

DB Pensions Provide States Cost Efficient and Valuable Workforce Management Tool

**Public Retirement Systems'
Actuarial Committee
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**NATIONAL INSTITUTE ON
Retirement Security**

Reliable Research. Sensible Solutions.

Defined Benefit Plans Help Manage the Public Sector Workforce

- Commitment to stable labor markets.
- DBs may improve public sector productivity:
 - More likely to value work than private workers.
 - Tend to invest more in their skills.
- Moving to a DC design could affect recruitment, retention, productivity among this workforce.
- DB plans encourage “efficient retirement,” as employees withdraw from the labor force as their productivity declines. During economic downturns, no “job lock” with DBs.



Retirement Benefits More Important Than Salary For Public Employees

Figure 24: **Retirement Benefits are Significantly More Important to Public Workers as Compared to Private Sector Workers**

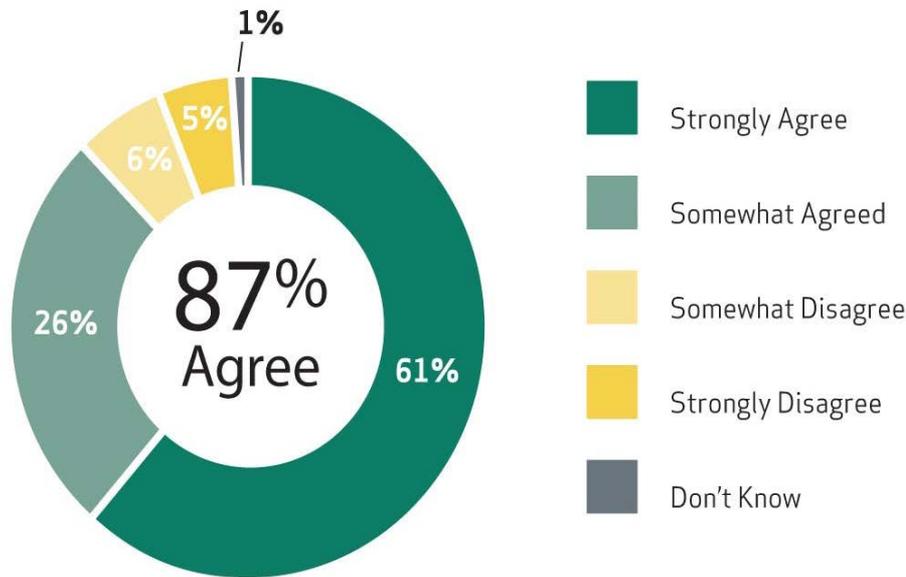
When making job decisions, how important are the following job features to you?



87 Percent: Pensions Are a Tool To Recruit and Retain Public Workforce

Figure 33: **87% of Americans Say Pensions Are Good Tool to Recruit Teachers, Police, Firefighters**

Are pensions a good way to recruit and retain qualified teachers, police officers and firefighters?



U.S.

0% 20% 40% 60% 80% 100%

Open DB



DC only



■ Likely to leave within 2 years
 ■ Likely to stay for 2 years
 ■ Would like to work for current employer until retirement

Changing Pension Landscape: DBs “Still A Better Bang for the Buck”

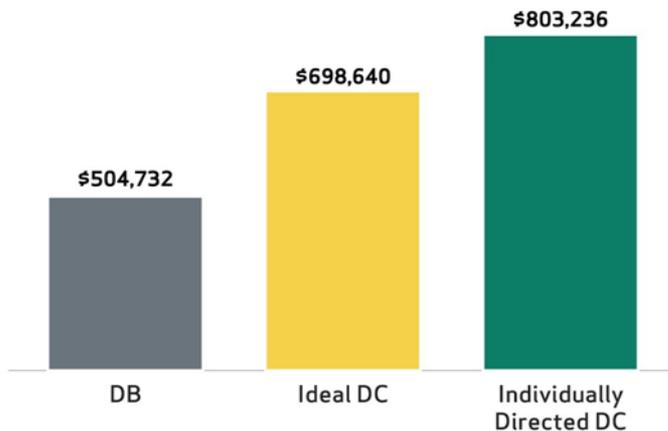
Updated assumptions and methodology to reflect:

- Concept of an “ideal DC plan”
- DC plans trends:
 - lower fees,
 - increased use of Target Date Funds (TDFs)
- DB asset allocation changes and longevity improvements.



