



The Emerging Role of Defined Contribution Plans for California Public Employees

April 2014

Introduction

The Public Employees' Pension Reform Act (PEPRA) of 2013 changes defined benefits for new public employees in the State of California.¹ These new members earn less in defined benefits than Classic employees.² To retire with benefits comparable to Classic employees, PEPRA employees can either work longer or save to augment their defined benefits. The purpose of this paper is to estimate the savings and additional years of service PEPRA employees need to retire with income comparable to Classic employees.

Public employees typically rely on defined benefit (DB) retirement plans as their primary retirement income and defined contribution (DC) retirement plans to supplement that income. Under PEPRA, DC plans may assume a more important role in retirement planning. This paper uses hypothetical CalPERS member scenarios to:

- Estimate PEPRA impacts to DB plan retirement benefits
- Estimate target replacement savings to offset the PEPRA impact
- Estimate monthly DC plan contributions to achieve target replacement savings
- Estimate the number of additional years of service needed to offset PEPRA impacts
- Demonstrate the benefits of sustained long-term savings

Defined benefit and defined contribution plans

DB plans provide guaranteed lifetime retirement benefits. The amount of the benefit reflects a retirement formula which includes a benefit factor based on age at retirement, years of service and highest average salary over a specific number of years. Employer and employee contributions and investment earnings fund DB plans.

DC plans are tax qualified deferred compensation accounts prescribed by Internal Revenue Code.³ DC plans function like individual accounts where the employee, employer or both contribute. Employees determine the amount of contributions and allocate contributions across investment funds.

One key difference between DB and DC plans is which party assumes investment and longevity risks. Longevity risk is the risk that an employee will outlive their savings. Investment risk refers to the chance that investments underperform.

Employers assume DB plan investment and longevity risks. If plan investments do not perform as projected, employers need to contribute more. Normally, employers are legally required to fund benefits throughout the employee's life and, in some cases, throughout the lives of designated beneficiaries.

Employees assume DC plan investment and longevity risks. The savings at retirement depend on contributions and investment returns. Higher contributions and investment returns lead to higher savings, and lower contributions and investment returns lead to lower savings.

Scenario assumptions

PEPRA reduces benefit formulas and increases retirement ages. It also standardizes California DB pension benefits by decreasing the number of DB formulas for Miscellaneous and Safety employees.⁴ As a result, PEPRA employees will receive less in DB retirement benefits than Classic employees retiring at the same age with the same years of service. This study develops four hypothetical employee scenarios using CalPERS Classic and PEPRA benefit assumptions to estimate PEPRA impacts and the savings or additional years of service employees need to mitigate those impacts given the specified retirement age:

1. Miscellaneous employee retiring at age 55
2. Miscellaneous employee retiring at age 62
3. Safety employee retiring at age 50
4. Safety employee retiring at age 57

The hypothetical scenarios assume that both Miscellaneous and Safety employees retire with 20 years of service, a starting salary of \$46,000 and final annual salary of \$92,200.⁵

Figure 1 specifies the benefit factors applied to the four scenarios:

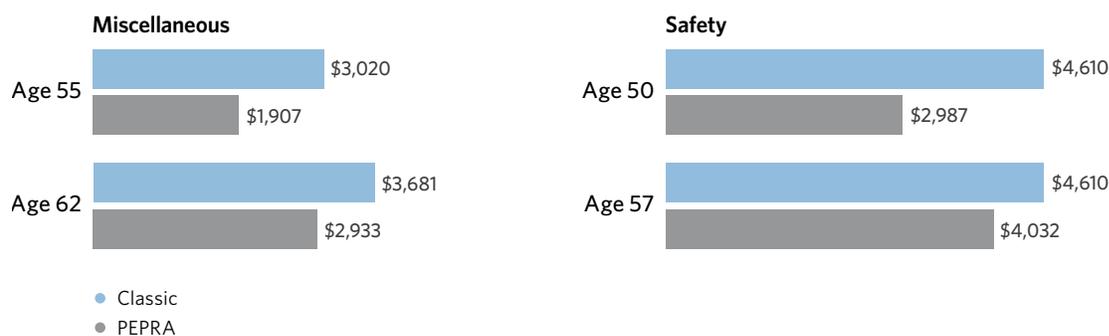
Figure 1: Benefit Factors

	Miscellaneous		Safety	
Retirement Age	55	62	50	57
Classic Factor ⁶	2.00%	2.44%	3.00%	3.00%
PEPRA Factor	1.30%	2.00%	2.00%	2.70%

PEPRA impact

To estimate PEPRA monthly retirement benefit impacts, CalPERS researchers used the scenario assumptions to estimate DB plan benefits at retirement:

Figure 2: Retirement Benefit



PEPRA Miscellaneous employee retirees will receive:

- \$1,113 less per month than Classic employees at age 55
- \$748 less per month than Classic employees at age 62

PEPRA Safety employee retirees will receive:

- \$1,623 less per month than Classic employees at age 50
- \$578 less per month than Classic employees at age 57

PEPRA employees wishing to retire at the same age and with the same monthly income as their Classic employee peers must save to fill the monthly DB plan benefit gap. The gap between Classic and PEPRA monthly retiree benefits decreases as employees age due to varying benefit factor increases. Therefore, employees who wish to retire at a younger age must save more than those who retire later. In the following sections, researchers estimate the overall savings (target replacement savings) and monthly contributions needed to fill the benefit gap for employees in each of the four hypothetical scenarios.

Target replacement savings

Researchers used the “4 Percent Rule” and the PEPRA DB plan retirement benefit gap to calculate the total target replacement savings for the hypothetical scenarios highlighted in this paper. The target replacement savings represents the total savings the PEPRA employees would need to accumulate during their careers to close the retirement benefit gap. Under the 4 Percent Rule, individuals can normally make their savings last throughout retirement by taking an initial 4 percent distribution of their total DC plan balance and increasing this amount for inflation each year. Research studies indicate retirees using the 4 Percent Rule can be 90 to 95 percent confident their savings will last 30 years or more (Reichenstein 10).⁷ The 4 Percent Rule may help mitigate longevity risk. *Figure 3* displays the PEPRA employee target replacement savings estimates:

Figure 3: Replacement Savings

PEPRA Miscellaneous	Retirement Age	Target Replacement Savings
	55	\$334,000
	62	\$224,414

PEPRA Safety	Retirement Age	Target Replacement Savings
	50	\$487,000
	57	\$173,400

PEPRA Miscellaneous employees planning to retire at age 55 will need to save approximately \$110,000 more than those who plan to retire at 62. The difference is even greater for PEPRA Safety employees. Those who retire at 50 will need to save approximately \$314,000 more than those retiring at 57.

