service credits*: none
- *gross normal cost rate for purposes of future "employees pay half" member contributions*:
 - post-FE FERS-based accruals under Alternative A: 15% of base pay
 - post-2011 accruals under Alternative B (private sector assumptions): 11% of base pay
- earnings limitation with respect to FERS temporary supplement: assumed not to apply

Defined Contribution and Retiree Health Benefits

- *matching contribution arrangements*: employee always contributes the amount necessary to attract the maximum employer matching contribution
- *pre-retirement withdrawals*: none
- *retiree health benefits*:
 - whenever eligible, medical, prescription drug and dental coverage for retiree will be elected, and continue until death; value of retiree-only coverage increased by 65% to reflect expected incidence of coverage of retiree's spouse or other eligible dependents
 - employee will make contribution required for post-65 coverage during the initial period following a Fiscal Emergency, for up to ten years (Alternative A)
 - after 2011, all measures tied to health care cost will increase by 5%/year
 - under CalPERS, the total of the applicable medical and dental plan rates will equal 100% of the MSC for coverage prior to age 65, and 67% of the MSC thereafter
 - the Federal retiree will elect the Blue Cross and Blue Shield Service Benefit Plan (Standard) for pre-65 health coverage (rate = \$578.61/month and member premium = \$187.18/month for one-party coverage in 2011), and the Blue Cross and Blue Shield Service Benefit Plan (Basic) for post-65 health coverage (rate = \$453.48/month and member premium = \$113.37/month for one-party coverage in 2011)
 - retiree claims cost will be 120% of the health plan rate where the coverage is primary and the rate is based on blended active and retired population experience, and 100% of the rate otherwise
 - Medicare Part B premium is the amount without increase due to income in excess of threshold, or due to payment other than via Social Security withholding

Teachers

Unless explicitly indicated otherwise, the following special conditions are assumed not to apply:

- maximum school district contribution for pre-65 retiree health care is other than two-thirds of maximum state contribution
- a specified portion of the member contribution being funded by the employer and not from the member's stated pay rate (but not prior to 2003).

General

- annual discount rate: 6%
- mortality: for the period after payment commencement, the static healthy annuitant mortality rates, by gender, mandated for use by large private sector plans in determining required employer contributions to tax-qualified pension plans for plan years beginning in 2011, as per Internal Revenue Service Notice 2008-85; no mortality prior to commencement
- annual base pay increases: 4%
- retirement-eligible non-base pay, where relevant: 10% of base pay
- employee gender: male
- future annual price inflation: 3.25%
- continuity of service: participant entered plans at earliest eligibility after hire and was employed in a covered position on a full-time basis until termination
- value of employer contributions under defined contribution plans and employee contributions under defined benefit plans: accumulated to termination with 7.25%/year interest from assumed semi-monthly deposit
- Alternative A: Fiscal Emergency effective January 1, 2013
- Alternative B: treated as if effective January 1, 2012 rather than July 1, 2012

Pension

- *time of benefit payment or benefit commencement*: the earliest eligible date following termination of service (Chevron employee first hired before 2008: not earlier than age 50)
- *marital status*: married to spouse of same age
- *elected form of payment*:
 - CalSTRS, FERS-based and Chevron employee first hired before 2008: annuity form providing largest payment during member's life
 - all others: lump sum
- future annual increases in national average wages: 3.50%
- annualized rate of return on 30-year Treasuries (Safeway): 4.25%

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- Social Security wages: 112% of base pay; for each year prior to hire and after age 22, if any, employee is assumed to have covered wages that progressed to covered wages for year of hire in keeping with past annual increases in national average wages; for each year after termination and prior to age 62, if any, employee is assumed to have covered wages that progress from covered wages for final year prior to termination in accordance with assumed future annual increases in national average wages
- Social Security benefit: the amount payable for the member's life, assuming that the spouse is entitled to an equal benefit based on his or her own covered wage history
- employer-provided portion of Social Security benefit: 50% times the ratio (not in excess of 100%) of years of service with the employer to 35 years
- purchase of additional service credits: none
- unused sick leave at termination of employment: four days per year of service
- *days in school year, excluding holidays*: 175 (for purposes of imputed service based on unused sick leave)
- *gross normal cost rate for purposes of "employees pay half" member contributions*:
 - for post-FE Alternative A accruals, 6% of base pay
 - for Alternative B (private sector assumptions), 4% of base pay
- earnings limitation with respect to FERS temporary supplement: assumed not to apply

Defined Contribution and Retiree Health Benefits

- *matching contribution arrangements*: employee always contributes the amount necessary to attract the maximum employer matching contribution
- *pre-retirement withdrawals*: none
- *retiree health benefits*:
 - whenever eligible, medical, prescription drug and dental coverage for retiree will be elected, and continue until death; value of retiree-only coverage increased by 65% to reflect expected incidence of coverage of retiree's spouse or other eligible dependents
 - after 2011, all measures tied to health care cost will increase by 5%/year
 - the Federal retiree will elect the Blue Cross and Blue Shield Service Benefit Plan (Standard) for pre-65 health coverage (rate = \$578.61/month and member premium = \$187.18/month for one-party coverage in 2011), and the Blue Cross and Blue Shield Service Benefit Plan (Basic) for post-65 health coverage (rate = \$453.48/month and member premium = \$113.37/month for one-party coverage in 2011)
 - retiree claims cost will be 120% of the health plan rate where the coverage is primary and the rate is based on blended active and retired population experience, and 100% of the rate otherwise

Local Miscellaneous Employees

Unless explicitly indicated otherwise, it is assumed that member contributions are funded from the employee's stated pay rate..

General

- annual discount rate: 6%

- mortality: for the period after payment commencement, the static healthy annuitant mortality rates, by gender, mandated for use by large private sector plans in determining required employer contributions to tax-qualified pension plans for plan years beginning in 2011, as per Internal Revenue Service Notice 2008-85; no mortality prior to commencement
- annual base pay increases: same as for State Miscellaneous Employees
- retirement-eligible non-base pay, where relevant: 10% of base pay
- employee gender: male
- future annual price inflation: 3.25%
- continuity of service: participant entered plans at earliest eligibility after hire and was employed in a covered position on a full-time basis until termination
- value of employer contributions under defined contribution plans and employee contributions under defined benefit plans: accumulated to termination with 7.25%/year interest from assumed semi-monthly deposit
- *Alternative A*: Fiscal Emergency effective January 1, 2013
- *Alternative B*: treated as if effective January 1, 2012 rather than July 1, 2012

Pension

- *time of benefit payment or benefit commencement*: the earliest eligible date following termination of service (Chevron employee first hired before 2008: not earlier than age 50)
- *marital status*: married to spouse of same age
- *elected form of payment*:
 - CalPERS, FERS-based and Chevron employee first hired before 2008: annuity form providing largest payment during member's life
 - all others: lump sum
- *future annual increases in national average wages*: 3.50%
- *annualized rate of return on 30-year Treasuries (Safeway)*: 4.25%
- *Social Security wages*: 112% of base pay; for each year prior to hire and after age 22, if any, employee is assumed to have covered wages that progressed to covered wages for year of hire in keeping with past annual increases in national average wages; for each year after termination and prior to age 62, if any, employee is assumed to have covered wages that progress from covered wages for final year prior to termination in accordance with assumed future annual increases in national average wages
- *Social Security benefit*: the amount payable for the member's life, assuming that the spouse is entitled to an equal benefit based on his or her own covered wage history
- *employer-provided portion of Social Security benefit*: 50% times the ratio (not in excess of 100%) of years of service with the employer to 35 years
- *purchase of additional service credits*: none
- *gross normal cost rate for post-FE Alternative A accruals, for purposes of "employees pay half" member contributions*: 6% of base pay
- *earnings limitation with respect to FERS temporary supplement*: assumed not to apply

Defined Contribution and Retiree Health Benefits

- *matching contribution arrangements*: employee always contributes the amount necessary to attract the maximum employer matching contribution
- *pre-retirement withdrawals*: none
- *retiree health benefits*:
 - whenever eligible, medical, prescription drug and dental coverage for retiree will be elected, and continue until death; value of retiree-only coverage increased by 65% to reflect expected incidence of coverage of retiree's spouse or other eligible dependents
 - after 2011, all measures tied to health care cost will increase by 5%/year
 - the Federal retiree will elect the Blue Cross and Blue Shield Service Benefit Plan (Standard) for pre-65 health coverage (rate = \$578.61/month and member premium = \$187.18/month for one-party coverage in 2011), and the Blue Cross and Blue Shield Service Benefit Plan (Basic) for post-65 health coverage (rate = \$453.48/month and member premium = \$113.37/month for one-party coverage in 2011)
 - retiree claims cost will be 120% of the health plan rate where the coverage is primary and the rate is based on blended active and retired population experience, and 100% of the rate otherwise

Chapter 2: Compensation

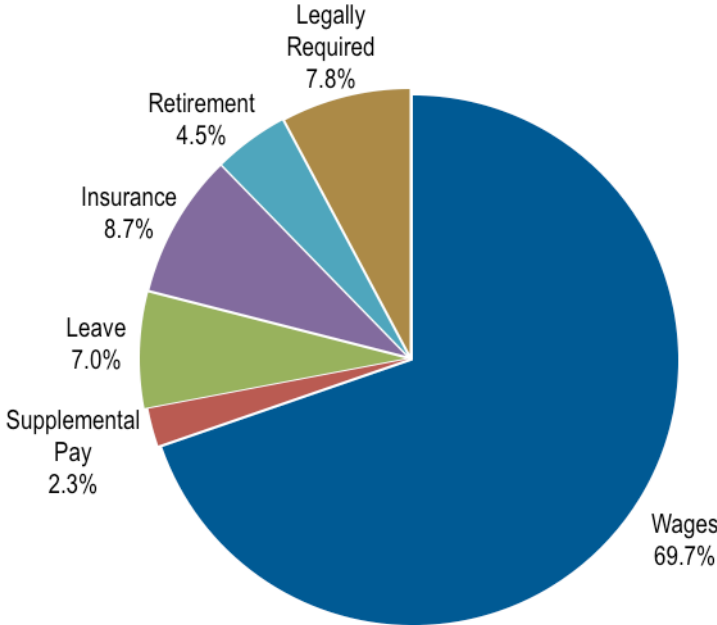
Introduction

In the first chapter of this report we found that pension and retiree health benefits received by state and local government employees are considerably higher than those offered in the private sector. Of course, retirement benefits are only part of the full compensation picture. It is also necessary to consider wages and other benefits in order to make a valid comparison of public sector and private sector compensation. This chapter looks at total compensation, focusing first on wages then on benefits.

Background

As shown in Figure 1, about 70 percent of total compensation for all civilian workers is related to wages and the remaining 30 percent is related to benefits.¹ The benefits include supplemental pay (such as overtime premiums, bonuses, and stock options), paid leave, health insurance, retirement benefits, and “legally required benefits” (such as social security, Medicare, and unemployment insurance). The mix between wage and non-wage compensation is significantly different in the public and private sectors. Non-wage benefits account for 34 percent of total compensation in the state and local government sector, but only 29 percent in the private sector.

Figure 1
Major Components of Compensation
Civilian Employees, 2010



In the subsequent sections of this chapter, we examine the wage and non-wage components in more detail. We first look at wage comparisons by analyzing occupational survey data and recent

¹ Source: Bureau of Labor Statistics. Employer Costs For Employee Compensation (ECEC). <http://www.bls.gov/ncs/ect/>

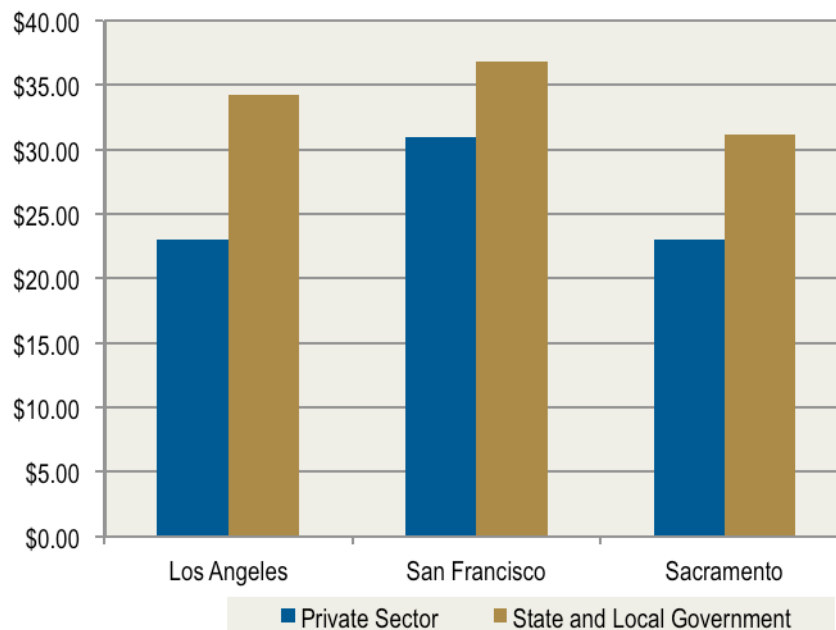
statistical studies. We then turn to a comparison of non-wage benefits offered in the public and private sectors.

The appendix tables at the end of this chapter include detail on occupational wage comparisons as well as summaries of recent studies, surveys, and other resources related to public versus private compensation.

Comparison of Wages

As shown in Figure 2, average hourly wages for all state and government employees exceeds that of private sector employees by 53 percent in the Los Angeles Combined Statistical Area (CSA), 22 percent in the San Francisco-San Jose-Alameda CSA and 35 percent in the greater Sacramento CSA.² However, a more detailed analysis of the data reveals that aggregate wage comparisons provide a misleading picture of comparative wage levels for specific jobs. There is a substantial difference in the composition and level of occupations between the two sectors. In general, workers in the state and local government sector have more education, are more

Figure 2
Average Hourly Earnings – All Occupations
State and Local Government versus Private Sector, 2010



experienced, and are employed in higher skilled jobs when compared to the private sector as a whole. Management, professional, and administrative support occupations account for two-thirds of the state and local government workforce, compared with two-fifths of private industry.³ In

² Source: National Compensation Survey: Bureau of Labor Statistics. <http://www.bls.gov/eci/>. A description of the areas covered by the CSAs is provided in the introduction to Appendix Tables 1 through 3.

³ Source: Employer Costs For Employee Compensation. News Release, Technical Note. BLS. <http://www.bls.gov/news.release/ecec.tn.htm>

2009, about 55 percent of California's state and local government employees had a college degree, compared to about 35 percent of the private sector workers.⁴

Analysis of BLS National Compensation Survey Data

To account for the differences in skill levels and occupational mix, it is necessary to look at wage comparisons for similar jobs. To do this, we analyzed detailed occupational data from the most current National Compensation Surveys (NCS) conducted by the BLS for major regions in California. We specifically looked at survey data for the Los Angeles, Sacramento, and San Francisco combined statistical areas (CSAs), which together account for about 75 percent of California's population. The surveys for Los Angeles and San Francisco have a reference month of April 2010 (the mid-point of a 14 month data collection period), and the Sacramento survey has a reference month of June 2010. The NCS is conducted by the BLS on an ongoing basis and includes information on average hourly earnings for over 800 occupations and sub-occupations.

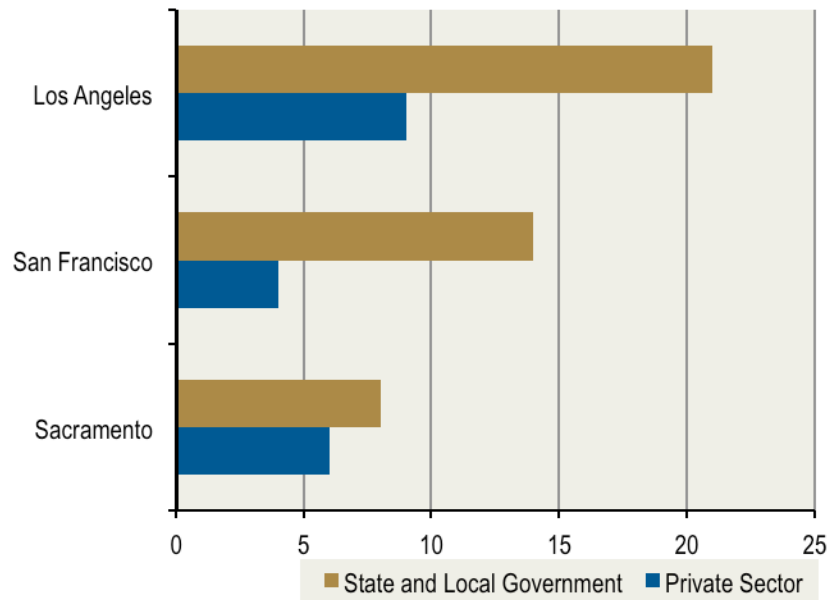
For our analysis, we focused on the subset of occupations that are displayed in the NCS surveys for both the state and local government sector and private sector. Where possible, we further narrowed the comparisons to standardized job levels (for example, a Level 3 administrative assistant or a Level 9 manager) within occupations to minimize variations in wages due to differences in job duties and complexity between the two sectors.⁵ Appendix tables 1 through 3 provide the detailed comparisons. Our main conclusions are:

- As shown in Figure 3 below, state and local government sector pay is higher than private sector pay in 21 out of the 30 occupational categories and subcategories we compared in the Los Angeles CSA. Within the 19 occupations for which there were specific job levels identified, state and local government sector pay was higher in 13 of the cases. State and local government sector pay was also higher in 14 of 18 categories in San Francisco, and 8 out of 14 categories in Sacramento.

⁴ Source: Current Population Survey, data for California households, 2009. U.S. Census Bureau.

⁵ Job levels are based on system that looks at four job-related factors – knowledge, job controls and complexity, contacts, and physical environment. Points for the four factors are recorded and totaled. BLS publishes data for 15 job levels. For a more detailed description, see Guide for Evaluating Your Firm's Jobs and Pay. BLS . <http://www.bls.gov/ncs/ocs/sp/ncbr0004.pdf>.