Target: Monthly Income of \$2,700 at Age 62 and Compares 3 Plan Designs

Figure 7:
Per Employee Amount Required at Age 62
DB Plan vs. DC Plan



Contribution needed to fund DB plan is 16.3% of payroll.

DB plan

- Typical asset allocation and fees.

Individually Directed DC plan

- Target Date Fund (TDF) – mix equities & fixed investments.
- Average fund fees, modest “behavioral drag.”

“Ideal” DC plan

- TDF with same glide path.
- Same DB fees, no behavioral drag
- No individual choice.



3 Key Reasons that DB Plans Save Money Compared to DC Plans

1. Pool the longevity risks of large numbers of individuals.
2. Perpetually maintain optimally balanced investment portfolio compared to down-shifting to over time to a lower risk/return asset allocation.
3. Achieve higher investment returns as compared to individual investors because of professional asset management and lower fees.

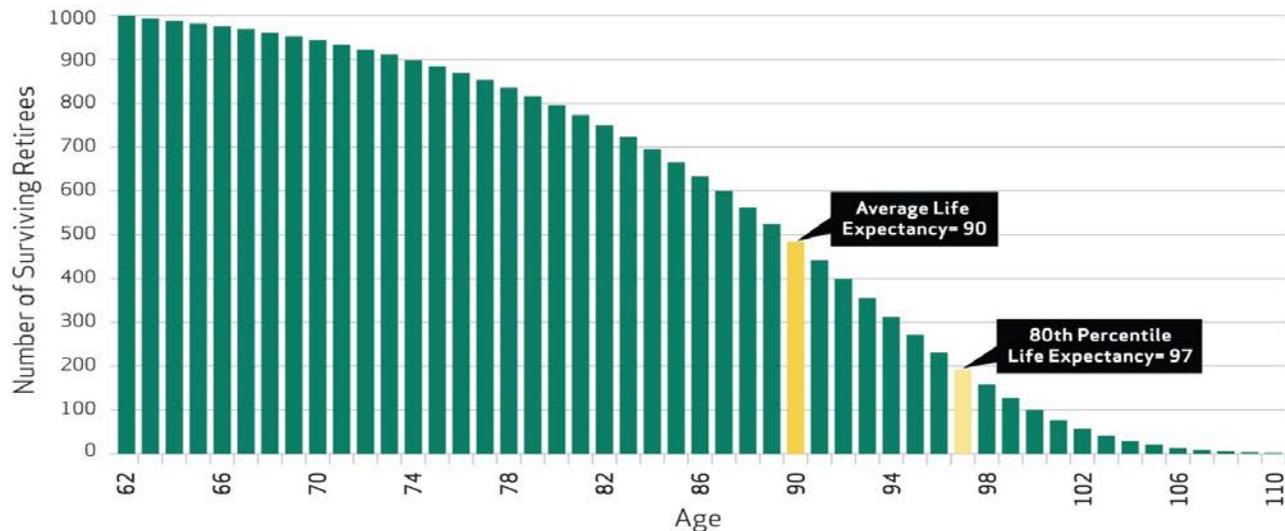


DB Plan Strength # 1

Longevity Risk Pooling

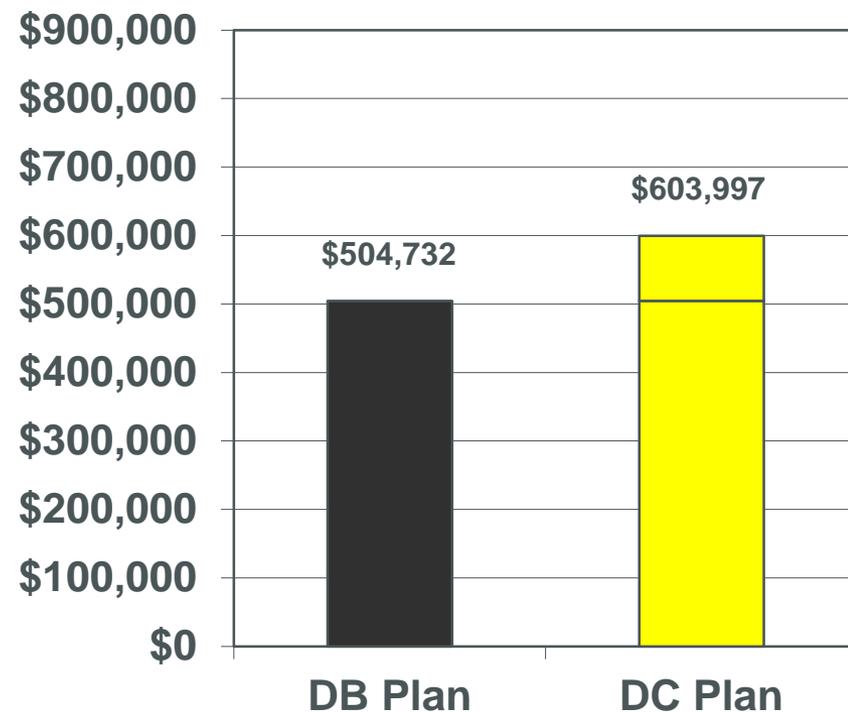
- DB plans can be funded to last the **average life expectancy** for each participant
- An individual in a DC plan to avoid running out of money, must plan to get income beyond average life expectancy or purchase an annuity at a sizeable cost.

Figure 2: Longevity of 1,000 Retired Female Teachers



Lack of Longevity Risk Pooling Drives Up Cost in DC Plans

- To “self-insure” longevity risks
 - a retiree at age 62 needs about **\$600,000** in DC plan for same monthly income.
- Based on an individual having only a 1 in 5 chance of outliving savings.
- Contributions must be **19.6%** of payroll for this protection.