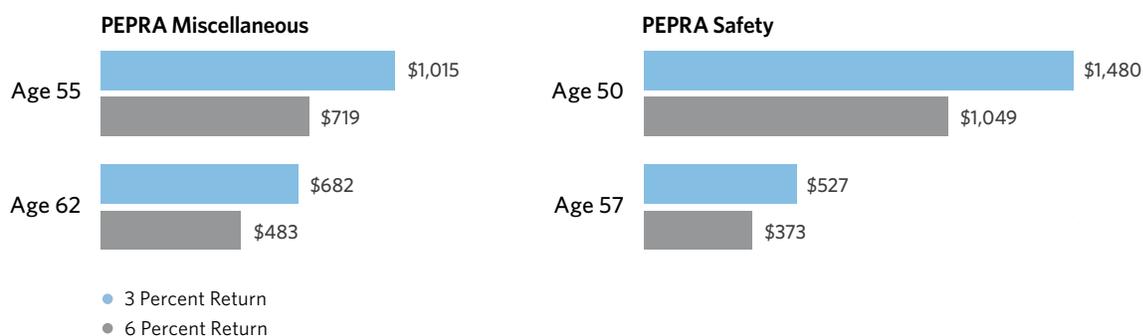
Monthly DC plan contributions

To achieve the target replacement savings, PEPRA employees could contribute to a DC plan throughout their careers. The monthly contributions required to achieve the target replacement savings is dependent on the assumed performance of the DC plan investments. Higher investment returns lead to lower required contributions and lower returns lead to higher required contributions. DC plans have no investment performance guarantee and employees assume all investment risk. Therefore, researchers assumed a range of investment returns to estimate the contributions needed to close the retirement benefit gap for each hypothetical scenario. To demonstrate how much PEPRA employees need to contribute each month to achieve target replacement savings, researchers assumed:

- Investment returns of 3 and 6 percent annually
- Interest compounded monthly
- Consistent savings for 20 years

PEPRA employees who want to retire at 50 (Safety) or 55 (Miscellaneous) will need to contribute more than those retiring at 57 or 62, respectively. *Figure 4* illustrates the monthly DC contributions PEPRA employees would need to achieve the target replacement savings assuming a 3 percent and 6 percent return on investment:

Figure 4: Monthly Contributions



Working longer to offset PEPRA impacts

PEPRA employees can also work longer than Classic employees to close the benefit gap. To estimate how much longer PEPRA employees need to work to achieve Classic employee retirement benefits, researchers increased the retirement age and corresponding benefit factors under the scenario assumptions.⁸ *Figure 5* identifies the additional years of service PEPRA employees need to achieve benefits comparable to Classic employees with 20 years of service under the four scenarios.

Figure 5: Additional Years of Service

Miscellaneous

\$3,020 monthly retirement benefit



\$3,681 monthly retirement benefit



- Classic
- PEPRA

Safety

\$4,610 monthly retirement benefit



\$4,610 monthly retirement benefit



To retire with benefits comparable to Classic employees, PEPRA Miscellaneous employees can work until:

- Age 59 – 4 years longer than Classic employees retiring at age 55
- Age 64.5 – 2.5 years longer than Classic employees retiring at age 62

To retire with benefits comparable to Classic employees, PEPRA Safety employees can work until:

- Age 55 – 5 years longer than Classic employees retiring at age 50
- Age 60 – 3 years longer than Classic employees retiring at age 57

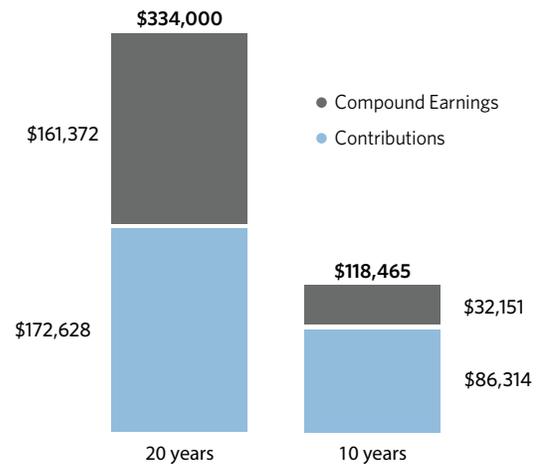
Sustained long-term savings

It is important for individuals who plan to increase DC plan contributions to understand the benefit of sustained long-term savings. Individuals who consistently contribute toward their DC plan throughout their careers may enjoy greater investment returns due to compounding. Compounding occurs when investment interest earnings are reinvested and continue growing over the long-term. DC plans offer an added benefit in that the contributions and compounding are tax-deferred.

To demonstrate the impact of compounding, researchers calculated investment growth for the Miscellaneous PEPRA employee retiring at age 55, assuming a 6 percent annual investment return. *Figure 6* demonstrates the impact of compounding on a \$719 monthly contribution.