Figure 3
Number of Occupations with Higher Hourly Wages
National Compensation Surveys, 2010

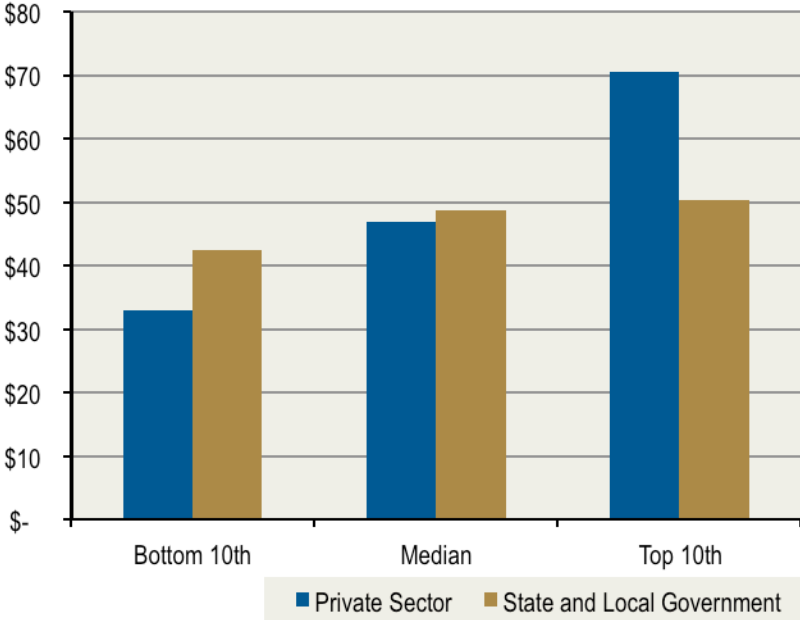


- State and local government sector wage premiums are most pronounced in lower-skilled occupations. For example, the state and local government sector premium in Los Angeles for level-3 food preparation and serving jobs is over 28 percent, and the margin in level-3 building and grounds occupation is 26 percent.
- Private sector pay premiums are mainly found in top-level management and specialized occupations, such as engineering and computer science.

More Pay Variation in Private Sector

Expressed another way, pay rates are more compact in the public (state and local government) sector. Figure 4 provides an example for engineers in the Los Angeles CSA. It shows that while average hourly wages are similar in the public and private sector, the bottom 10 percent of public sector employees are paid \$9 per hour *more* than their private sector counterparts, while the top-10 percent of public sector employees are paid \$20 per hour *less* than their counterparts.

Figure 4
Comparison of Pay Dispersion for
Engineers in Los Angeles CSA
(Average Hourly Wage)



The greater private sector wage dispersion has important implications for public-private sector wage comparisons. It suggests that differences in averages may have only limited applicability to many of the workers within an occupational group. For occupational groups with similar averages, less skilled workers in the state and local government sector are likely to receive higher wages than their counterparts, while top employees are likely to be paid less.

California Department of Personnel Administration Survey

One limitation of the NCS is that it combines all state and local employees into one group, and makes no distinction between the two levels of government. Salary surveys taken by the Department of Personnel Administration (DPA) during the past five years suggest that there are indeed significant differences in salary levels between the two levels of government.

Specifically, in a wage and benefits survey release in 2006, DPA compared salaries earned by state employees to local governments for 41 benchmark job classes. It also made comparisons to private sector salaries for 20 of 41 of these benchmark classes. The results of this survey are included in Appendix Table 4. It showed that state government pay lagged the private sector in 12 out of 20 occupations, including all medical, executive, and managerial classes. It led private sector pay in 8 occupations, mostly in trades and lower skilled occupations. It also found that local government salaries led the state in 15 out of 20 occupations, and led the private sector in 14 out of 20 occupations.

DPA also notes that actions taken since 2006 have narrowed the state pay gap in a few areas, particularly in health related occupations within the Department of Corrections (due to federal court-ordered increases). However, given the lack of general pay increases in recent years, it would appear unlikely that the state has closed the gap in most occupations.

Limitations of the NCS and DPA Wage Surveys

While the wage surveys cited above provide direct pay comparisons for certain occupations, they are subject to several qualifications.

- First, they only apply to the subset of jobs that are present in both sectors. This is a significant limitation, since well over one-fourth of all occupations are unique to one sector or another. Police and firefighters are two examples of state and local government sector jobs that do not have direct private sector counterparts. Indeed, some of the more controversial elements of public sector pay involve compensation for safety employees (see nearby box). Retail sales occupations are examples of jobs unique to the private sector. Even in cases where there was overlap, our comparisons were limited to just those sub-occupational categories for which earnings estimates for both sectors were available. Finally, the results are not weighted for the number of workers in each comparison group. For these reasons, the comparisons are best described as indicators of relative wage trends as opposed to statistically valid measures of differences.
- Second, the wages in these surveys are for straight time and do not include supplemental pay for bonuses, profit sharing, or stock appreciation rights. The exclusion of these items biases downward the pay for the private sector, where these forms of compensation are provided. The overall amount of this bias is relatively modest, accounting for around 2 percent of pay for the private sector overall. However, the exclusion has more pronounced effect on higher-level occupations, particularly for top management and financial occupations.
- The exclusion of premium pay for overtime affects the hourly earnings shown for both public and private sector employees. It is a major factor in public safety classifications. However, these classifications are not among the occupations shown in Appendix Tables 1 through 3 (due to lack of comparability between public and private sector jobs in this area). The relative impact of overtime premium pay in the categories shown is probably minor.

One other issue worth noting is that is that the comparisons we are citing are for all full-time employees, including those working for both small and large companies. If the private sector comparison group were just employees of large companies, relative pay rates would look somewhat less favorable for state and local government workers. The NCS data by firm size is limited to broader occupation categories, so it is not possible determine exactly how much less favorable, but we estimate it could be in the general range of 10 percent for comparable jobs.

We do not believe the comparison to all full time private sector employees creates a bias in the results. We are noting this issue, however, because public-private sector wage comparison studies often limit the private sector comparison group to employees of large sized firms, on the grounds that state and local government sector workers are employed by large organizations. We discuss this issue more fully in the following section.

Job Security Greater In Public Sector

A major issue in wage comparisons is the notable difference in job security in the public versus private sector. Although job layoffs are currently more prominent in the state and local sector than in the past, the overall risk to a civil service employee of an involuntary job separation is substantially lower than a worker faces in the private sector. As shown in Figure 5, during the 2000 through 2010 period the rate of involuntary job separations (layoffs and firings) averaged about 6 percent in the state and local sector and 20 percent in the private sector.⁶

⁶ Source: Job Openings and Labor Turnover Survey. BLS. <http://www.bls.gov/jlt/>.

Using the historical difference between public and private sector involuntary separation rates, and making conservative assumptions about duration of unemployment following an involuntary separation, we estimate the greater security translates into a risk-adjusted wage premium for public sector employees of over 3 percent.⁷

Wages for Public Sector Safety Employees

One of the key limitations relating to wage comparisons between public and private sector jobs is the number of occupations that are unique to one sector or another. Key examples are public safety jobs – such as peace officers, firefighters, and correctional officers -- for which there are no direct private sector counterparts.⁸

Though it is not possible to directly compare pay of public safety occupations to the private sector, it is possible to make comparisons to other public agencies. In these comparisons, California pay rates are well above the national average. According to BLS national compensation survey data, hourly pay for police officers working in Los Angeles was one-third higher than the national average in 2009 (\$37 versus \$27 per hour). Pay for correctional officers (state prison and county jail guards) was more than 50% above the national average, and pay for firefighters was 22% higher. Los Angeles is a relatively high cost, high wage area, but even after accounting for this factor, the pay margin over the national average for state and local governments is significant.

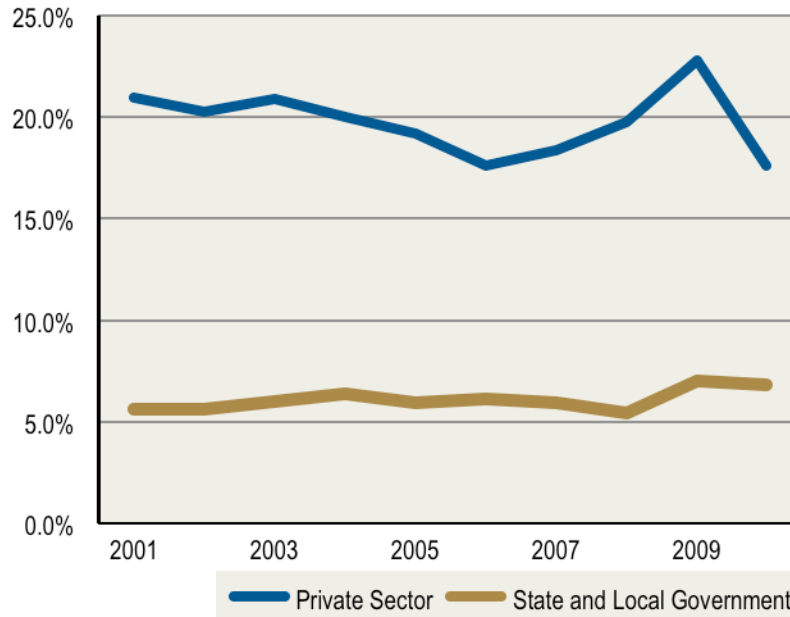
The BLS data does not provide direct comparisons for federal versus state/local sector safety occupations. Part of the challenge is that the federal and state occupations have different background requirements and job duties. In general, pay ranges are broader at the federal level, so federal workers would appear to have more upward potential in at least some occupations. As one example, the pay range for FBI agents in Los Angeles is between \$72,000 and \$148,000, while a comparable range for an LAPD detective is from \$80,000 to \$111,000. However, the FBI agent’s pay already includes an adjustment for assumed overtime (law enforcement availability pay). In contrast, an LAPD detective has historically received additional overtime pay for hours worked (though because of budget shortfalls, overtime pay has recently been limited).

This leads to a broader point related to overtime policies. They are more expansive at the state and local level than at the federal level. In California, in particular, overtime pay has had dramatic effects on public safety pay levels in some jurisdictions. For example, according to data reported to the State Controllers’ Office, average pay reported on W-2s for fire captains in the San Ramon Fire District was \$173,000 in 2009 – almost 70 percent more than the top end of the published pay range (\$103,000), with most of the difference due to overtime.

⁷ Assumes a worker is unemployed for four months following an involuntary separation, and that unemployment insurance replaces one-third of wages. As a point of reference, according to BLS data, the median duration of unemployment as of March 2011 was just under five months, and the average was over seven months. Estimate does not take into account losses of health insurance and other non-wage compensation, which can be significant.

⁸ There are private sector jobs, such as private investigative services and protective services, which have some elements in common with public safety jobs. There are also private sector jobs involving similar or higher levels of risk (logging, transportation, or roofing). These private sector occupations generally pay much less than public safety jobs. However, it is important to note there are substantial differences relating to the obligations and responsibilities that sworn officers and fire fighters have in terms of protecting the broader public.

Figure 5
Involuntary Separations Each Year: State and
Local Government Versus Private Sector
(Percentage of Workforce)



Statistical Approaches to Comparing Pay

A way in which researchers have attempted to address the lack of comparability of occupations between the public and private sector is to take an alternative approach that focuses on people rather than occupations. This statistical approach has formed the basis for several recent studies by state and local government sector advocates asserting that state and local workers are undercompensated compared to the private sector.

The approach is a regression-based statistical analysis that uses either census data or current population survey (CPS) data collected by the U.S. Census Bureau for the BLS.⁹ The studies make statistical comparisons of wages reported by individuals working in the two sectors, by controlling for major earnings determinants, such as educational attainment, experience, broad occupation, hours worked, and a variety of demographic characteristics (including sex, marital status, race, and citizen status). After standardizing for all these earnings determinants, the remaining difference in observed earnings between public and private sector employees is assumed to represent the state and local government sector “premium” or “shortfall”.

Figure 6 shows the results of recent studies for California. All three of the studies shown – including the study completed by the conservative-leaning Heritage Foundation – estimate significant wage shortfalls for state and local government sector employees, ranging from 8.9 percent to 10.2 percent for state employees and 0.6 percent to 6.1 percent for local employees. We note that while the Heritage Foundation comes to similar conclusions as the other studies

⁹ The CPS is a monthly survey of about 50,000 U.S. households. The objective of the survey is to create a representative sample of U.S. households that provides a detailed picture of the demographic and economic characteristics of people living in the U.S. and its various subdivisions.

with respect to comparative wages, it reaches markedly different conclusions about the relative levels of total compensation between the public and private sectors.¹⁰

Figure 6
Recent Statistical Studies Showing Wage Shortfalls in California State and Local Government Relative to the Private Sector^a

Study	Estimated State Government Shortfall	Estimated Local Government Shortfall	Estimated Combined State/Local Shortfall
National Institute on Retirement Security, April 2010	-9.8 %	-6.1%	NA
Center on Wage and Employment Dynamics, October 2010	-8.9%	-5.4%	-6.4%
Heritage Foundation, March 2011	-10.2%	-0.6%	-3.7%

a\ See Appendix Table A-5 for citations and descriptions of these studies.

Criticisms of Statistically Based Wage Studies

The statistical approach to making standardized wage comparisons is subject to two main criticisms. The first is that it uses inputs (such as educational levels and experience) rather than outputs for determining whether there is a wage gap between the public and private sector employees. The premise of this methodology is that two individuals — one in the state and local government sector and one in the private sector, with the same general educational and related attributes -- ought to be making the same amount of money, without regard for whether the two individuals are, in reality, working in equivalent jobs. The approach does not take into account substantial differences that can exist between public sector and private sector occupations in terms of job security, responsibilities, expectations, productivity, and other factors.

The second criticism is that the analyses inappropriately limit the direct private sector comparison group to employees of large companies, thereby biasing the comparisons in favor of the private sector. As noted earlier, this limitation is significant since large private sector companies pay higher salaries than their smaller counterparts. For example, according to the CPS survey for 2009, a California worker that has a Bachelors degree and is employed by a firm with more than 1,000 employees, earns, on average, 13 percent more than his or her counterpart working in a firm with less than 100 employees.¹¹ The results from the CPS survey are consistent with the occupational survey data discussed above, which also show that larger firms pay more.

¹⁰ Specifically, the studies prepared by the National Institute on Retirement and the Center for Wage Employment Dynamics conclude that state and local employees are not overcompensated when both wage and non-wage benefits are accounted for. However, the study by the Heritage Foundation concludes that total compensation is significantly higher in the state and local government sector. It reaches this conclusion by including employer costs for accruals of retiree health benefits and by conferring a value for job security in the state and local government sector.

¹¹ Source: Current Population Survey, data for California households, 2009.

The rationale for limiting the comparisons to private sector employees of large firms is that, because most state and local employees work for large employers (the government) they have characteristics and job preferences similar to workers in large sized companies. The counter argument is that, by limiting the comparison group to just employees of large firms, the state and local government sector employees are being compared to a select group, since large firms tend to be industry winners that can afford to pay more to attract top employees. This is of particular importance in California, given that it is home to Google, Apple, and several other high-tech companies that are among the most successful in the world.

To provide an indication of what the above results would look like if the comparison group were all private sector employees, instead of just those working for large firms, we developed our own regression-based estimates of wage differences using detailed CPS data for California.¹² We followed the general approach used in the CPS-based studies cited above, using data drawn from the 2006 through 2010 Annual Demographic March Supplement of the CPS. Under the baseline scenario, we included firm size as an explanatory variable. Under the alternative, we excluded the firm size variable from our regression equation.

As shown in Figure 7, our estimates show that state and local employees earn about 3.8 percent less than employees with similar attributes working for large private sector firms. When the comparison group is changed to include all private sector employees, the 3.8 percent penalty for state and local government combined turns into a 3 percent wage premium.

Figure 7

Calculations of State and Local Government Sector Wage Premium/Shortfall Using CPS Data For California

State and Local Government Sector Group	State and Local Government Sector Wage Premium(+)/Shortfall(-) Compared To:	
	Employees of Large Companies	All Private Employees
State Workers	-8.6%	-0.1%
Local Workers	-1.3%	+4.9%
Combined	-3.8%	+3.0%

Other Issues

The CPS survey data used for these comparisons has some advantages over the occupational survey data discussed above. For example, the wage totals include overtime and other forms of supplemental pay. However, the CPS data has its own limitations. First, it is based on self-reported income, thus it is probably not as accurate as occupational surveys.

Second, the estimates may understate wages per hours worked for full time employees that work for less than a full year. In particular, the CPS survey counts teachers as full time employees even though their contracts call for a work year that is 38 weeks or less after taking into account the summer break and school holidays. Because of this, the implied hourly wage (for hours actually worked) is understated by nearly one third. This distortion is significant because teachers account

¹² We developed the regression estimates using data from Integrated Public Use Microdata Series, (IPUMS) Current Population Survey: Version 3.0. Minneapolis: University of Minnesota, 2010.

for nearly 14 percent of the total state and local government employment base. We believe that properly accounting for time worked would reduce the state and local government wage gaps cited above by between 1 percent and 2 percent.

Finally, the CPS survey is too small to allow for meaningful comparisons of jobs within sub-regions of the state. This is significant, given the variation in cost of living and wage rates that exists in different regions of California.

Bottom line on Wage Comparisons

Although both are imperfect measures, the occupational surveys and statistical models point in the same direction. They indicate:

- When compared to all full time private sector workers, wages of state and local workers are similar to, or slightly higher than, than wages for comparable workers in the private sector.
- When compared to just workers of larger private sector firms, state and local government jobs pay levels appear to be a little less than the private sector.
- State and local government sector pay is considerably higher in many less-skilled occupations, and is lower in some high-skilled and specialized occupations (top level management and computer specialists).
- There is a significant pay gap between state government and local government, with local government paying more in many occupational categories.
- Within occupations there is much more wage variation in the private sector (or alternatively, there is more wage compression in the state and local government sector). Thus, for occupations with similar average wages, those at the top end of the occupation's pay range are likely to be paid higher in the private sector, while those at the bottom of the range are likely to be paid more in the state and local government sector.

Non-Wage Benefits

While the exact relationship between state and local government sector and private sector pay is open to some debate, there should be little question about non-wage compensation. The majority of state and local employees, who receive both retiree benefits and health care, enjoy non-wage benefit levels that exceed their private sector counterparts by a substantial margin. This is particularly true for long-term employees with fully vested retirement benefits.

Comparisons between state and local government sector and private sector benefits involve two issues. One is the *incidence* of benefits (that is, how likely is a given employee to receive the benefit) and the other is the *richness* of the benefits for those who receive them. State and local government employees are more likely to receive a full range of employee benefits than their private sector counterparts, and the benefits they receive are likely to be richer than benefits received by private sector employees.

Incidence of Benefits

Regarding the incidence of benefits, state and local government employees have moderately greater access to employer-provided health care and paid leave, and substantially greater access to retirement benefits. For example, according to the most recent NCS benefits survey, medical health benefits are provided to 90 percent of state and local government employees, compared to 71 percent of private sector employees, and 89 percent of employees working for firms with more than 100 employees. Dental care is provided to 84 percent of state and local government

employees, versus 54 percent of private sector employees and 71 percent of private sector employees working for larger firms. Regarding retirement benefits, as noted in Chapter 1, over 80 percent of state and local government employees have access to defined benefit plans versus about 20 percent in the private sector.

Richness of Benefits

Even when compared to the subset of large private sector companies offering a full range of benefits, state and local government employees come out ahead. Our review indicates that the state and local sector offer modestly more paid leave days, and health plans that appear to be richer, on average, with respect to plan designs and cost-sharing. The major differences, though, are in retirement programs. The public sector margin is substantial, particularly for long-term employees.