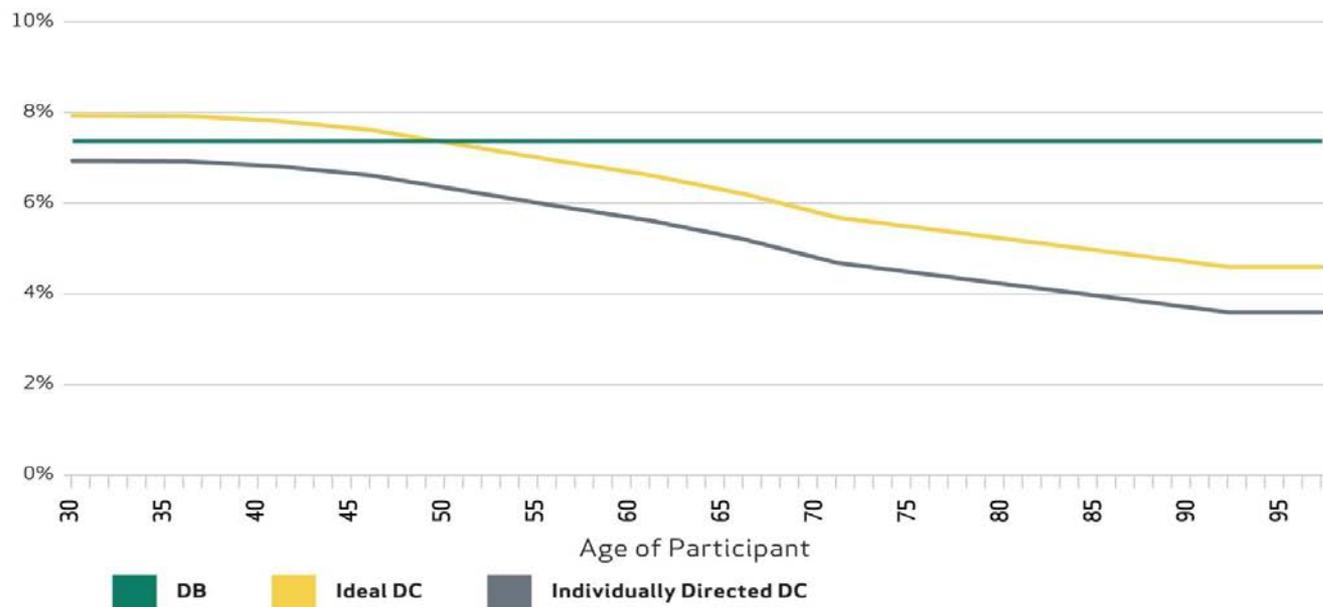


DB Plan Strength #2

Maintenance of Portfolio Diversification

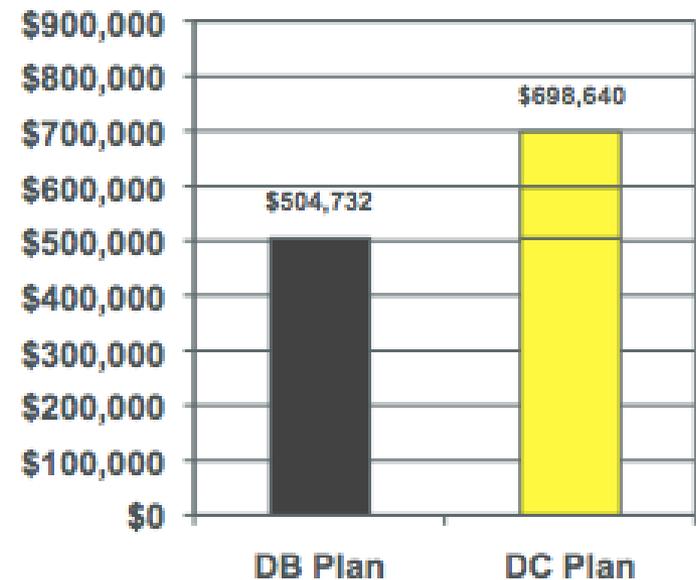
- In a DC account, individuals must adjust risk as they age to protect against market shocks, sacrificing some expected return.
- Model uses a typical TDF asset allocation until age 71, then gradual shifts to 100% fixed income by age 92.

Figure 6: **Expected Annual Investment Return (Net of Fees)**



Age-Driven Shift to More Conservative Portfolio in DC Plans Drives Up Cost

- A retiree in the DC plan must have nearly **\$700,000** account balance at age 62.
- In order to fund this amount, contributions must be **23.0%** of payroll.