After 20 years, the employee contributed \$172,628 and has \$161,372 in compound earnings for a total savings of \$334,000. Compounding makes up 48 percent of the account total. Had this employee put off saving for the first ten years of his or her career, the employee would have contributed \$86,314 and had \$32,151 in compound earnings for a total savings of \$118,465. Compound earnings would make up only 27 percent of the account total. To maximize the benefits of compounding, employees should begin saving early and save consistently throughout their careers.

Figure 6: Total Savings



Conclusion

PEPRA reduces defined benefits for new public employees by increasing the retirement age and changing the benefit factors for Miscellaneous and Safety employees. The hypothetical CalPERS PEPRA employee scenarios in this study demonstrate the need for these employees to save between \$373 and \$1,480 per month throughout their careers or work 2.5 to 5 years longer to retire with the same income as Classic employees.

DC plans provide employees with a savings vehicle to supplement their DB plan retirement benefits and meet their retirement age and savings goals. To mitigate the impact of longevity and investment risk, employees may need more DC plan savings than if the investments were part of a DB plan to achieve the same results.⁹ Therefore, it is important to save consistently over the life of their career. Sustained, long-term savings allows employees to maximize the impact of compounding.

While PEPRA reduces the defined benefits for new public employees, with careful planning and sustained long-term savings in a DC plan, PEPRA employees can retire with the same income as Classic employees. As employees become more aware of the need to save for retirement, DC plans may play a more significant role in retirement planning.

Note to reader

The hypothetical scenarios and assumptions in this paper are for illustrative purposes only and are not a direct endorsement by CalPERS. Final salary, a main component of the benefit calculation, will vary. The assumptions may not represent actual investment performance nor protect against longevity and investment risk. Readers should consider their individual circumstances and risk tolerances and consult with a financial expert to establish their individual retirement plans.

Endnotes

- ¹ PEPRA impacts all California State and local retirement systems, with the exception of charter cities and counties that administer independent retirement systems.
- ² Classic employees also include employees who were members of a public retirement system prior to January 1, 2013, and returned to work for the same public employer or different public employer after a break of less than six months.
- ³ Common types of DC plans include 401(k), 403(b), 457 and individual retirement accounts. These plans often include tax benefits.
- ⁴ PEPRA Miscellaneous employees receive a 2 percent at 62 benefit formula. PEPRA Safety employees receive one of three benefit formulas: 2.7 percent at 57, 2.5 percent at 57 or 2 percent at 57.
- ⁵ The final salary in these scenarios equate to \$53,591 in 2013 dollars. This amount represents the purchasing power of the 2033 salary of \$92,200 in 2013. The final salary is based on approximate starting salary of a Staff Services Analyst Range C (State classification) and is escalated based on Social Security Administration salary inflation rates. The final *average* salary used in the scenarios is based on the single highest year for Classic employees and the three highest years for PEPRA employees as required by the new law.
- The amount used for Miscellaneous employees has been modified for Social Security coverage. Researchers assumed 20 years of service based on the average years of service for all service retirements as of June 30, 2012.
- ⁶ Depending on the employer, membership classification and initial hire date, Classic employee retirement formulas vary. The scenarios use two of the most common formulas: 2 percent at 55 for Miscellaneous employees and 3 percent at 50 for Safety employees.
- ⁷ Four percent withdrawal studies assume an investment portfolio mix of 50 percent equities and 50 percent fixed income. Risk-averse retirees may prefer to use lower withdrawal rates. The 4 percent withdrawal rate is only a guideline.
- ⁸ The corresponding benefit factor for PEPRA Miscellaneous members is 1.7% at age 59 and 2.25% at age 64.5; For PEPRA Safety members, the factor is 2.5% at age 55 and 2.7% at age 60. Classic and PEPRA members have an identical benefit factor of 2.5% at age 67.
- ⁹ Findings from an August 2008 study titled *“A Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Pension Plans”* indicate “that a DB pension plan can offer the same retirement benefit at close to half the cost of a DC retirement savings plan.”

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