The differences are also much greater than recent estimates would indicate. Most recent studies rely on BLS data on employer costs for employee compensation, which we believe understates the margin for state and local government employees for three main reasons:

- First, the BLS data on compensation costs excludes most costs related to retiree health care. The expenses are not recognized in the BLS survey unless employers are prefunding the benefits during employees' working years, which rarely occur in the public sector. The accrual of retiree health care is clearly a form of compensation, regardless of whether it is paid for up front or in the future.
- Second, as noted in Chapter 1, California public pension funds are facing large actuarial shortfalls. Recent contributions have been much less than the amount needed to cover the true costs of employee pension benefit accruals.¹³
- Third, more stringent accounting and funding rules apply to private sector pension funds. These rules require private sector employers to make comparatively larger annual contributions to finance a given level of future benefits. The different funding rules have no impact on the benefit accruing to the employee. They merely affect the amount of these benefits that must be paid for today versus in the future.

An Apples-To-Apples Comparison of Public and Private Sector Benefits

To provide a more direct comparison of benefits being committed to government versus private sector employees, we calculated benefits for a typical mid-career state worker. Our example is a 45-year old employee that is one-half way through a 30-year career. We compare the wages and benefits earned by that employee to those provided to an individual with the same characteristics but employed by a typical large private sector firm.

As a starting point, we assume the state worker makes \$60,000 -- or \$5,000 less than his or her private sector counterpart. For the estimates of state benefits, we relied on recent bargaining contracts for miscellaneous state employees. The private sector estimates are based on the average retirement benefits offered by the sample of large private sector firms used in our Chapter 1 retirement comparisons, as well as information from surveys of private sector companies by the

¹³ As one example, the actuarial valuation released in March 2011 for CalSTRS, the state's second largest pension fund, found that it faces an actuarial shortfall of \$56 billion. Elimination of the shortfall over a 30-year period would require an immediate increase in employer contributions of \$3.9 billion annually -- which would require additional funding equal to 14 percent of teachers' salaries.

BLS National Compensation Survey, the U.S. Chamber of Commerce, and the Kaiser Family Foundation.¹⁴

Our estimates of annual retirement benefit accruals are based on a present value calculation of the employer-provided portion of pension and retiree health benefits earned by the employees over their full 30-year careers. The amount for the state worker assumes the CalPERS “2% at age 55” retirement formula that is in effect for miscellaneous state employees hired prior to 2011. For purposes of this calculation, we assume the benefits are earned proportionally over the worker’s career.

Results

As shown in Figure 8, non-wage benefits are considerably higher for the state worker than the private sector counterpart. Specifically, the state worker would receive \$46,492 in non-wage benefits, resulting in total compensation of \$106,492. The private sector worker would receive, on average, \$31,737 in non-wage benefits, resulting in total compensation of \$96,737.

The state employee receives modestly more in health care and paid leave, and slightly less in Social Security and Medicare (because of lower wages). The main source of the overall difference, however, is the value of pension and retiree health care. The combined retirement benefit would be slightly over \$19,100 per year for the state worker, compared to the slightly over \$5,700 for the private sector worker. For the state worker, the accrual of retiree health care benefits accounts for about \$8,000 and the pension benefit is worth about \$11,000.

**Figure 8
Comparison of Benefits: State Employee Versus
Typical Employee of Typical Large Private Sector Firm**

Category of Compensation	State Employee	Private Sector Employee
Wages	\$60,000	\$65,000
Benefits	-	-
Employer-paid health	\$12,381	\$11,475
Paid leave	\$10,385	\$9,570
Social Security & Medicare	\$4,590	\$4,972
Retiree pension & health	\$19,136	\$5,720
Total Compensation	\$106,492	\$96,737

a\ Benefits for both state and local government sector and private sector active and retiree health plans are a weighted average for employees with zero, one, and two-or-more dependents.

¹⁴ Sources: National Compensation Survey, Bureau of Labor Statistics. Employer Health Benefits 2010 Annual Survey, Kaiser Family Foundation and Health Research and Educational Trust. 2008 Employee Benefits Study, U.S. Chamber of Commerce. The private sector comparison group for retirement benefits includes Chevron, Cisco, McKesson, Northrop Grumman, Qualcomm, and Safeway.

Caveats

A significant portion of the difference in the example is due to the high value associated with the retiree health care provided to State of California employees. The benefit comparisons would be less favorable for a public employee working for a local agency that had considerably less generous retiree health benefits (though it is important to recall that local governments pay higher wages and some have higher pension benefits than the state). It would also be less favorable for members of CalSTRS, who, as shown in Chapter 1, receive less rich retirement benefits than other public sector employees.

It is also the case that the value of retirement benefits in a pension system is considerably greater for an employee working a full career than for an employee that terminates service after 10 or 15 years. This is particularly true for employees that terminate prior to fully vesting in retiree health care.

However, the context for pension reform discussions is the unsustainable benefits being offered to long-term employees and the need to reduce them in order to rein in government costs. To the extent it is mainly long-term employees whose pensions would be affected by reforms, it is appropriate to look at compensation comparisons for such full career employees.

Conclusions

Our analysis of occupational survey data and statistical studies finds that average wages in the state and local government sector combined are roughly similar to private sector average pay levels for comparable jobs — a little above the average of all private sector workers and a little below private sector workers employed by large firms. The surveys and statistical analyses indicate that state government pay lags behind that of local government. The surveys also reveal that there is much greater wage variation within the private sector, so that average wages within occupations do not tell the full story.

It is also important to recognize the limitations of these wage surveys and studies. They do not, for example, attach any value to the relatively greater job security in the public sector, nor do they pick up other factors that might attract an individual to one sector or the other.

Employee benefits are more prevalent in the state and local government sector than the private sector, and the retirement benefits are considerably richer for long-term public sector employees.

These higher benefits raise compensation for long-term state and local government employees by a substantial margin, putting them ahead, on average, of their private sector counterparts. This is particularly true for state and local employees covered by retiree health care.

Finally, from an economic and policy perspective, the key question is not who has the higher compensation levels but rather what is an appropriate pay and benefit package for attracting and retaining a qualified workforce in each sector. An equally important question is whether the compensation systems have enough flexibility built in to respond to rapidly changing economic and budgetary circumstances. A key rationale for pension reform is that this flexibility is lacking in the state and local government sector. The current public compensation systems are overcommitted to large vested pension rights, which do not provide state and local governments with adequate flexibility to manage their budgets.

Chapter 2: Appendix Tables

Appendix Tables 2-1 through 2-5 provide various detailed information on employee public and private sector employee compensation.

Tables 2-1 through 2-3: BLS Occupational Wage Comparisons

Tables 1 through 3 present occupational wage comparisons based on data from the BLS National Compensation Survey. The hourly wage comparisons are for all full-time workers, are for straight time, and do not include overtime premiums or supplemental pay.

- Table 2-1 provides the comparisons for the Los Angeles consolidated statistical area (CSA), which covers the counties of Orange, Riverside, San Bernardino, Ventura, and Los Angeles. These counties have a population of about 18 million, representing slightly less than one-half of the statewide total.
- Table 2-2 provides comparisons for the San Francisco CSA, which includes the counties of San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Napa, Marin, Sonoma, and Solano. These counties have a combined population of 7.4 million, comprising about one-fifth of the statewide total.
- Table 2-3 provides comparisons for the Sacramento CSA, which includes the California counties of Sacramento, Yolo, El Dorado, Placer, Sutter, Yuba, and Nevada. (This CSA also includes Douglas NV, but the overwhelming majority of jobs covered in this CSA are attributable to California.) The California counties have a combined population of 2.4 million, which comprise about 6% of the statewide total.

Comparisons for Specific Job Levels

Where possible, we compare public versus private sector occupational wages for specific job levels. These levels have been designed by BLS to create a consistent standard for wage comparisons and for comparison across occupations.

In order to establish these levels, the BLS has created a system involving scoring for four occupational factors – knowledge, job controls and complexity, contacts (nature and purpose), and physical environment. A job is assigned points for each of the four factors based on detailed criteria set forth by BLS.¹ The points for each of the factors are added together to arrive at a grand total, which is then converted into a job ranking of from 1 to 15. At the lower end of the scale, (levels 1 through 4) are entry-level jobs requiring only a basic understanding of the discipline. In such jobs, the worker is subject to significant job controls, follows pre-existing procedures, may perform repetitive tasks, and has contacts mainly within the workplace that are for the purpose of receiving directions. At the upper end of the scale (levels 11 through 15) are employees that set policy based on little or no specific guidance from others, have an integral understanding of the discipline (and in fact may contribute to the body of knowledge of that discipline), and whose interactions are with high level business leaders or public officials, for the purpose of influencing actions or policies. Mid-level employees generally fall in the range of from level 6 to level 10.

¹ For a detailed description, see *Guide for Evaluating Your Firm's Jobs and Pay*. Bureau of Labor Statistics. <http://www.bls.gov/ncs/ocs/sp/ncbr0004.pdf>.

Highlights

The tables show:

- Of the 30 occupations shown for the Los Angeles CSA, 21 have higher average wages in the state and local government sector, and 9 have higher average wages in the private sector. For the 19 occupations where specific job levels are identified, 13 are higher in the state and local government sector and 6 are higher in the private sector.
- Of the 18 occupations shown for the San Francisco CSA, 14 have higher average wages in the state and local government sector, and 4 have higher average wages in the private sector. For the 14 occupations where specific job levels are identified, 12 are higher in the state and local government sector and 2 are higher in the private sector.
- Of the 14 occupations shown for the Sacramento CSA, 8 have higher average wages in the state and local government sector, and 6 have higher average wages in the private sector. For the 8 occupations where specific job levels are identified, 4 are higher in the state and local government sector and 4 are higher in the private sector.

Table 2-4: DPA 2006 Survey

Appendix Table 2-4 provides information from the California Department of Personnel Administration Survey of state, local, and private sector job classifications in 2006. In the survey, DPA developed salary comparisons between the state and local governments for 41 benchmark classifications. It also developed comparisons for 20 of the 41 classifications for which there was a private sector counterpart. Its main findings were:

- The state of California lagged local governments in 15 out of 20 benchmark jobs.
- The state of California led the private sector in 8 categories, but lagged in 12 benchmark jobs.

DPA notes that the survey was taken prior federal court ordered pay increases in health care occupations related to the Department of Corrections.

Table 2-5: Literature Review

Appendix Table 2-5 summarizes the results of our review of academic literature, government surveys, and other information related to compensation comparisons between the public sector and private sector. For each item, we include information on the purpose of the survey or study, the approach it uses, and its major conclusions, along with key comments and criticisms.

The entries are grouped into six major categories: (1) aggregate compensation comparisons; (2) more detailed occupational wage surveys; (3) statistical-based comparisons of wages in the state and local government versus private sector; (4) studies on compensation growth over time; (5) nuances of private-public comparisons; and (6) other resources relating to private sector employee benefits.

For each entry we describe the study or resource, identify its purpose and the approach it uses, highlight its main conclusions, and provide comments and criticisms.

Our review found relatively few peer-reviewed academic studies focused on California. Most recent studies for California and other states have been prepared by organizations on one side of the public-private sector compensation debate or the other. We have attempted to include criticisms from both sides of the debate.

Appendix Table 2-1
Comparison of Average Hourly Earnings By Occupations
National Compensation Survey, Los Angeles CSA, April 2010

Occupation	State and Local Sector	Private Sector	Difference
Management:			
Level 9	\$36.94	\$33.48	10.3%
Level 11	\$48.89	\$50.71	-3.6%
Business and Financial:			
Level 7	\$32.03	\$25.69	24.7%
Level 8	\$27.13	\$25.54	6.2%
Level 9	\$36.23	\$35.79	1.2%
Management Analyst:			
All	\$37.28	\$40.64	-8.3%
Accountants and Auditors	\$36.71	\$28.00	31.1%
Computer and Mathematical Science:			
All	\$35.69	\$34.24	4.2%
Computer Support Specialists	\$28.50	\$26.48	7.6%
Computer Systems Analyst	\$38.89	\$38.18	1.9%
Architecture and Engineering:			
All	\$41.04	\$41.67	-1.5%
Engineer	\$46.92	\$51.92	-9.7%
Legal	\$43.74	\$37.26	17.9%
Education, Training, and Library:			
Level 9	\$49.13	\$34.76	41.3%
Level 11	\$57.28	\$37.79	51.6%
Postsecondary Teachers:			
Level 11	\$57.83	\$40.29	43.6%

Capitol Matrix Consulting

Occupation	State and Local Sector	Private Sector	Difference
Healthcare Practitioner & Technical:			
Level 9	\$38.48	\$41.48	-7.2%
Level 11	\$52.24	\$49.62	5.2%
Registered Nurse:			
Level 9	\$38.24	\$40.71	-6.1%
Healthcare Support:			
All	\$14.66	\$14.50	1.1%
Nursing, Home Care	\$13.44	\$11.40	17.9%
Food preparation:			
Level 3	\$14.22	\$11.04	28.9%
Building and Grounds:			
Level 3	\$16.66	\$13.13	26.9%
Office and Administrative Support:			
Level 3	\$17.53	\$13.75	27.5%
Level 4	\$18.33	\$16.77	9.3%
Level 5	\$19.98	\$20.06	-0.4%
Level 6	\$22.52	\$23.88	-5.6%
Installation, Maintenance and Repair:			
Level 6	\$28.11	\$27.12	3.7%
Level 7	\$33.81	\$36.10	-6.3%
Transportation and Moving	\$25.97	\$15.25	70.3%

Appendix Table 2-2
Comparison of Hourly Earnings by Occupation
National Compensation Survey, San Francisco CSA, April 2010

Occupation	State and Local Sector	Private Sector	Difference
Management	\$55.25	\$51.93	6.4%
Business and Financial:			
Level 9	\$35.08	\$34.67	1.2%
Level 10	\$43.08	\$34.64	24.4%
Computer & Mathematical Science:			
Level 9	\$35.89	\$39.83	-9.9%
Engineer:			
Level 9	\$47.63	\$39.60	20.3%
Life, Physical, and Social Sciences	\$34.99	\$41.49	-15.7%
Community & Soc. Svc. Occupations:			
Level 7	\$28.11	\$18.20	54.5%
Legal	\$41.62	\$62.24	-33.1%
Education, Teaching, Training:			
Level 10	\$49.64	\$46.55	6.6%
Level 12	\$79.41	\$77.98	1.8%
Healthcare Practitioner & Technical:			
Level 9	\$52.56	\$52.38	0.3%
Registered Nurse:			
Level 9	\$56.58	\$53.85	5.1%
Health Care Support	\$21.55	\$20.28	6.3%

Capitol Matrix Consulting

Occupation	State and Local Sector	Private Sector	Difference
Building and Cleaning:			
Level 3	\$17.12	\$13.43	27.5%
Office and Administrative Support:			
Level 3	\$17.06	\$15.60	9.4%
Level 6	\$25.33	\$25.13	0.8%
Installation and Repair:			
Level 5	\$23.80	\$29.81	-20.2%
Level 6	\$31.85	\$28.94	10.1%

Appendix Table 2-3
Comparison of Hourly Earnings by Occupation
National Compensation Survey, Sacramento CSA, June 2010

Occupation	State and Local Sector	Private Sector	Difference
Management			
Level 9	\$32.68	\$35.30	-7.4%
Business and Financial			
Level 9	\$30.43	\$34.30	-11.3%
Computer Systems Analyst	\$37.76	\$38.85	-2.8%
Education, Training, and Library			
Level 9	\$50.14	\$33.03	51.8%
Healthcare Practitioner & Technical:			
Level 9	\$48.33	\$47.66	1.4%
Registered Nurse	\$45.77	\$49.69	-7.9%
Food Preparation	\$18.04	\$10.95	64.7%
Janitor	\$15.93	\$12.32	29.3%
Office and Administrative Support:			
Level 3	\$16.37	\$14.72	11.2%
Level 4	\$17.19	\$16.59	3.6%
Level 5	\$18.66	\$19.44	-4.0%
Level 6	\$20.06	\$21.65	-7.3%
Installation and Repair	\$26.94	\$22.57	19.4%
Transportation and Material Moving	\$23.68	\$19.76	19.8%

Appendix Table 2-4
Department of Personnel Administration Survey of Occupations
Average Monthly Wage

Occupation	State Government	Local Government	Private Sector
Occupational Therapist	\$3,960	\$5,900	\$5,515
Pharmacist	\$5,748	\$7,766	\$7,970
Social Worker – Masters Level	\$4,139	\$4,611	\$5,116
Respiratory Care Practitioner	\$3,616	\$6,503	\$4,454
Chief Financial Officer	\$10,951	\$11,126	\$13,290
Licensed Vocational Nurse	\$2,967	\$3,755	\$3,296
Director, Human Resources	\$10,271	\$9,920	\$11,384
Auditor	\$5,247	\$5,129	\$5,692
Attorney	\$7,386	\$8,955	\$7,845
Chief Information Officer	\$10,271	\$11,126	\$10,908
Programmer Analyst	\$5,247	\$5,715	\$5,550
Registered Nurse	\$5,423	\$5,004	\$5,691
Office Assistant	\$2,641	\$2,879	\$2,555
Electrician	\$3,926	\$5,507	\$3,778
Budget Analyst	\$4,997	\$6,288	\$4,763
Accountant	\$4,997	\$5,244	\$4,707
Personnel Analyst	\$4,997	\$5,800	\$4,507
Stationary Engineer	\$4,601	\$4,474	\$3,839
Custodian	\$2,382	\$2,507	\$1,851
Cook	\$3,021	\$2,710	\$2,292

Appendix Table 2-5

Summary of Literature Review Regarding Compensation

Aggregate Compensation Comparisons

Name/Source	Purpose/Approach	Conclusions/Comments
<p>Employer Costs for Employee Compensation—December 2010 Bureau of Labor Statistics. March 9, 2011 http://bls.gov/news.release/pdf/ecec.pdf</p>	<p>Purpose: To determine the average cost to employers for wages and benefits per employee hour worked.</p> <p>Approach: Data is drawn from BLS National Compensation Survey. It is based on sample of 62,400 occupations from 13,100 private employers and 11,600 occupations from 1,800 state & local government employers.</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> Average employer cost of compensation for private sector employees is lower than for state/local employees – nationally it was \$27.75 per hour for private sector employees versus \$40.28 per hour for state/local government employees in 2010. State/local employees receive a greater proportion of compensation from benefits. Private sector employees receive 29.2% of total compensation from benefits, versus 34.4% for state/local employees. <p>Comments:</p> <ul style="list-style-type: none"> Aggregate average compensation levels provide only limited information about pay levels in the public versus private sector, due to variation in the mix of occupations between sectors. The benefit measures are based on a survey of actual expenditures for retirement benefits, rather than the amount of benefits being committed to. To the extent that public sector retirement plans underfunded, the measures understate true employer costs of benefits in the public sector.