- The “Ideal” DC plan costs **29% more** than the DB plan costs.



DB Plan Strength #2

Lower Fees & Professional Management

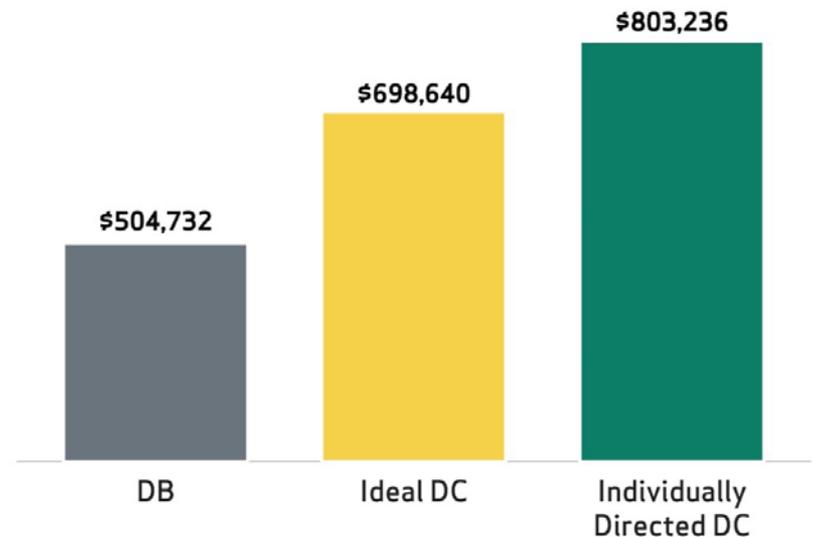
- Pooled investments in DB plans can lower expenses with group pricing.
- DB plan investments are professionally managed; in DC plan individuals tend to underperform
 - Individual investor level returns lag behind long-term returns for any asset class; failure to re-balance; and poor timing
 - “Behavioral drag” estimates range from 98 bp to well over 200 bp (CEM, Morningstar, Barber and Odean, Forbes, Callan and others).
- Study, conservatively, is based on additional 1.00%