Name/Source	Purpose/Approach	Conclusions/Comments
<p>Employee Compensation in State and Local Governments Cato Institute. January 2010</p> <p>http://www.cato.org/pubs/tbb/tbb-59.pdf</p>	<p>Purpose: To show that aggregate state and local employee compensation is higher than the private sector.</p> <p>Approach: BLS June 2009 Employer Costs for Employee Compensation (ECEC) for comparative costs of compensation. BLS CPS 2009 March supplement for benefits availability</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> • Average compensation is 45% higher for state/local employees than private employees (no controls) nationally; 59% higher for Pacific region (includes CA) • A substantially higher proportion of state/local government employees have health insurance, retirement benefits, life insurance, and paid sick leave than private sector employees. • Public sector compensation is better and will grow even more generous. <p>Comment:</p> <ul style="list-style-type: none"> • Average compensation levels do not take into account major differences in the compensation of public versus private sector jobs, as noted above.

Occupational Survey Comparisons

Name/Source	Purpose/ Approach	Conclusions/Comments
<p>National Compensation Survey Bureau of Labor Statistics. Ongoing</p>	<p>Purpose: To determine average hourly pay of workers in numerous occupational categories.</p> <p>Approach: Detailed occupational surveys conducted by the BLS Office of Compensation Levels and Trends. Includes information for private sector employees and state and local government employees.</p> <p>Occupational survey data available nationally, regionally, and for metropolitan statistical areas (including 7 in California).</p> <p>Surveys include data on earnings by job level within occupations, using a point factor leveling system. The job factors are knowledge, job controls and complexity, contacts, and physical environment.</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> • For the subset of occupations present in both sectors, recent comparisons for MSA’s within California show state and local wage premiums in the majority occupations that are present in both public sector and private sector surveys. • State and local premiums most likely to be found in lower paying and less skilled categories. Private sector premiums mainly in high skilled and specialized occupations (management, engineering, computer specialists). • State and local government pay levels more compressed than in private sector. <p>Comments:</p> <ul style="list-style-type: none"> • Comparisons based on base pay, and do not include overtime premiums and supplemental bonuses or profit sharing payments. • Public-private sector comparisons hampered by large number of occupations unique to each.

Name/Source	Purpose/ Approach	Conclusions/Comments
<p>Total Compensation Survey CA Department of Personnel Administration. April 2006 http://www.dpa.ca.gov/tcs2006/contents.htm</p>	<p>Purpose: To compare CA state employee compensation to employees of local governments and the private sector.</p> <p>Approach: Looked at CA state employee compensation data from 2006 survey of “benchmark” classifications, including 34 journey-level classes and 7 executive- and managerial-level positions. Excluded are supervisory classifications and peace officer/firefighter classes.</p> <p>Private employee compensation data aggregated from five professional organizations’ 2005 surveys. Twenty job classifications found comparable.</p> <p>Did not collect data on private sector bonuses and incentive pay programs.</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> • State employees were paid, on average, less than private sector employees in 12 of 20 classifications, and more than private sector employees in the remaining 8 (mostly lower skilled) classifications. • Local government employees were compensated more than private sector employees in 14 out of 20 classifications. • State compensation lagged local government employers surveyed in 15 out of 20 classifications; in most job classifications this lag is between 15 - 30%. <p>Comment:</p> <ul style="list-style-type: none"> • State compensation levels in some health related classes have increased substantially since the survey was completed, due to court-ordered increases in pay.

Statistical Based Comparisons

Name/Source	Purpose/Approach	Conclusions/Comments
<p>I. Studies Asserting that state and local government employees are underpaid. The Truth about Public Employees in California: They are Neither Overpaid nor Overcompensated. Center on Wage and Employment Dynamics (CWED), UC Berkeley. October 2010 http://www.irle.berkeley.edu/cwed/wp/2010-03.pdf Debunking the Myth of the Overcompensated Public Employee. Economic Policy Institute. September 2010. http://epi.3cdn.net/8808ae41b085032c0b_8um6bh5ty.pdf Desperate Techniques Used to Preserve the Myth of the Overcompensated Public Employee. Economic Policy Institute. March 2011 http://epi.3cdn.net/1e05db309d0aa64571_rxm6bngw8.pdf The Wage Penalty for State and Local Government Employees. Center for Economic and Policy Research. May 2010 http://www.cepr.net/documents/publications/wage-penalty-2010-05.pdf Out of Balance? Comparing Public and Private Sector Compensation over 20 Years. National Institute on Retirement Security. April 2010 http://www.nirsonline.org/storage/nirs/documents/final_out_of_balance_report_april_2010.pdf</p>	<p>Purpose: To demonstrate that California employees are not overcompensated compared to their private sector counterparts.</p> <p>Approach: To compare wages, these studies use census and/or annual Current Population Survey (CPS) data to develop regression-based statistical models, which relate employee wages to a set of “human capital” (education and experience), demographic, and economic related attributes.</p> <p>The models then attempt to measure whether public sector and private sector employees having similar attributes are paid at different levels. Specific studies vary in terms of data samples and model specifications.</p> <p>To compare benefits, the studies generally rely on data from data in the BLS National Compensation Survey or its related series on employer costs for employee compensation (ECEC).</p>	<p>Conclusion:</p> <ul style="list-style-type: none"> Depending on the study, the authors assert that total compensation for state and local employees combined is either roughly equal to or modestly less than the private sector. They claim that higher public sector benefits are more than offset by lower public sector wages. Studies for California show state government employees lagging local government employees with respect to wages. <p>Criticisms/Comments:</p> <ul style="list-style-type: none"> Evaluations based on broad characteristics of employees, not the jobs they do. Results are sensitive to specific model specifications. Most the studies limit private sector comparison group to employees of large firms, which is controversial. Treatment of teacher pay (12 months pay for 9 month school year) may distort public sector results. Comparisons undervalue public sector retirement benefits for current employees, thereby seriously understating public sector compensation. See Heritage Foundation and Center for Union Facts entries below for more detailed criticisms.

Name/Source	Purpose/Approach	Conclusions/Comments
<p>II Studies asserting state and local employees are over compensated:</p> <p>Are California Public Employees Overpaid?</p> <p>Heritage Foundation. February 2011.</p> <p>http://www.aei.org/docLib/Archives/California-Public-Employees-Overpaid.pdf</p> <p>The Economic Policy Institute Is Wrong: Public Employees ARE Overpaid . The Center for Union Facts. February 2011.</p> <p>http://www.unionfacts.com/downloads/Public_Sector_UnionsBrief.pdf</p> <p>Public Sector Unions and the Rising Costs of Employee Compensation. Cato Journal. Winter 2010</p> <p>https://www.socialsecurity.org/pubs/journal/cj30n1/cj30n1-5.pdf</p>	<p>Purpose: To demonstrate that state and local workers are over compensated.</p> <p>Approaches: Heritage Foundation and the Center for Union Facts studies followed same “human capital” regression approach as described in the previous panel, but used different data sets and different model specifications. The Center for Union Facts broadened the private sector comparison group so it included workers of all-sized firms.</p> <p>The Cato study used compensation and employment data from BEA Regional Economic Accounts for 2008 and data on unionization rates from the CPS survey for 2009.</p> <p>It developed regression equations relating the intensity of unionization to public sector private sector wages by state.</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> Heritage Foundation study concluded that, public sector wages lagged private sector pay by a modest amount, total compensation in the public sector was much higher due to non-wage benefits (retirement pensions and retiree health) and greater job security. The Center for Union Facts study found that when the private sector comparison group is broadened to include all private sector employees) state and local government wages are modestly higher than the private sector in California. Cato study found that public sector unions increase the compensation of the state/local government workforce by 8.1% on average. <p>Criticisms/Comments:</p> <ul style="list-style-type: none"> Outputs are sensitive to model specification. The Heritage Foundation Study’s assertion about the value of job security is controversial, since economic studies on the relationship between industry wages and job security are inconclusive. Many factors besides unionization rates affect employee pay. See Desperate Techniques Used to Preserve Myth of Overcompensated Employees. ECI, March 2011 for these and other criticisms.

Name/Source	Purpose/Approach	Conclusions/Comments
<p>III Other econometric based studies: A National Analysis of Public/Private Wage Differentials at the State and Local Levels by Race and Gender Gregory B. Lewis Andrew Young School of Policy Studies at Georgia State University http://aysps.gsu.edu/files/11-10_LewisGalloway-AnalysisofPublic-PrivateWageDifferentials.pdf</p>	<p>Purpose: To determine whether state and local employees are overcompensated or undercompensated relative to private sector employees. Also to determine whether the relationship between public sector and private sector compensation has changed over time, and to determine the effects of race and gender on the comparisons.</p> <p>Approach: Used data from the 1990 and 2000 Census and the 2005 and 2006 American Community Surveys. Ran three regressions using varied statistical techniques.</p>	<p>Conclusion:</p> <ul style="list-style-type: none"> • Mixed results, with two of the three regression techniques showing an earnings lag for state and local employees, and the third showing a small surplus for state and local employees. • The one regression run for California showed a 1% wage premium for employees of state and local governments during the 2001-through 2006 period.

Compensation Growth

Name/Source	Purpose/Approach	Conclusions/Comments
<p>Employer Cost Index. Historical Listing. Bureau of Labor Statistics. March 2011 http://www.bls.gov/web/eci/eccostnaics.pdf</p>	<p>Purpose: To determine how compensation in the public (state and local government) and private sector has compared over time.</p> <p>Approach: Used historical data from BLS National Compensation Survey. Benefits covered by the survey are:</p> <ul style="list-style-type: none"> • Paid leave • Supplemental pay • Insurance benefits • Retirement and savings benefits • Legally required benefits • Other benefits (severance pay and supplemental unemployment plans) 	<p>Conclusions:</p> <ul style="list-style-type: none"> • From 2001-2010, state/local government employees' compensation grew faster than private sector employees (8.6% for state/local government employees versus 3.8% for private sector employees). • Most of the differential is in benefits. • Earnings growth is nearly identical - 1.8% for state/local government employees versus 1.1% for private sector employees. Benefit growth is quite different - 24.9% for state/local government employees versus 10.5% for private sector employees. <p>Comments:</p> <ul style="list-style-type: none"> • The Center for American Action Fund indicates that over the longer term (1991 through 2010), the public sector and private sector growth rates are nearly the same. (http://www.americanprogressaction.org/issues/2011/03/pdf/statebudgetissuebrief.pdf)

Nuances of Private-Public Wage Comparisons

Name/Source	Approach	Conclusions/Comments
<p>Public-sector wage comparability: the role of earnings dispersion</p> <p>Dale Bellman Michigan State University</p> <p>John S. Haywood University of Wisconsin–Milwaukee</p> <p>Public Finance Review 32(6): 567-587. November 2004</p> <p>https://pantherfile.uwm.edu/heywood/www/567.pdf 567.full.pdf+html</p>	<p>Purpose: To determine if average wage differentials between the private sector and public (state and local government) sector is an appropriate measure for comparability.</p> <p>Approach: Uses BLS CPS May 1993 sample of 7,897 private-sector workers, 409 federal workers, 458 state workers, and 779 local workers.</p> <p>Regression of pay differentials by sector, with controls for education, age, region of the country, marital status, union status, race, urban residency, broad occupation, job tenure, part-time status, and establishment and firm size.</p> <p>Averages the absolute values of wage differentials. This avoids the “cancelling out” of overpaid and underpaid workers.</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> Public-sector earnings show less dispersion than private sector earnings. Individual earnings differentials favor the public sector at the bottom of the earnings distribution and the private sector at the top of the distribution. Only 17.8% of state and 26.9% of local government employees’ earnings are within a 5% range of private sector counterparts, even though differences in averages are within the range of 5%. This suggests that average wage differences between sectors provides only limited information regarding the relative pay for many of the workers within the sectors.

Name/Source	Approach	Conclusions/Comments
<p>The wage structure and the sorting of workers into the public sector George J. Borjas NBER. October 2002 http://www.nber.org/papers/w9313</p>	<p>Purpose: To determine how wage structures have changed from 1960 to 2000 in the public and private sectors.</p> <p>Approach: Data sample drawn from the Public Use Microdata Samples (PUMS) of the U.S. Census 1960 - 1990 and the March Annual Demographic Supplement of the BLS CPS 1977 – 2001.</p> <p>Ran regression relating weekly wages to educational attainment, age, race, and region of residence; estimated separately by year, sector, and gender group; pay gap determined by difference between predictions for public and for private in a given year</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> Over 1960-2000, public sector male workers were paid 5-10% less than private sector counterparts. Public sector female workers' earnings were at an advantage in 1960 but declined to parity by 2000. In 2000, state/local government male employees' earnings were 12%/10% less than private sector counterparts. State/local female employees earnings 11%/5% less than private sector counterparts. Wage dispersion in public sector has decreased.
<p>State and Local Pensions are Different Than Private Plans Center for Retirement Research Alicia Munnell and Mauricio Soto. November 2007 http://crr.bc.edu/images/stories/Briefs/slp_1.pdf</p>	<p>Purpose: To identify key differences between public sector and private sector pensions.</p> <p>Approach: Analyzed data from U.S. Board of Governors of the Federal Reserve System (2007), U.S. Census Bureau (2007), and U.S. Department of Labor (2007)</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> Pension assets per worker are \$185,900 for state/local sector, \$84,800 for the private sector. This disparity is because coverage and accrual rates are both higher in the public sector. Public sector employees less likely to have social security. Both employee and employer contributions to pensions are higher rates for state/local than private sector.

Name/Source	Approach	Conclusions/Comments
<p>Choosing Public Sector Employment: The Impact of Wages on the Representation of Women and Minorities in State Bureaucracies</p> <p>Jared J. Llorens, Jeffrey B. Wenger, and J. Edward Kellough.</p> <p>J Public Adm Res Theory 18(3): 397-413. September 2007</p> <p>http://jpart.oxfordjournals.org/content/18/3/397.full</p>	<p>Purpose: To determine how wage differentials affect the overrepresentation of women and minorities in state bureaucracies.</p> <p>Approach: Used data from CPS data for 1987, 1994, and 2002</p> <p>Ran separate wage regressions for each state in each year. Equations related wages to age, education, marital status, occupation, and industry, as well as variables for sex, ethnicity, and public or private sector employment.</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> • Found that above average representation of women and minorities in state government employment is associated with small wage premiums paid in the public sector versus private sector.

Other Resources

Name/Source	Approach	Conclusions/Comments
<p>2008 Employee Benefits Study U.S. Chamber of Commerce . April 2009</p>	<p>Purpose: To identify benefits provided by employers to employees in the U.S.</p> <p>Approach: Survey of 265 U.S. employers in 2007, representing a cross section of all U.S. employers.</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> • More than 89% private companies provided vacation, holiday retirement, and health insurance benefits to full time employees. • The average cost-per-employee of these benefits was \$14,919. • The cost of benefits averaged about 29% of payroll, with considerable variation among companies. • Larger companies offer a greater number of employee benefits than do smaller companies.
<p>Employer Health Benefits 2010 Annual Survey. March 2011 Kaiser Family Foundation and Health Research and Educational Trust</p>	<p>Purpose: To identify health benefits provided by U.S. employers.</p> <p>Approach: The 2010 survey included 3,143 randomly selected public and private firms with three or more employees (2,046 of which responded to the full survey and 1,097 of which responded to an additional question about offering coverage).</p>	<p>Conclusions:</p> <ul style="list-style-type: none"> • Detailed information about medical benefits provided by employers in 2010. Some highlights: • 68% of small firms and 99% of large firms offered health benefits. • Total premiums averaged \$5,049 for single coverage and \$13,770 for family coverage. • Employee share of premium costs rose in 2010, after several years of stability. • The share of worker contribution for premiums averaged \$899 for single coverage and \$3,997 for families.

Chapter 3: Government Costs of Retirement Programs

Introduction

Chapter 1 compared employer-provided retirement benefits conferred to public sector employees in California with the benefits provided to federal and private sector workers. It also considered the potential impact of two CFFR alternatives that would reform the benefits to be earned by current or future California public sector employees via their future service. Chapter 2 considered the broader context of total employee compensation.

In general, in Chapter 1 we found that for full-career employees, California governments provide retirement benefits that are larger than what the federal government provides, and substantially larger than what is available within the private sector. However, employees who do not remain within a single retirement system for an entire career can sometimes do better under the federal or private sector programs. We also found that retirement benefits for teachers can fall short of what is provided to the other California public sector workers we considered; nevertheless, for those who remain within CalSTRS for a career, benefits are still more generous than private sector levels.

The two CFFR reforms would significantly reduce benefits to be earned through future service by the full-career California public sector employee (a key exception being teachers who take early retirement), although they would leave benefits well above private sector levels. The alternatives, being more “age neutral”, would increase benefits for those who work in the California public sector only at the earlier stages of their career.

Recap of CFFR Alternatives

Alternative A is based on a CFFR proposal that provides for a pension plan that is no more generous than the Federal Employees Retirement System (FERS) plan, and a “competitive” defined contribution plan. We modeled this alternative based on the current retirement income provisions that apply to federal employees hired within the last 30 years, including the Thrift Savings Plan (defined contribution) component. The federal plan’s pension provisions are modified to include a wage cap, and a requirement that employees pay half of the expected costs for future service; the defined contribution component was modified to include an additional employer contribution with respect to pay above the pension wage cap. This alternative also includes a Social Security replacement provision for employees not currently covered (including teachers and CHP.) For the state employees, Alternative A eliminates retiree healthcare dependent coverage after age 65, introduces an employee pre-funding requirement for the retiree’s own post-65 coverage, and reduces employer subsidies with respect to pre-65 retiree healthcare coverage, especially for those retiring before age 62.

Alternative B requires that employers pay no more than 6 percent annual costs for future service (9 percent for safety employees) for non-health retirement benefits, and does not modify retiree health benefits. We modeled Alternative B as a defined contribution plan with a dollar-for-dollar employer matching arrangement up to the full 6 percent or 9 percent level. This alternative also has a defined benefit Social Security replacement provision for employees not currently covered by that federal program.

More detail on the provisions of the current programs and Alternatives A and B is provided in Chapter 1, including its appendix. The appendix to this Chapter includes information about the assumed employee contribution rate under the pension components of Alternatives A and B. In some cases, these rates differ from what was assumed in Chapter 1.

Focus of This Chapter – Employer Costs

Chapter 1 focused on the value of *benefits received* by sample individuals with alternative pay levels, ages at hire and ages at termination. In this Chapter, we estimate the impact that the CFFR reforms would have on *costs* to California government agencies to provide retirement benefits.

Naturally, cost depends on plan design features, such as benefit formulas for defined benefit plans and matching provisions for defined contribution plans. For defined benefit plans, in particular, costs also depend on demographic characteristics of the covered population, including age, service years, and salary profile. And it depends on how events will unfold in the future:

- How will employee pay levels change? Pensions are based on the employee’s highest salary (averaged over one or more years).
- When will employees terminate service, and at what ages will they start to draw pension income and receive retiree healthcare benefits? These assumptions affect both expected benefit levels and the expected number of years the retiree receives the benefits.
- What level of inflation will retirees and their beneficiaries experience (since most public systems adjust benefits for inflation), what medical costs will they incur, and how long will they live?

For those defined benefit programs that are pre-funded, such as pensions, costs are also highly dependent on the return to be earned on invested assets: the greater the earnings, the less that must be set aside today to cover future benefit payments.

Actuarial valuations assign costs to defined benefit programs, based in part on assumptions about those future unknowns. (The ultimate costs, of course, depend not on actuarial valuations, but on how these many unknowns actually play out over time.) Where the CFFR reform alternative involves a defined benefit program, the objective in this chapter is to estimate how employer costs would be affected *per the actuarial process currently used by the relevant California governing body*. That is, we do not make independent assessments of how the contingencies will play out, but instead simulate how the valuation assumptions and methodology already in place would reflect proposed design changes.

However, for one of the key unknowns – the assumed rate of return on investments (which, for state and local public pension funds, is the annual discount rate used to determine the present values of future benefit payments) – we also show results based on alternatives to the 7¾ percent rate that is now used in pension valuations for each of the California public sector groups we consider. We show the impact of instead using 6¾ percent and 5¾ percent.¹ The variability of results based on alternative assumptions helps to illustrate the sensitivity of defined benefit costs to unknown future outcomes.

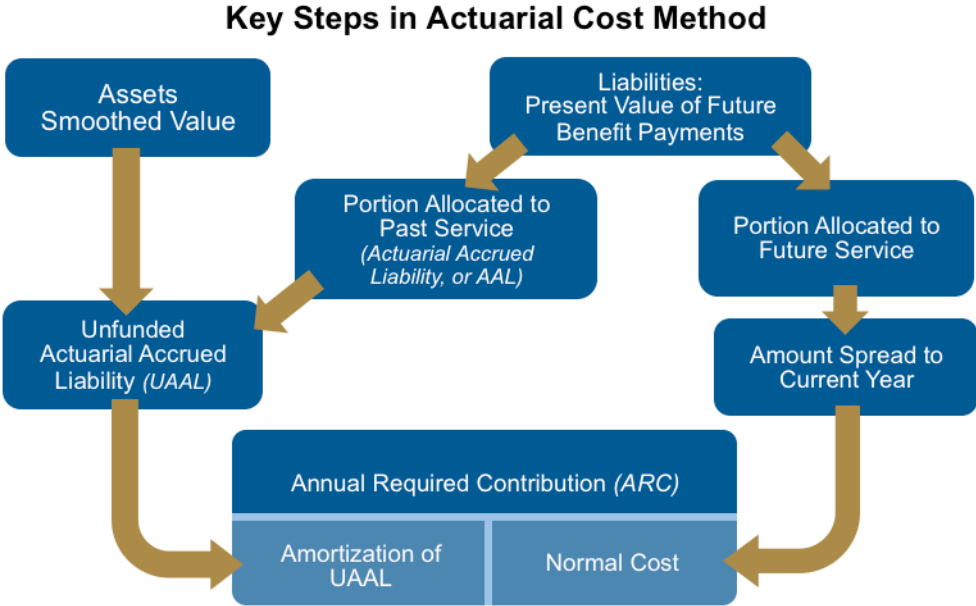
As revealed in these results, a feature of the reforms that is as important as their impact on “expected” costs is that they reduce governments’ exposure to cost surprises that arise when things do not turn out as expected. By relying on defined contribution programs for some of the benefits, they share the risk associated with investment return, inflation and longevity with employees. Our illustration covers the first element of this risk sharing.

¹ By law, a private sector employer must determine its required pension contributions using indexed rates that have been close to 5¾ percent in recent years – regardless of the investment return it expects its pension fund to earn. The United States now uses 5¾ percent to determine its cost for federal employee pensions, reflecting the investment policy used.

Key Steps In Determining Expected Costs

As noted previously, our models for defined benefit programs generally employ the actuarial assumptions used in the respective official valuations, as disclosed in the most recent formal report² or as separately provided. Detail regarding our approach, along with the key assumptions, is provided in the appendix to this Chapter. Figure 1 outlines the steps in the actuarial process used by the California governing bodies to set current year employer costs for defined benefit plans.

Figure 1



Actuarial valuations generate projections of future benefit payments, allocate those amounts to past and future service, and determine the unfunded portion of past service liabilities (if any). This process results in assigning a current annual cost to the program: the sum of (1) a *normal cost*, which is the value of benefits attributable to an additional year of service, and (2) an *amortization cost*, which is the current year’s installment toward the difference between the value of benefits attributable to past service and accumulated assets. This total cost is also referred to as the annual required contribution, or ARC.

As noted in Chapter 1, state and local governments do not pre-fund retiree health benefits, but instead finance them on a pay-as-you-go basis. However, a directive issued by the Governmental Accounting Standards Board in 2004 requires agencies to record and report the annual costs of retiree health care on an actuarial basis similar to that used for pensions. Given the lack of pre-funding, there are no assets available to offset the actuarial accrued liability shown in Figure 1. Hence virtually all of the accrued liability is unfunded.³

² As of the writing of this Chapter, the most recently published report for state employee pensions is as of June 30, 2009, and the most recent reports for state employee retiree healthcare benefits and for teachers pensions is as of June 30, 2010.

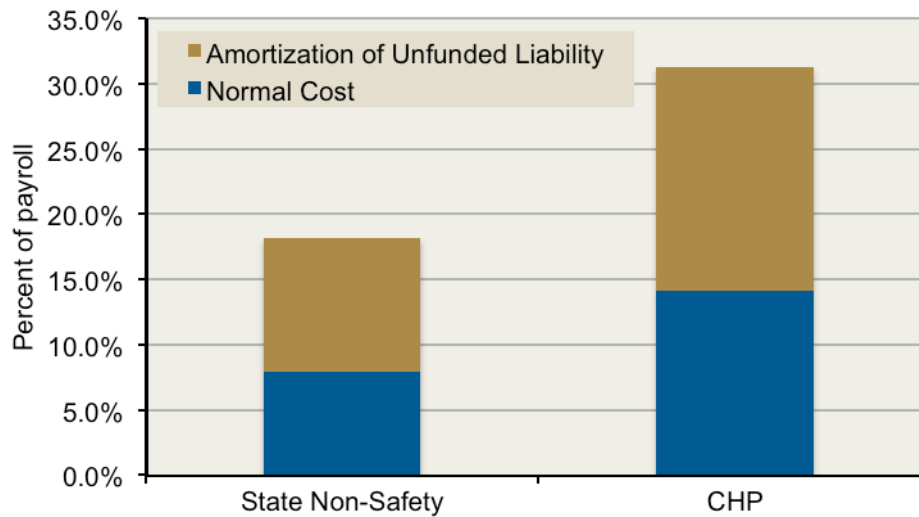
³ The June 30, 2010 retiree healthcare actuarial valuation covering all current and retired employees of the State of California and their beneficiaries determined that the normal cost for 2011-12 is about \$2.2 billion, and that the 2011-12 installment to amortize the unfunded accrued liability over 30 years is almost \$2.5

Defined Contribution Programs. Compared to defined benefit programs, costs for defined contribution programs are determined in a relatively straightforward manner. Because the employer’s commitment is limited to the contribution to be credited for the year and does not extend to the benefit amounts to be paid in the future, it is not necessary to undertake actuarial valuations, or to estimate “normal costs” and “amortization costs” each year. Rather, the employer’s contribution for a year is simply based on the plan design, employee salary levels and, in the case where there is an employer match, employee contribution levels.

Pension Amortization Costs Currently Large and Rising

Weaker than expected investment returns, unanticipated changes in demographic factors (such as lengthening life spans), and larger than expected pay increases in past years have resulted in major unfunded liabilities for state and local government pension funds. Even after accounting for some above-expected investment returns in 2010 and early 2011, and even using the funds’ own assumptions about future investment return, the average of these shortfalls is likely more than 25 percent of the funds’ accrued liabilities (based on market value of assets). These unfunded liabilities have already led to substantial increases in the component of employer contributions dedicated to amortizing the shortfalls. As shown in Figure 2, more than one-half of the total employer pension rates for state non-safety and CHP employees relate to amortization of unfunded past service liabilities. We expect this component to rise further in the near term: under the actuarial “smoothing” methods that CalPERS and other pension funds employ to defer recognition of unexpected investment gains and losses, thus far only a portion of the investment shortfalls experienced in 2008-9 have been incorporated into the funds’ rate-setting calculations. A key point here is that, even with pension reform, state and local funds will likely continue to face rising pension costs related to deferred effects of past investment results.

**Figure 2
Employer Pension Costs in 2011-12 as Percent of Payroll**



billion, for a total cost for that year of \$4.7 billion. Because these total annual costs are not being met via pre-funding, the unfunded accrued liability will grow each year with interest and the unpaid normal cost, leading to a pyramiding of amortization costs over the future.

A Note About Actuarial Costs and Budget Outlays

Our estimates focus on the impact of CFFR proposed reforms on *actuarially determined employer costs* – what state and local governments *should be* setting aside each year to cover the future pension and retiree health care benefits that their employees are earning. These measures provide a good picture of the ultimate financial impacts of the reforms. However, they do not always provide a good indication of how reforms will affect cash (budget) outlays in a particular year.

There is a timely effect on budget outlays for defined contribution programs, as well as for defined benefit programs where the policy is to fully fund the ARC. However, for defined benefit programs where the policy is not to fully fund the ARC, the effect of reforms on budget outlays can be delayed for years – even decades.

One example is CalSTRS, where pension contributions are set in statute, and are currently at levels that are insufficient to cover the ARC. Unless statute changes lead to full current funding of the ARC, reforms that reduce teacher pension costs will have only a delayed budget impact.

A more extreme example is retiree health care. Given the pay-as-you-go policy, a reform can reduce current annual cost by a significant margin but have only a very modest effect on near-term budget outlays. Under the pay-as-you-go policy, the full effects will not show up in cash flow until after the affected employees retire.

This difference can lead to near-term budget outcomes that are counter to the long-term change in costs. For example, if a reform lowers retiree health costs substantially and raises combined pension and thrift program contributions modestly, the long-term result is a significant net cost saving. However, given the delayed cash effect for the health care provisions, the near term impact on the budget may be temporarily higher outlays.

Specific Estimates

In this section, we develop specific employer cost estimates for the reform proposals as they would apply to (1) State Miscellaneous (non-safety) employees, (2) California Highway Patrol employees, (3) public school teachers, and (4) a hypothetical local non-safety employee group. For the local employee group we consider the impact for three variations on a current pension design available to local agencies contracting with CalPERS.

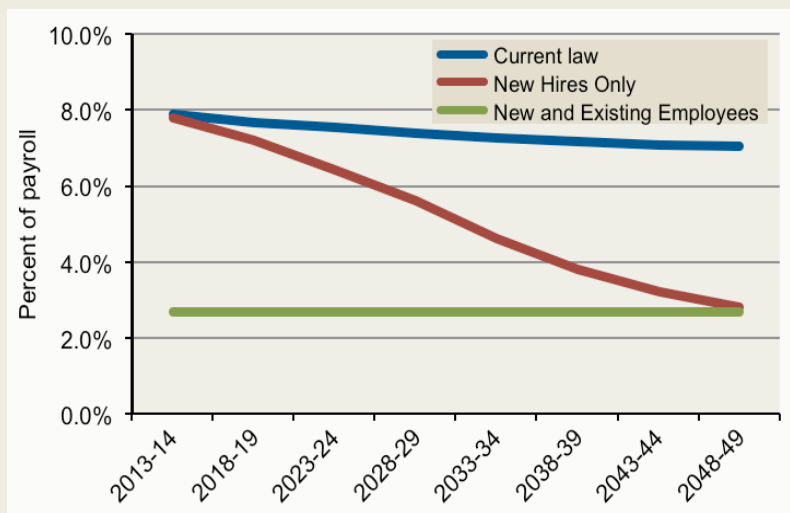
In the subsequent section, we use these results to make more generalized inferences about the impacts of the CFFR alternatives on state and local governments in California.

Timelines

Our comparisons provide two “snapshots” of how the CFFR reforms would affect employer costs. We show the near-term impact in the scenario where the reforms apply to future service of existing employees, and the ultimate effects of the reforms, which is the impact at the point in the future when they apply to the full careers of all employees in the systems.

The figure below how these cost changes would emerge over time, using as an illustration the pension changes in Alternative A. It shows that, if the reform applies to future accruals of existing employees as well as new hires, it will result in an immediate decline in the normal cost. However, if the reforms apply only to new workers hired after the effective dates, the reductions will phase in over many years, as the workforce turns over. (Though for some pension systems – particularly at the local level – the requirement that employees start paying one-half of normal costs would result in partial savings immediately.) The figure also shows a modest cost decline over time under current law, as the effects of the recently enacted benefit reductions for new hires apply to more employees as the workforce turns over.

Timeline of Alternative A Pension Changes. CalPERS State Non-Safety Employees (Normal Cost as Percent of Payroll)



Similar timing issues apply to retiree healthcare changes included under Alternative A: the reduction in actuarial costs will be experienced much more rapidly if the change applies to current employees, rather than just to future hires. However, since California finances retiree health care on a pay-as-you-go-basis, the reduction in costs will not translate into budget savings until the employees retire and start drawing the benefit. If the retiree healthcare reforms apply only to future hires, the cash effects would not show up until those not-yet-hired employees themselves retire; under this scenario cash savings over the next 20 years would be negligible.

The timeline for Alternative B depends on how it is implemented. We modeled this alternative as a defined contribution program that could be implemented for future accruals of existing employees or just for new hires. Under these scenarios, the timelines for the programmatic changes would be similar to that shown above for Alternative A. Even in the case where the change to a defined contribution program applies only new employees, however, this alternative could result in immediate savings, if employer normal costs for existing pension systems were also limited to 6 percent of payroll (9 percent for safety employees).

For each employee group, we show up to three sets of comparisons:

- The immediate impact of the alternatives, under the scenario where the changes apply to future accruals of existing employees.
- The ultimate, or steady-state, impact of the reforms relative to current law – that is, the relative cost levels once the reforms have applied for the full careers of all employees in the system (this can be more than 35 years in the future).
- Revised estimates of the ultimate impacts for the retirement income programs using alternative assumptions about the funds’ annual rate of return on invested pension assets — a very important issue when considering the risks that unanticipated outcomes can pose to costs of retirement systems.

Behavioral Effects. Our comparisons are based on “static” estimates of how the reforms would apply. That is, they reflect application of the alternative systems to the existing cohort of state employees, using the funds’ *current* actuarial assumptions about wage growth, turnover, retirement rates, and other factors. Because of changes in hiring practices or other socio-economic factors, the employee population of the future may have a different demographic profile than today’s cohort. And future employee behavior may vary from what’s predicted under the current actuarial assumptions – whether due to revised behavioral incentives within the reforms or otherwise. Given our approach, the cost estimates here will not reflect the impact of those differences.

Despite the exclusion of these behavioral effects, we believe that static estimates provide a reasonable indication of the general cost impacts of the reforms. This is particularly the case in the near term. If the changes apply to existing employees, the pension and defined contribution reforms are unlikely to trigger behavioral change for some time, since in general pensions earned prior to the reform effective date will outweigh benefits earned thereafter.⁴ In the long run, where all benefits will have been earned under the reform provisions, things are more uncertain. For example, provisions within the pension component of Alternative A that improve benefits upon reaching certain age and service thresholds may lead to retirement patterns that differ from what is currently expected. This could mean larger pension costs under that Alternative than we estimate here using current retirement assumptions, but also smaller retiree healthcare costs. In general, more caution is appropriate when looking further into the future.

CALPERS Miscellaneous (Non-Safety) Employees

Our first comparison covers California’s main non-safety category, having 159,000 active members. The accrued pension liability for this group, including retirees and other inactive members, was \$75 billion as of the June 30, 2009 valuation (reflecting the 7¾ percent investment return assumption.) Employees first hired through 2010 are subject to the “2 percent at age 55” pension formula, based on 12-month average pay for those hired before 2007 and a 36-month average for others. Under legislation enacted in 2010, employees first hired after January 13, 2011 are covered by a less generous “2 percent at age 60” formula. Employee contributions were 5 percent of pay in excess of \$513 per month prior to November 2010, but were increased to 8 percent of such excess pay for later periods.

Based on the most recent valuation, current non-safety employees account for about \$19 billion of California’s \$60 billion accrued liability for retiree health care benefits earned by all active and

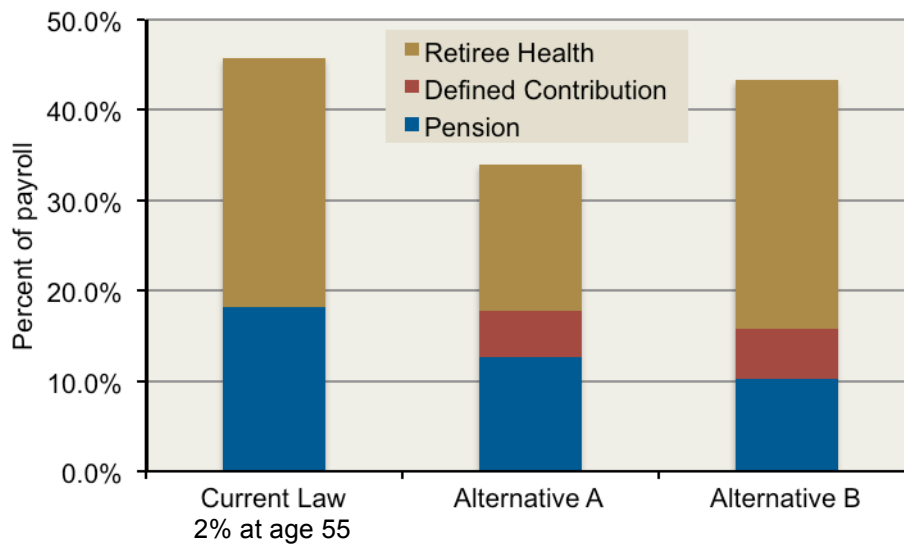
⁴ Behavioral pressure exerted by the retiree healthcare reforms under Alternative A could have a more immediate impact and delay some retirements; on balance, such delays would tend to increase the savings under that proposed reform beyond what is estimated here.

retired state employees through June 30, 2010. (Current retirees in this group account for an additional \$18 billion.) The ARC for 2011-12, including the cost for benefits to be earned in that year as well as that year’s installment to amortize unfunded accrued liability, is \$2.8 billion.

Immediate Impact Assuming Changes Apply To Existing Employees

As shown in Figure 3, the combined ARC for pension and retiree health benefits under existing law totals 46 percent of pay, consisting of 18 percent for pensions and another 28 percent for retiree health. Under the scenario where the reforms apply to existing employees, combined costs would drop to 34 percent under Alternative A, mainly due to reductions in the retiree health care component. On the non-health side, Alternative A would reduce costs by slightly less than 1 percent, reflecting a nearly one-third decline in the ARC for the pension but an offsetting cost increase for the new defined contribution program. Employer costs under the Alternative B defined contribution program would be almost 3 percent lower than current law pension. (As will be discussed below, these cost comparisons for non-healthcare benefits look different under alternative assumptions about future pension investment return.)

Figure 3
CalPERS Non-Safety Immediate Change in Annual Cost if Alternatives Apply to Existing Employees\ a



a\ Includes the ARC for pensions and retiree health care defined benefit programs, plus annual employer payments for defined contribution programs.

Ultimate Impact of Alternatives

Figure 4 shows a similar set of comparisons as Figure 3, except that it looks much further down the road, when the reforms will have applied to the full careers of all employees. Accordingly, our current law pension component here reflects the recently enacted CalPERS “2 percent at age 60” benefit formula for new hires, which is less generous than the provisions that apply to the current workforce. As a result, the long-term impact from the pension reforms is reduced compared with the short-term impact.

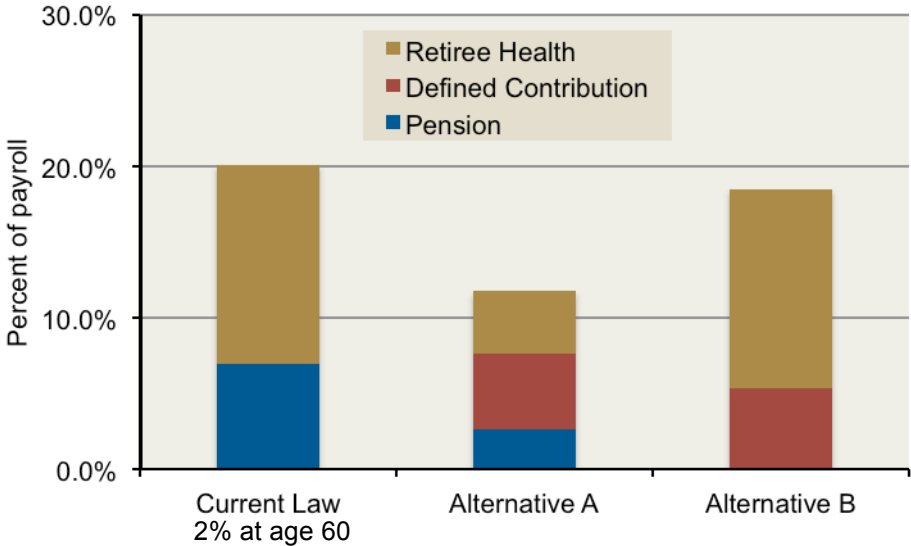
The cost impact for interim years is discussed in the nearby box.

Estimates of ultimate costs do not include amortization payments. In order to focus on the costs that result from additional employee service under the current or alternative programs, we are excluding any amortization-related costs that may still exist once these

alternatives are fully phased in. The level of amortization cost at that future time will depend on events during the intervening years, including whether employer contributions will be made that fully cover the ARC, and whether investment returns and other experience will conform to current actuarial assumptions.

As a consequence, our ultimate cost comparisons include only normal costs for the pension and health care components, and the annual employer payments under the defined contribution program.

Figure 4
CalPERS Non-Safety: Ultimate Effect on Costs
Excludes Amortization Costs \a



a\ Includes only normal costs for pensions and retiree health, plus annual employer payments to the defined contribution programs.

Both reform measures result in cost savings relative to current law, with all of the savings under Alternative A coming from the retiree health reforms (using the current 7¾ percent pension investment return assumption). Compared to benefits scheduled under current law, combined pension and defined contribution costs are slightly higher under Alternative A. The cost of the pure defined contribution program under Alternative B is modestly lower than current law.

Two factors account for the relatively modest long-term effects of the non-health components of the reforms. First, normal costs for the pension under existing law will be lower in the future than today, reflecting application of the recently enacted reforms (in pay averaging period and in benefit formula) to the future workforce, and full-career application of increased employee contribution rates. Second, normal costs (relative to the benefits received) are lower for this group than others we examine. This is partly due to this group’s relatively higher degree of expected mobility. Per the assumptions used by CalPERS actuaries, these employees are less likely to remain in service until retirement age than are other employees we consider, such as teachers. This limits defined benefit costs under the existing system – and potential savings under the reforms.

It also should be noted that our estimates for the alternatives assume full implementation of the maximum defined contribution designs. Under Alternative A, this leads to an expected employer cost of about 5 percent of payroll for the current federal thrift design (including the additional

contribution based on pay in excess of the cap used under the pension component). The CFFR proposal does not require adoption of the federal thrift design. Rather, it authorizes agencies to offer a competitive defined contribution plan. When combined with the pension component, a competitive defined contribution plan could feature less generous employer contributions than the current federal thrift savings plan, with lower costs.

Effect of Alternative Investment Return Assumptions on Pension Costs

The pension comparisons above are based on the CalPERS' discount rate of 7.75 percent, which reflects their expected long-term rate of investment return. The Figure 4 results are replicated in the left column of Figure 5 below. The results for Alternative A include the combined total of the pension and defined contribution components of the modified federal plan, and Alternative B reflects the cost of the pure defined contribution plan. Retiree healthcare costs are excluded from this comparison.

The discount rate assumption has a significant impact on current pension costs. What is the appropriate rate for this purpose? State and local government pension funds generally use their expected long-term rate of return on investments for the discount factor. These rates are usually around 7.5 percent to 8 percent, which is near the funds' long-term average returns for certain historical periods. However, many observers consider these rates to be inappropriate given the uncertain nature of future investment returns, and the fact that benefits are fully guaranteed. If the discount rate is reduced, the result is higher current costs.

This issue does not arise for defined contribution plans, since the employer's cost is not affected by future investment returns. (Investment risk is borne by the employee.) Future investment return matters much more under current law programs, which rely exclusively on pension plans, than under the proposed reforms, which rely partly or fully on defined contribution plans.

As indicated in Figure 5, lowering the assumed investment return has a smaller impact on employer costs under the alternatives, making them increasingly less expensive relative to current law. Whereas annual costs under current law and the two alternatives are roughly similar based on the 7.75 percent assumption currently used by CalPERS, things look strikingly different using alternative assumptions.

If the discount rate were lowered to reflect a more conservative investment return assumption, the current annual cost would immediately adjust to reflect this. If the assumed rate is not lowered but actual investment returns end up being consistent with the lower rates shown in Figure 5, the state would experience steady cost increases over future periods as lower-than-expected investment returns add to unfunded past service liability and, hence, amortization costs; in this scenario, the cost results in Figure 5 reflect the resulting average over the long-term.

Regardless of the mechanism, Figure 5 illustrates one of the main benefits of the CFFR reforms. They shield, to varying degrees, state and local employers from the major cost increases that can occur when investment or other results turn out less favorably than expected. They lessen the chances that current fiscal hardships created by past shortfalls will be repeated in the future.

Figure 5
Sensitivity of Annual Employer Costs to Investment Return Assumption
Excludes Amortization Costs^a
(Costs as a percent of payroll)

Assumed Rate of Return	Annual Costs To Fund Retirement Income Programs		
	Current Law	Alternative A	Alternative B
7.75 percent	7.0	7.7	5.4
6.75 percent	10.4	9.1	5.4
5.75 percent	14.8	11.0	5.4

a\ Ultimate effects of alternatives. Includes normal costs for pensions plus annual employer contribution to defined contribution programs under the alternatives. Does not include retiree health care costs. Differing assumptions about investment returns would also change amortization costs, but in an identical fashion among the alternatives.

CalPERS CHP Employees

Our second set of comparisons covers the CalPERS CHP category. This group includes about 7,400 active members, with accrued pension liabilities of \$7.3 billion as of June 30, 2009, including \$4.4 billion for retired officers. For those hired before 2011, pensions are earned under an enhanced safety formula that provides 3 percent of highest 12-month salary per year of service (maximum 90 percent) beginning as early as age 50; those hired after 2010 who retire before age 55 receive reduced amounts. CHP officers do not participate in Social Security.

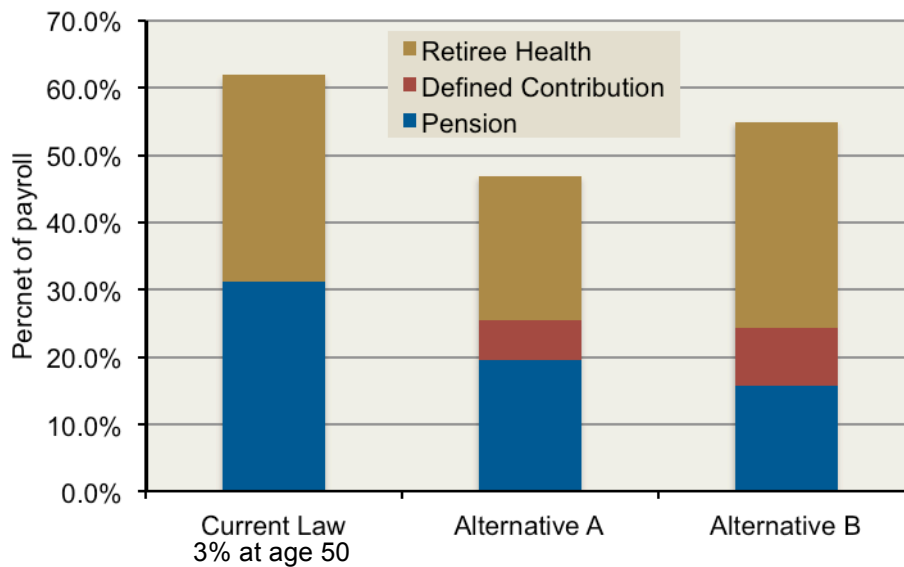
In past years, the employee pension contribution rate was set at 8 percent, though collective bargaining agreements included employer pickup of some or all of the employees’ share. The rate beginning in mid-2010 is 10 percent of pay in excess of \$863 per month.

Based on the most recent valuation of retiree health costs, active employees in this group account for about \$1 billion of the State of California’s \$60 billion accrued liability for health care benefits owed to active and retired state employees. (Current retirees in this group account for an additional \$2 billion in liabilities.) The annual cost for benefits expected to be earned in 2011-12 is \$103 million, and the installment towards amortizing unfunded past service liability for that year is \$132 million.

Immediate Impact Assuming Changes Apply To Existing Employees

Figure 6 shows that, under current law, the ARC for the pension and retiree healthcare defined benefit programs combined is 62 percent of payroll, split about evenly between the two components. Under Alternative A, combined costs for the pension, retiree health, and new defined contribution programs would equal 47 percent of payroll. Under Alternative B the combined total would be about 56 percent of payroll.

Figure 6
CalPERS CHP
Immediate Change in Annual Cost if Alternatives Apply to Existing Employees \a



a\ Includes the ARC for pensions and retiree health care, plus annual employer payments for defined contribution programs.

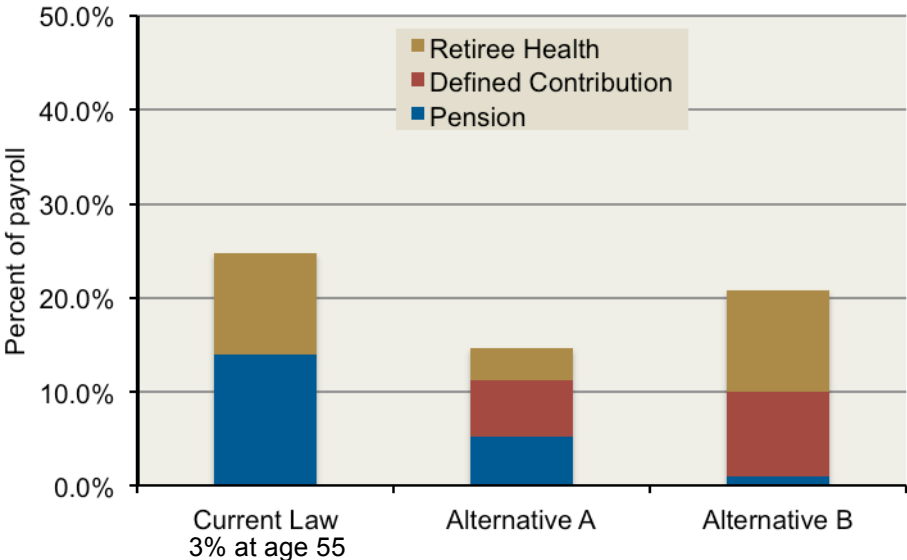
The reform proposals would result in significant reductions in non-health retirement costs. These costs would drop from 31 percent under current law to about 25 percent under each alternative. The pension totals for both alternatives include the Social Security replacement provisions that apply to this group.

A significant factor reducing pension costs under Alternative A is the wage cap, which would apply to a larger share of employees in this group than, for example, the non-safety or teachers' categories. In addition, Alternative A reforms would significantly lower current retiree health care costs.

Ultimate Impact of Alternatives

Figure 7 shows the ultimate impact of the reforms on annual employer costs, when all employees are fully covered by the alternative programs. The long-term comparisons do not include amortization costs. Also, the current-law pension component for this comparison is the “3 percent at age 55” benefit formula that applies to employees hired after mid-2010. The figure shows that the long-term savings are similar to the immediate savings shown above, though the pension related component is slightly smaller. This is mainly due to the above-mentioned benefit formula reduction, which will lower future normal costs for the pension under current law.

Figure 7
CalPERS CHP: Ultimate Impact on Costs
Excludes Amortization Costs\ a



a\ Includes only normal costs for pensions and retiree health programs, plus annual employer payments to the defined contribution programs.

Effect of Alternative Investment Return Assumptions on Pension Costs

The sensitivity of employer pension costs to investment return is greater for this group than for the non-safety employees, reflecting, in part, their younger ages, and that a larger portion of the total benefit is funded via employer contributions. This difference in investment return sensitivity has significant implications for the state, and even greater implications for those local agencies where a large proportion of annual budgets are for safety employee salaries and pensions.

Figure 8
CalPERS CHP
Sensitivity of Annual Employer Costs to Investment Return Assumption
Excludes Amortization Costs \ a
(Costs as a percent of payroll)

Assumed Rate of Return	Annual Costs To Fund Retirement Income Programs		
	Current Law	Alternative A	Alternative B
7.75 percent	14.0	11.2	10.0
6.75 percent	21.2	14.2	12.0
5.75 percent	30.6	18.2	14.7

a\ Ultimate effects of alternatives. Includes normal costs for pensions plus annual employer contribution to defined contribution programs under the alternatives. Does not include retiree health care costs. Differing assumptions about investment returns would also change amortization costs, but in an identical fashion among the alternatives.

CalSTRS (Teachers)

CalSTRS is a statewide fund that provides pension benefits to certificated teachers and administrators. It has 440,000 active members, and an accrued liability of \$196 billion as of June 30, 2010 for all 850,000 active and inactive members. Employees receive benefits under a

formula that provides a percentage of the highest 36-month average salary (12-month average with 25 years of service) for each year of service that varies from 1.1 percent at age 50 to 2.4 percent at age 63. Teachers contribute 8 percent of pay (6 percent from 2001 through 2010), and do not participate in Social Security. Contributions are set by law at a level that does not currently cover the ARC. For 2010-11, the ARC is 25.5 percent of payroll, but combined school district and state contributions to CalSTRS cover only 11.3 percent. This annual shortfall adds to a growing unfunded liability.

Pension costs for teachers are higher (relative to the benefit levels) than for the state non-safety group. This reflects various factors, including that a higher proportion of teachers are expected to remain in the system until retirement years.

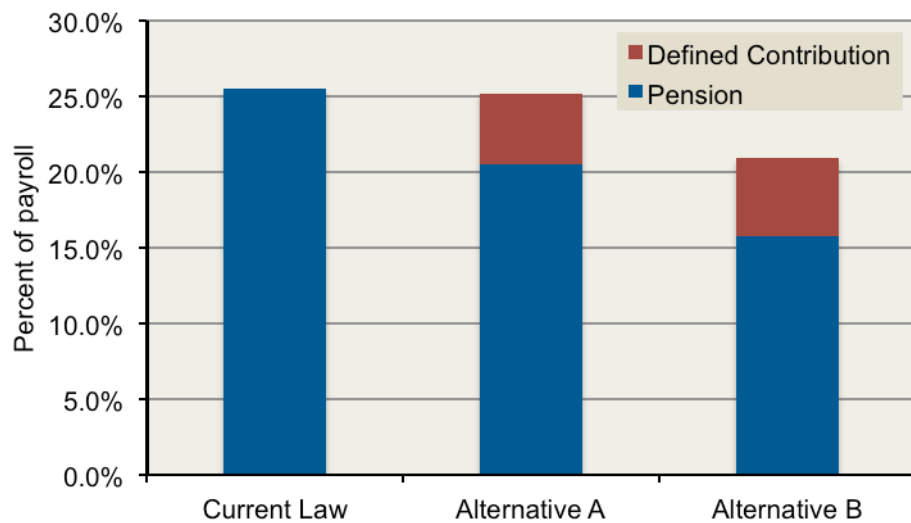
Retiree health benefits are provided on a district-by-district basis, and, in general, are less generous than those provided to state employees. Although adoption of the Alternative A retiree health reforms could result in savings for some districts, the impact would vary greatly by district and is not modeled here.

Effects of Alternatives

Figure 9 shows the immediate effect that application of the reforms would have if applied to future service accruals of existing employees as well as to new hires. It shows that under current law, the ARC is about 25 percent of pay. Application of Alternative A would result in little change to that total, and Alternative B would result in a moderate reduction.

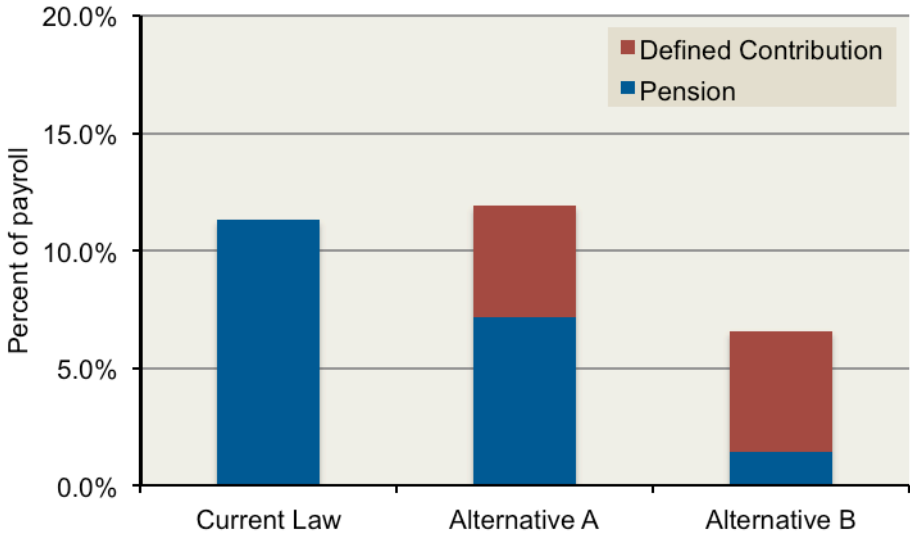
Figure 10 shows that a generally similar picture emerges for the long-term comparisons. Under Alternative A, the normal cost of the pension program would fall by over one-third. This decline would be offset, however, by added costs from the new defined contribution program. As a result, the combined cost for the pension (including the Social Security replacement) and defined contribution programs is slightly higher than under current law. The Alternative B defined contribution and Social Security replacement provisions would cost about 4 percent less than the normal cost for the pension program under current law.

Figure 9
CalSTRS: Pension and Defined Contribution Programs Immediate Change in Costs if Alternatives Apply to Existing Employees ^a



^a Includes the ARC for pensions plus annual employer payments for defined contribution programs.

Figure 10
CalSTRS: Ultimate Impact on Cost
Excludes Amortization Costs^a



^a Includes only normal costs for pensions and annual employer payments to the defined contribution programs.

Effect of Alternative Investment Return Assumptions on Pension Costs

Figure 11 shows the impact of alternative pension investment return assumptions on annual costs. Again, costs under the reform alternatives are less sensitive to investment earnings assumptions than are current law costs. Assuming a 5.75 percent rate of return, Alternative A would produce a savings of over 4 percent of pay relative to the current law baseline and Alternative B would result in a savings of over 13 percent of pay.

Figure 11
CalSTRS (Teachers)
Sensitivity of Annual Employer Costs to Investment Return Assumption
Excludes Amortization Costs^a
(Costs as a percent of payroll)

Assumed Rate of Return	Annual Costs To Fund Retirement Income Programs		
	Current Law	Alternative A	Alternative B
7.75 percent	11.3	11.9	6.6
6.75 percent	16.5	14.9	8.0
5.75 percent	23.1	18.7	9.9

^a Ultimate effects of alternatives. Includes normal costs for pensions plus annual employer contribution to defined contribution programs under the alternatives. Differing assumptions about investment returns would also change amortization costs, but in an identical fashion among the alternatives.

Representative Local Government Funds

There are over 1,500 local agencies operating (or contracting for operation of) pension systems in California. The funds have a variety of benefit formulas, employee contribution requirements, and other features. Within pension systems, there are also multiple tiers of benefit formulas that apply to employees hired at different times. For this reason, the CFFR alternatives would have a wide range of impacts on local agency costs, and no one system is truly representative of these impacts.

However, our review of local funds indicates that, on average, local pension plan designs are more generous than the state in terms of benefit formulas, the determination of final compensation, and required employee contributions. Moreover, a majority of local governments have provisions in collective bargaining contracts calling for employer pickup of part or all of the employees' shares of pension contributions. Though recent labor contract negotiations have resulted in some scaling back of this practice, it remains widespread at the local level.⁵ A related practice is employer contributions to supplemental defined contribution plans.

To show a reasonable range of effects that the CFFR alternatives would have on local employer costs, we have developed detailed estimate for three variations of benefit designs for local non-safety employees, taking into account the features described above:

- A “2 percent at age 55” system, with final compensation determined by highest annual salary, 2 percent annual inflation adjustment (in addition to 80 percent pension protection allowance) and employee contributions equal to 7 percent of pay. Special compensation is recognized, and is assumed to equal 5 percent of final year’s base pay.
- A variation of design (1), where the employer picks up 100 percent of the employee’s required contribution.
- A further variation of design (1) that is less common, but still often used. The formula provides a “2.5 percent at age 55” benefit, with nominal employee contributions of 8 percent of pay. We assume that the employer picks up 50 percent of this employee contribution.

Our estimates show the ultimate impacts – when the alternatives apply to full careers of all employees. As with our previous comparisons of ultimate impacts, these figures exclude amortization costs. They include just normal costs for pensions and the new defined contribution components of the two alternatives.

To model costs for these representative local systems, we assumed that its employee population has the same demographic characteristics – age, service, salary and gender distribution – as the state non-safety population as of June 30, 2009.

Consistent with Chapter 1, we did not model the effects of the Alternative A retiree health reforms on our representative local agencies. Benefits provided by local agencies vary from agency to agency, but are, on average, less generous than what is provided by the state.

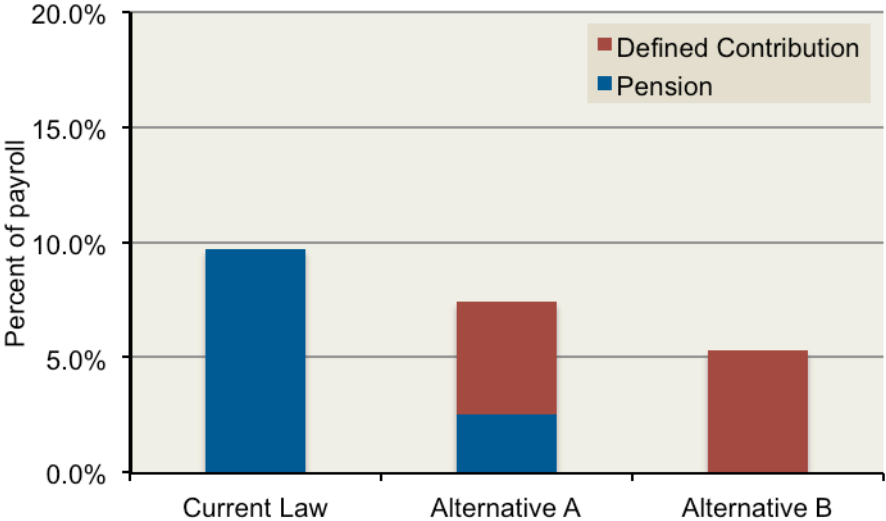
Results

Figures 12 through 14 show that the CFFR’s proposed reforms would significantly reduce costs relative to the plan designs outlined above. Figure 12 shows that, for an agency offering a

⁵ For example, a 2010 study found that of 17 cities in San Diego County that contracted with CalPERS for administration of their pensions, 13 picked up some or all of the non-safety employees required contributions. For safety employees, 14 out of 17 agencies picked up some or all of the employees’ contributions. (See *Phase I Update, San Diego Pension Plans*. San Diego Taxpayers Association, September 20, 2010).

“2 percent at age 55” benefit structure with no employer pickup of employee contributions, Alternative A would reduce these costs by almost one-quarter. Alternative B would lower costs by nearly one-half.

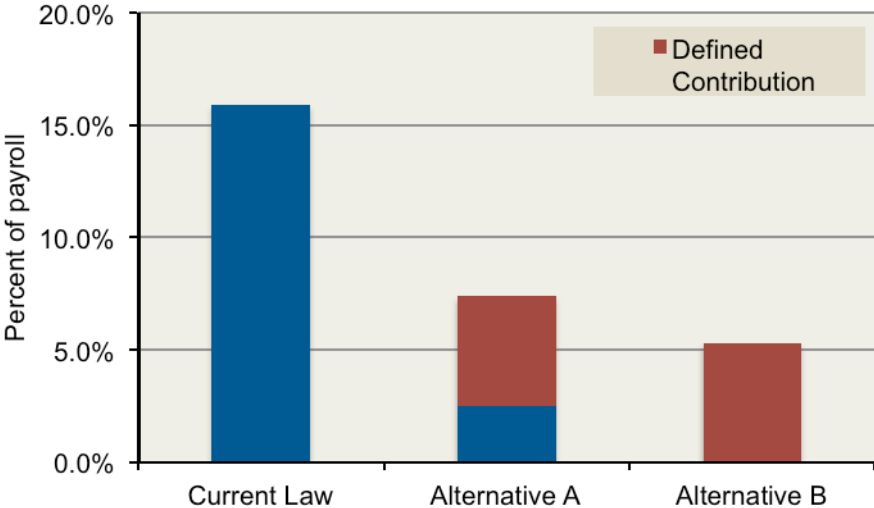
Figure 12
Local Government Design (1): “2 percent at 55”, No Employer Pickup.
Ultimate Impact, Excludes Amortization Costs^a



a\ Includes only normal costs for pensions, plus annual employer payments to the defined contribution programs.

Figure 13 shows results for design (2). For an agency offering this program, the reduction in annual costs from the CFFR pension reforms would be substantial – over 8 percent of payroll under Alternative A and over 10 percent under Alternative B.

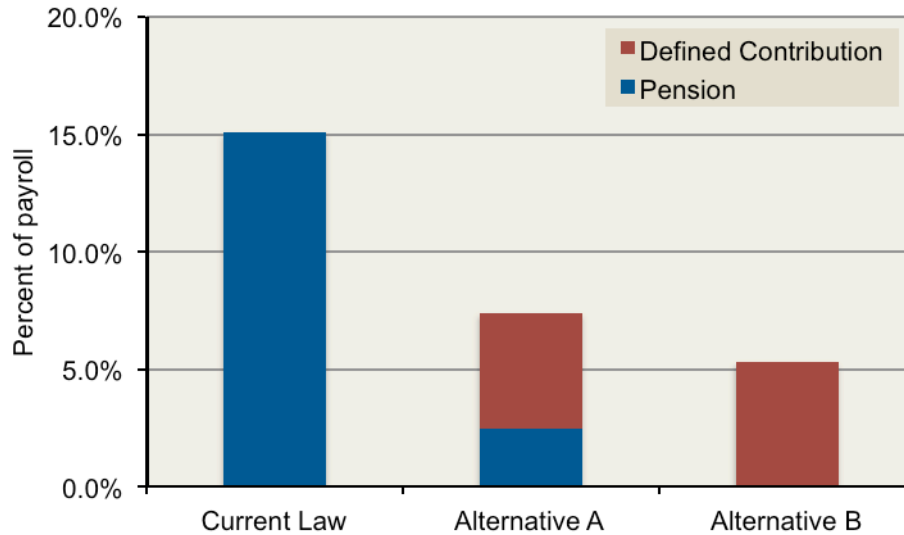
Figure 13
Local Government Design (2): “2 percent at 55”,
Employer Picks Up Employee’s Contributions
Ultimate Impact, Excludes Amortization Costs^a



a\ Includes only normal costs for pensions, plus annual employer payments to the defined contribution programs.

Figure 14 shows results for design (3). For an agency offering this program, the eventual savings from the CFFR pension reforms would be similar to the previous set of comparisons – almost 8 percent of payroll under Alternative A and almost 10 percent under Alternative B.

Figure 14
Local Government Design (3): “2.5 percent at 55”
Employer Picks Up One-Half of Employees’ Contribution
Ultimate Impact, Excludes Amortization Costs^a



^a Includes only normal costs for pensions, plus annual employer payments to the defined contribution programs.

Together, figures 12 through 14 indicate that the CFFR alternatives would have particularly significant impacts on local plans involving richer benefit formulas and/or employer pickup of some or all of employee contributions.

Effect of Alternative Investment Return Assumptions on Pension Costs

Figure 15 shows the impact of alternative pension investment return assumptions on the costs for the representative local pension system using design (3). For richer local plans, the difference in employer costs becomes dramatic with lower investment return assumptions. If the assumed rate is reduced to 5.75 percent, for example, the savings under Alternative A relative to current law would be almost 16 percent of pay and under Alternative B would be over 20 percent of pay.

Figure 15
Local Government Design (3): “2.5 Percent at Age 55” System
Sensitivity of Annual Employer Costs to Investment Return Assumption
Amortization Costs Excluded ^a
(Costs as a percent of payroll)

Assumed Rate of Return	Annual Costs To Fund Retirement Income Programs		
	Current Law	Alternative A	Alternative B
7.75 percent	15.1	7.4	5.3
6.75 percent	19.7	8.5	5.3
5.75 percent	25.8	10.1	5.3

^a Ultimate effects of alternatives. Includes normal costs for pensions plus annual employer contribution to defined benefits programs under alternatives. Differing assumptions about investment returns would also change amortization costs, but in an identical fashion among the alternatives.

Effects of CFFR Alternatives On Statewide Costs

Determining the precise impacts of the CFFR alternatives on state and local governments would require detailed valuations of over 2,000 local agency plans. While such detailed analyses are beyond the scope of this report, it is nevertheless possible to tentatively draw some general conclusions from our modeling efforts.

Current Employer Costs

Figure 16 provides background on statewide pension costs. It shows that in 2008-09 (the most recent year for which statewide data is available), 2.4 million public employees were members of pension systems in California, the funds had total accrued liabilities of \$682 billion, and total contributions to the funds were \$25 billion. Of the total contributions, slightly over \$14 billion were from employers, \$9 billion were from employees, and \$1 billion were from other sources (mostly state General Fund contributions to CalSTRS). (The employee contributions include an unknown but potentially significant amount of contribution picked up by the employer.)

Both employer and employee contributions have increased significantly since 2008-09, mainly reflecting: (1) gradual recognition of the 2008-09 investment losses, and (2) changes in statutes and collective bargaining agreements affecting employee contributions. We estimate that total contributions in 2011-12 will be about \$28 billion, including about \$16 billion in employer contributions. These contributions will likely rise further in the near term future as the effects of the 2008-09 losses continue to be phased in.

Aggregate statewide information is not available for retiree health coverage. However, we know that, in addition to California’s \$60 billion unfunded liability, UC has an unfunded liability of \$14 billion, the county of Los Angeles has an unfunded liability of \$24 billion, and numerous other local agencies have aggregate liabilities in the hundreds of millions to billions of dollars range. Overall, statewide commitments for future retiree health care are well over \$100 billion, and normal costs to cover just annual benefit accruals are around \$5 billion statewide. Costs to amortize unfunded liabilities from past service would be an additional \$5 billion.

Figure 16
Characteristics of State and Local Pension Funds In California
2008-09

Pension Fund:	Active Members	Actuarial Accrued Liability	Annual Contributions in 2008-09		
	(thousands)	(billions)	Employer	Employee	Other
Statewide ^a	1,868	\$498	\$9.7	\$7.3	\$1.3
Counties	256	113	3.1	1.2	—
Cities	105	66	1.1	0.6	—
Districts	100	5	0.3	0.1	—
Total	2,329	\$682	\$14.2	\$9.2	\$1.3

Source: *Public Retirement Systems Annual Report, Fiscal Year 2008-09*. State Controller’s Office.

^aThe statewide totals in this table include local agencies contracting with CalPERS.

Statewide Effects of CFFR Proposals

Adoption of the CFFR proposals would result in savings at both the state and local level. The estimates below show the ultimate impacts of the changes. If the reforms were to effect future accruals of existing employees, the pension impacts would be immediate (and for state programs, modestly larger than shown below)⁶.

However, if the program reforms apply only to newly hired employees, the timing of the impacts is more complicated.

- In the case of Alternative A, the cost changes associated with the programmatic reforms would emerge slowly as the workforce turns over. However, the requirement that employees pay one-half of normal costs for pensions would have an immediate impact. The savings from this provision would be modest at the state level, since most employee groups are already paying close to one-half of normal costs. The savings would be much larger at the local level, however, since many employees are currently paying significantly less than one-half of normal costs, due in part to employers’ pickup of their contributions. We estimate that this provision would reduce local employer costs by well over \$2 billion annually.
- As we modeled Alternative B (a defined contribution program), under the scenario where the reforms only apply to new employees, the cost savings from the shift to the new system would also emerge slowly over time as the workforce turns over. However, if the caps on employer normal costs (6 percent of payroll for non-safety and 9 percent for safety employees) also apply to existing pension systems, most of the savings we identify below would occur immediately.

⁶ As noted in Chapter 1, our analysis looks solely at the financial impacts the proposed alternatives under different implementation scenarios. We have not determined whether the provisions or implementation scenarios comply with constitutional provisions, labor law, or IRS regulations.

Effects on State-Level Funds

Using the funds' actuarial assumptions about investment returns, both of the CFFR alternatives would result in cost reductions for state-level funds (CalPERS State and Schools, CalSTRS, UC, Judges, and Legislators).

- The pension and thrift provisions of Alternative A would reduce annual costs by around 0.25 percent of payroll, or the low hundreds of millions annually in today's dollars.
- The Alternative A retiree health reforms would reduce retiree health care costs by about \$2 billion in today's dollars.
- Alternative B would result in an annual reduction in employer costs of about 4 percent (\$2.7 billion in today's dollars) for pension and defined contribution programs, but would have no impact on retiree health benefit cost accruals.

Estimates Assume Full Adoption of Federal Thrift Plan. Alternative A assumes the full implementation of the federal thrift plan, with an expected employer costs about 5 percent of payroll. If the state were to offer a less-generous plan – say a 3 percent match – the modest reduction noted above would become significantly larger. (Each 1 percent decline in annual contributions translates into about \$700 million in state-level savings.)

Impact of Lower Investment Returns On Relative Costs

While the initial costs assigned to the alternatives would be based on the actuarial assumptions used by the respective pension systems, the ultimate cost will depend on actual experience relating to investment returns and other factors. As noted in our estimates for specific funds, if the rate of return is less than currently assumed by state and local pension funds, then both current law and the alternative systems will experience cost increases. However, the extent of the cost increases will be significantly less under the alternatives, because of their partial or full reliance on defined contribution programs.

For example, under Alternative A, the modest reduction in state costs cited above using a 7.75 percent investment rate of return assumption would expand to over \$3 billion (5 percent of payroll) using a 5.75 percent return assumption. Under Alternative B, the \$2.7 billion savings under the 7.75 percent rate-of-return assumption is about \$7.5 billion (11 percent of payroll) under a 5.75 percent rate.

Of course, if pension investment returns exceed the assumed 7.75 percent over the long-term future, the opposite relation holds.

Effects on Local Governments

We estimate that adoption of the CFFR alternatives would produce significantly larger overall pension-related savings at the local level (which includes CalPERS contracting agencies as well as county, city, and district funds). Based on our modeling of some of the more common benefit structures, we believe that implementation of Alternative A would reduce average local costs by 5.5 percent to 7.5 percent of payroll – or about \$3 billion to \$4 billion in today's dollars. The Alternative B savings would be 7.5 percent to 9 percent of payroll, or \$4 billion to \$5 billion in today's dollars.

The ranges partly reflect differing assumptions regarding the magnitude of employer pickup of employee contributions and employer contributions to supplemental defined contribution retirement accounts. As noted in our detailed discussion for local governments, the former practice, in particular, is common at the local level, though the exact magnitude of the cost impact is uncertain.

We did not explicitly model local results related to retiree health care, but it is likely that adoption of CFFR retiree health reforms would produce an additional savings (potentially in the high hundreds of millions of dollars annually in today's dollars).

As with the state, these comparisons are based on current investment rate of return assumptions used by public pension systems. Use of a lower assumed rate of return produces much larger savings at the local level as well.

Conclusion

As noted above, full implementation of both CFFR alternatives would reduce employer costs at both the state and local level over time. Using the actuarial assumptions of the respective funds about investment rate of return and other factors, the pension reform provisions of Alternative A would result in modest declines in state pension related costs and more significant reductions in retiree health care costs. Alternative B would produce moderate savings in state pension costs. It does not reform retiree health care.

At the local level, we estimate that both alternatives would reduce overall employer costs for retirement income programs by a significant amount, though effects would differ from one agency to another depending on their existing benefit programs. The larger overall savings compared to the state reflects relatively richer plan designs and the prevalence of employer pickup of employee contributions at the local level.

In addition to savings with respect to expected costs, the proposals would reduce governments' exposure to unexpected costs arising from weaker-than-expected investment returns and other factors. The reduction in costs and volatility will benefit the state in the long term, by reducing funding pressures that retirement costs will impose on other areas of state and local budgets. The reforms will also pay dividends in the near term, through their impacts on state and local governments long-term liabilities, their credit outlooks, and, potentially, their access to credit markets and thus their ability to finance infrastructure spending.⁷

⁷ See for example, *Combining Debt and Pension Liabilities of U.S. State Enhances Comparability*. Moody's Investors Service, Special Comment, January 26, 2011.

Chapter 3 Appendix

This appendix summarizes our approach to the employer cost comparisons for the defined benefit and defined contribution programs discussed in Chapter 3.

General Approach

For defined benefit programs, including pension and retiree healthcare benefits, the respective California governing bodies currently determine employer cost based on annual actuarial valuations incorporating assumptions and methods that they select. For these programs, our approach was to simulate the cost results that those valuations would determine for the proposed reforms, generally using the same actuarial methods and assumptions — as described in the most recent valuation report. As of this Chapter's preparation in June 2011, the most recent report is as of June 30, 2010 for retiree healthcare benefits covering state employees and for pension benefits for teachers, and as of June 30, 2009 for the other pension benefits considered.

For the defined contribution component of Alternatives A and B, we calculate the employer contribution as a percent of payroll for a representative year (2013), based on the same population modeling and salary increase assumptions as apply for defined benefit plans, using additional assumptions regarding employee contribution rates under matching arrangements.

These processes are described further below.

Population Modeling

We modeled each active employee population by reference to the five-year age and service summary included in the most recently published actuarial valuation report for that group. For state non-safety and CHP employees, this included the number of employees within each five-year band covering age and service (for example, number of employees between ages 35 and 39 with between 10 and 14 years of service), and their average pay on the valuation date. For teachers, report information did not include average pay by age-service unit, so it was necessary to impute it to each of the 81 populated age-service cells.¹ Average pays as of June 30, 2009 were then increased to reflect the overall change in payroll as of June 30, 2010.

The central age and central service for a cell is treated as its age and service — employees between ages 35 and 39 with between 10 and 14 years of service are treated as age 37 with 12 years of service. Judgments are made as appropriate for border cells: for example, teachers younger than age 25 with between one and five years of service are treated as age 24.

Each cell is then subdivided into two sub-cells that each inherit the age and service of the parent. One contains the majority of the employees in the parent (85 percent for teachers, 90 percent for state non-safety employees and 95 percent for CHP employees) with assigned pay equal to a portion (98 percent for teachers, 90 percent for state non-safety employees and 99 percent for CHP employees) of the average for the parent, and another containing the remaining employees.

¹ This was done as follows: (1) average annual pay among teachers under age 25 with zero years of service as of June 30, 2010 is assumed to be \$37,000; (2) for service up to 20 years, average pay for a cell is assumed to be 21.9 percent higher than for a cell with five fewer years of service; (3) among cells with a given level of service, pay is assumed to be higher by 0.3 percent for each additional year of age. The resulting distribution produces an average annual pay as of June 30, 2010 among all 441,544 active teachers that is very close to the \$59,507 average for the entire group shown in the valuation report.

Capitol Matrix Consulting

For example, a cell containing 1,000 employees with an average annual pay of \$70,000 would divide into two sub-cells, as follows.

- teachers: (i) 850 earning \$68,600, and (ii) 150 earning \$79,882
- state non-safety employees: (i) 900 earning \$63,000, and (ii) 100 earning \$133,000
- CHP employees: (i) 950 earning \$69,300, and (ii) 50 earning \$83,300.

This division is necessary to properly reflect the Alternative A pay cap, Social Security replacement benefits and other features with costs that depend not only on average pay, but also on the dispersion around the average. For example, assume that the pay cap for a given year is \$80,000, where that is also that year's average earnings among a cohort of workers. If we treated each employee within the cohort as earning the \$80,000 average, the cap would appear to have no effect. But we know that some within the cohort will earn more than the average, and some less. The cap will impact those earning more, having no effect on the others — but leaving a net impact for the group as a whole. The division into sub-cells with pay levels that differ from the overall average attempts to capture this impact.

The only characteristics of the resulting sub-cell are the number of employees it represents and their current age, years of service and pay. Historical information, including prior year pay and contribution amounts, are derived via the actuarial assumptions. No prior service purchases are assumed. Since gender is not assigned to a cell, where actuarial assumptions specify different rates for males and females (mortality, turnover, retirement, refund election), we instead apply a blend of the male and female rates on a unisex basis.

Results are first determined by treating each sub-cell as a single employee with the associated age, years of service and current pay; results are then multiplied by the number of employees that the sub-cell represents. This is repeated for each sub-cell, with the values summed to arrive at group-wide results.

The hypothetical local non-safety group was modeled using the state non-safety population.

Defined Benefit: Valuation Process

A simplified actuarial valuation is performed for each sub-cell. The following describes the process for pension benefits. A different but similar process applies for retiree healthcare benefits.

1. Various interim values are calculated as of each anniversary from age at hire through age 75 based on the applicable assumptions, separately for provisions under current law, Alternative A and Alternative B. These include: pay; service; employee contribution reflecting past and future contribution rates; employee contribution balance based on assumed investment return; employee contribution balance based on assumed plan crediting rate; vesting status; assumed commencement age; average pay; Social Security wage base; projected 35-year average pay for Social Security; projected Social Security primary insurance amount, and portion attributable to service to date; pension payable beginning at assumed commencement age; present value factors as of assumed pension commencement age, reflecting applicable forms of payment (single life annuity, joint and 25 percent or 50 percent survivor annuity, annuity payable until age 62, annuity commencing at the later of current age and 62, lump sum payable upon death), each modified to reflect expected cost-of-living adjustments where applicable.
2. Based on the amounts in 1., the following are determined both (i) as of age at hire and (ii) as of current age, with respect to employment termination at each subsequent age from age at hire through age 75:

- A. the excess, positive or negative, of the present value of vested pension and post-retirement death benefits payable with respect to that termination over the present value of the employee contribution balance (based on assumed investment return) as of that termination
 - B. the excess, positive or negative, of the present value of the employee contribution balance (based on assumed investment return) as of that termination over the present value of the employee contribution balance (based on assumed plan crediting rate) as of that termination
3. Based on the actuarially assumed rates of employment termination, retirement, and election of refund of contributions at each age (which rates also vary based on age at hire), the following probabilities are developed with respect to each future age (i) from entry age through age 75, and (ii) from current age through age 75: probability of termination at that future age with a refund of accumulated employee contributions, and probability of termination at that future age with immediate or deferred pension benefits — i.e., without a refund of accumulated employee contributions.
 4. Separately with respect to the values developed as of entry age and as of current age, for each subsequent age through age 75, the result in 2.A. for that age at termination is multiplied by the probability in 3. of termination at that future age with immediate or deferred pension benefits. The sum for all such future termination ages is the final result of this step.
 5. Separately with respect to the values developed as of entry age and as of current age, for each subsequent age through age 75, the result in 2.B. for that age at termination is multiplied by the probability in 3. of termination at that future age with refund of accumulated employee contributions. The sum for all such future termination ages is the final result of this step.
 6. Separately with respect to the values developed as of entry age and as of current age, the sum of the final results in 4. and 5. is the present value of net employer funded benefits as of entry age and as of current age, respectively.
 7. Based on the results in 3., the probability that the employee will earn each future year's salary is known. Separately with respect to the values developed as of entry age and as of current age, that probability is multiplied by the assumed salary for the year, and discounted for interest to entry age or current age, as appropriate. The sum of these values for all such future termination ages is the present value of future salaries, determined as of entry age and as of current age.
 8. The following results are then calculated for the employee represented by the sub-cell.
 - *entry age normal cost rate*: the present value of net employer funded benefits as of entry age (from 6.) divided by the present value of future salaries as of entry age (from 7.)
 - *current normal cost*: the product of the entry age normal cost rate and current annual salary
 - *accrued actuarial liability*: the excess of the present value of net employer funded benefits as of current age (from 6.) over the product of the entry age normal cost rate and the present value of future salaries as of current age (from 7.).
 9. Each of the values from 8. is multiplied by the number of employees in the sub-cell.

This process is repeated for each sub-cell in the population. The sum of each result in 9. for all sub-cells is the result for the employee group. The group normal cost as a percentage of payroll equals the total current normal cost for the group divided by the total of current salaries for the group.

For the scenario in which the reforms would apply to future benefits of current employees, the entry-age normal cost rate is determined as if the reforms had always been in effect. The reforms

would generally reduce both normal costs and the accrued actuarial liability. The impact on annual cost was determined as the sum of the impact on normal cost and the amount to amortize the change in accrued liability over the relevant period: 20 years for state and local pension purposes, and 30 years for retiree healthcare benefits and teacher pensions. Current practice is to amortize as a level percent of expected payroll, so the amortization reflected both the discount rate (7¾ percent for pensions and 4½ percent for retiree healthcare benefits) and the underlying assumption about future annual growth in total payroll (4 percent for teachers and 3¼ percent for others).

Our modeling results for the current program generally aligned with those from the most recent official valuation.

Defined Benefit: Pension Assumptions

As indicated, in the valuation process for a given employee group we generally use the same actuarial assumptions as the relevant California governing body currently uses, as disclosed in the most recent valuation report. The assumptions used for valuing current law benefits are also used with respect to benefits under the reform proposals.

Following are instances where we use the same assumptions as the relevant California governing body. In some cases only rates for sample ages are shown in the report; unless the full rate tables were separately available, we interpolated to arrive at the rates for interim ages. In general, the assumptions differ by group.

- discount rate / investment return (except as noted otherwise to demonstrate sensitivity)
- rates of annual merit salary increase, which vary by age and by age at hire, and wage inflation
- future annual price inflation
- rates of employment termination (other than due to death or disablement), retirement and election of employee contribution refunds, which vary by age and by age at hire; as noted, where separate rates apply for males and females we applied blended rates on a unisex basis — for example, 29 percent of the male rate plus 71 percent of the female rate for teachers
- form of pension payment
- future interest crediting rate on employee contributions
- future application of Purchasing Power Protection limitations and future service purchases (none)
- employee elections under CalPERS regarding Tier One participation and Alternate Retirement Program
- days of unused sick leave at termination of service

The following table shows instances where we used pension assumptions that differ from those currently used in the official valuations. In some cases these differences enabled us to simplify the valuation process without introducing significant distortion, and in others they reflect that the assumption is relevant only under a reform proposal.

Assumption	Official Valuations	Chapter Three
Post-retirement mortality	Rates separately developed based on the experience of each group	2011 static healthy annuitant rates per Internal Revenue Service Notice 2008-85, on a unisex basis
Age at pension commencement for pre-retirement termination	Probabilities for deferred commencement at multiple ages	The earliest available age following termination
Pre-retirement death and disablement	Rates separately developed based on the experience of each group	None
Marriage (CalPERS survivor continuance benefit)	Specified probability of marriage, by group; wife three years younger than husband	100 percent probability of marriage; wife same age as husband
Future national average wage growth (Social Security benefits)	Not applicable	3.5 percent per year
Social Security wages	Not applicable	112 percent of base pay; for any year prior to hire and after age 22, covered wages progress to covered wages for year of hire per past increases in national average wages; for each year after termination and prior to age 62, if any, covered wages progress from covered wages for final year prior to termination per future annual increases in national average wages
Employer-provided portion of Social Security benefit	Not applicable	One-half times the ratio (not in excess of 1) of years of service to 35 years, times the primary insurance amount payable during the member's life if the spouse has an equal benefit based on his or her own covered wage history
Earnings limitation on temporary annuity (Alternative A)	Not applicable	Assumed not to apply

Assumption	Official Valuations	Chapter Three
Employment termination in connection with major reorganization, reduction in force or transfer of function (Alternative A)	Not applicable	Assumed not to apply
Employee pension contribution rates under Alternatives A and B ²	Not applicable	Alternative A: 3 percent of pay (4.5 percent for CHP and 4 percent for teachers) Alternative B: 0.0 percent of pay (4.5 percent for CHP and teachers)

Defined Benefit: Retiree Healthcare Assumptions

Valuations that determine California’s cost for state employee retiree healthcare benefits use the same demographic assumptions as are used in CalPERS pension valuations — rates of termination, retirement, mortality, marriage and so forth — and the same general economic assumptions (regarding salary growth and general inflation). For these assumptions, we use the same values in modeling retiree healthcare costs for the state non-safety group and the CHP group as we use in modeling their pension costs. We use the same discount rate (4.50 percent) as is used by the state.

The assumptions specifically relating to retiree healthcare benefits in the official valuation process are complex and reflect employee data not available to us. The following summarizes some of the key respects in which our assumptions differ.

² Some of the rates assumed for purposes of Chapter Three as shown here differ from those assumed in Chapter One results. In total, employee contributions are to cover about half of the expected cost of future pension accruals (excluding the expected cost of the Social Security replacement benefit under Alternative A, which reflects only the employer-funded portion of Social Security). Under Alternative A, expected cost for this purpose is based on current assumptions including discount rate; under Alternative B expected cost for this purpose is based on current assumptions except for use of the discount rate mandated by private sector rules, assumed to be 6 percent .

Assumption	Official Valuation	Chapter Three
Probability that eligible retiree will elect coverage	Based on level of employer subsidy	100 percent
Dependent coverage	40 percent probability of single-party coverage and 60 percent probability of two-party coverage	Costs modeled by increasing retiree-only costs by 65 percent
Per capita claims costs	Extensive rate tables are used, whereby costs vary by age, by individual health plan and by gender	Total medical and dental costs for a year are 120 percent of the maximum state contribution for the year for coverage prior to age 65, and 67 percent of the maximum thereafter
Future health care cost increases	For dental benefits and Medicare Part B premiums, 4.5 percent per year; otherwise, a rate of increase that gradually reduces from 9 percent for 2012 to 4.5 percent for 2019 and beyond	5 percent per year

Defined Contribution Process

Cost estimates for defined contribution components are more straightforward. Employer costs as a percent of payroll were estimated for 2013 as a representative year, using the same employee population data as was used for defined benefit estimates. Salaries for 2013 were projected on the same basis as for defined benefit purposes.

Employer matching contributions depend on employee contribution rates. Based on experience with private sector arrangements, we assumed that employees would contribute a specified percentage of the maximum subject to match; this maximum is 5 percent of pay under Alternative A and is 6 percent of pay under Alternative B (9 percent for CHP). The specified percentage is 50 percent, plus 1 percent for each year that the employee is over age 35, plus an additional 1 percent for each \$1,000 by which his salary (in 2011 dollars) exceeds \$40,000. For example, an employee who will be age 45 in 2013 with an annual salary of \$60,000 when expressed in 2011 dollars is assumed to contribute at 80 percent of the maximum matched rate for 2013: 50 percent plus 10 percent for age and 20 percent for pay level. Under Alternative A, this means an employee contribution of 4 percent of pay (80 percent of 5 percent), and an employer match of 3.5 percent of pay (100 percent of the first 3 percent and 50 percent of the next 2 percent).

In addition to matching cost, the defined contribution program under Alternative A includes employer contributions that are not contingent on employee contributions: 1 percent of pay, plus 3 percent (4 percent for CHP) of pay in excess of the pay cap that applies under the pension program. Total employer defined contribution costs are the sum of matching contributions and these non-matching benefits. Costs were not reduced to reflect potential use of forfeited employer contribution balances derived from the termination of non-vested employees.

The employer contribution and employee salary for 2013 was determined for each sub-cell, and those values were multiplied by the number of employees represented. This was repeated for each sub-cell in the group, and the results accumulated. The employer cost as a percent of payroll for a group equals the total of 2013 employer contributions for the group divided by the total of 2013 salaries for the group.

Caveats

We believe that the cost estimation process used to develop Chapter 3 results provides a reasonable basis upon which to draw some general conclusions about the financial impact of the proposed CFFR reforms. However, even as detailed a process as was used here falls short of what can be done by those with access to detailed employee data and more robust valuation systems.

The following factors reflect the most important qualifications that apply to the Chapter Three results.

- *Behavioral Change:* As noted in the main text, we applied the same assumptions in modeling the proposed reforms as are used for the current law designs — including the same assumed rates of retirement. But the reforms could lead to behavioral change, such as later retirement than is anticipated under current law provisions; this may be especially the case for Alternative A, given its retiree healthcare reforms. To the extent that such change is predictable, with the exception of the teacher group it would result in greater reductions in pension cost than we reflect for the scenario where the reforms apply to current employees (given the extensive early payment subsidies included in benefits earned prior to the reform effective date)³, and greater reductions in retiree healthcare cost than we reflect (given that employer subsidies would apply for fewer years).⁴
- *Employee Data:* Use of limited summary information in lieu of detailed employee data introduces potential distortions. For example, past employee contributions in our modeling are based on assumed pay history per the salary scale assumption, and can differ from the actual history of contributions captured in the detailed data. Actual data reflects the full distribution of salaries, which is only approximated via our use of two pay levels per age-service cell.
- *Assumptions:* Not recognizing pre-retirement death and disablement is a source of difference from the official valuations.

Of course, what finally matters is not how faithfully our modeling anticipates the cost estimates that would be obtained via the official valuation processes, but how well results under any approach will turn out to reflect the program costs that ultimately develop. These defined benefit costs are in principle unknowable until well after they have been incurred. An important feature of the reform proposals is that they reduce exposure to defined benefit cost surprises that arise when experience turns out other than expected.

³ Because the pension design included under Alternative A, based on the Federal Employee Retirement System, includes certain enhancements upon reaching specified age and service thresholds, not recognizing this behavioral change can understate pension costs under that Alternative by not recognizing that in certain cases employees, especially CHP employees, would receive larger pension value by delaying retirement. This is most significant with respect to members who would have little or no service prior to the reform effective date, where there is no offsetting gain from delayed payment of the pension based on pre-reform service. However, there would likely still be offsetting savings under the retiree healthcare component.

⁴ Of course, a behavioral change such as delayed retirement would have consequences beyond the impact on retirement benefit costs.