Lower Returns/Higher Fees in DC Plans Drive Up Cost

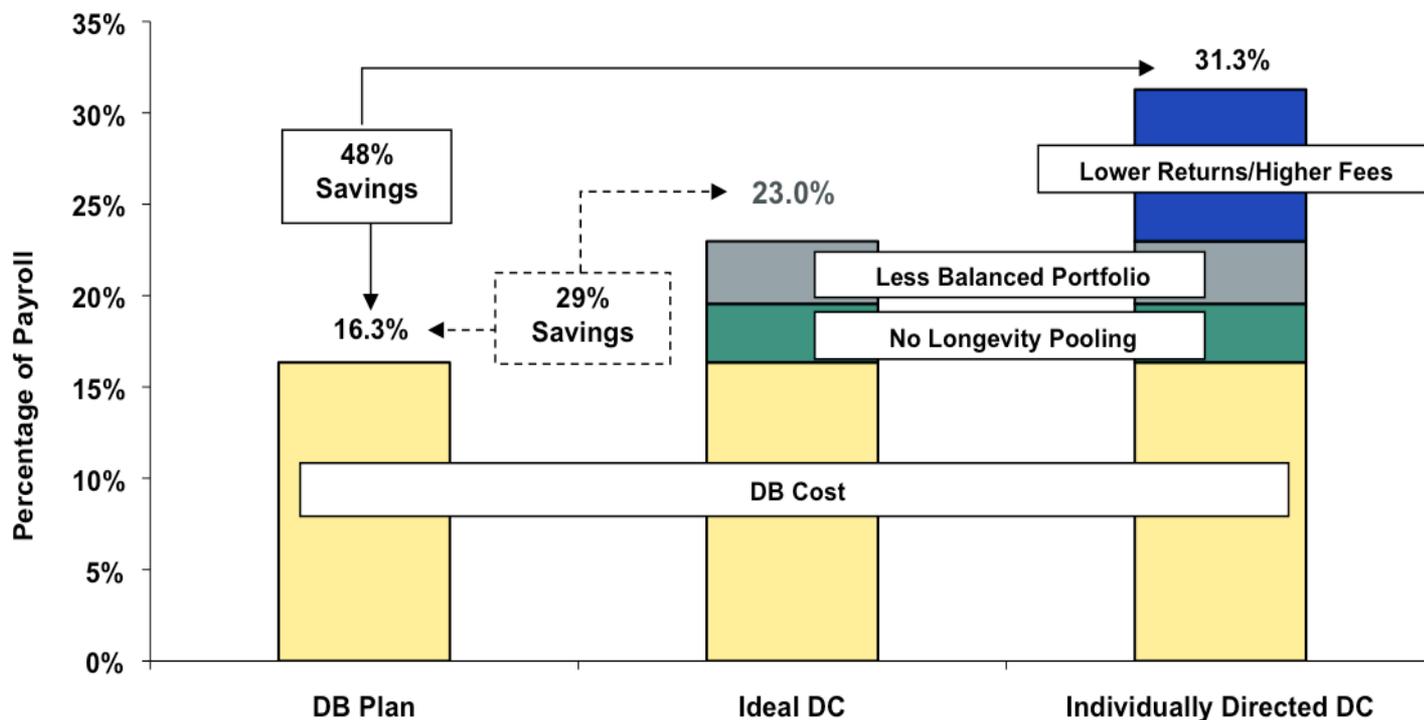
- Each retiree in the DC plan now must have more than \$800,000 in account at age 62.
- In order to fund this amount, contributions must be 31.3% of payroll, which is 48% more than the 16.3% contribution for the DB Plan.

Figure 7:
Per Employee Amount Required at Age 62
DB Plan vs. DC Plan



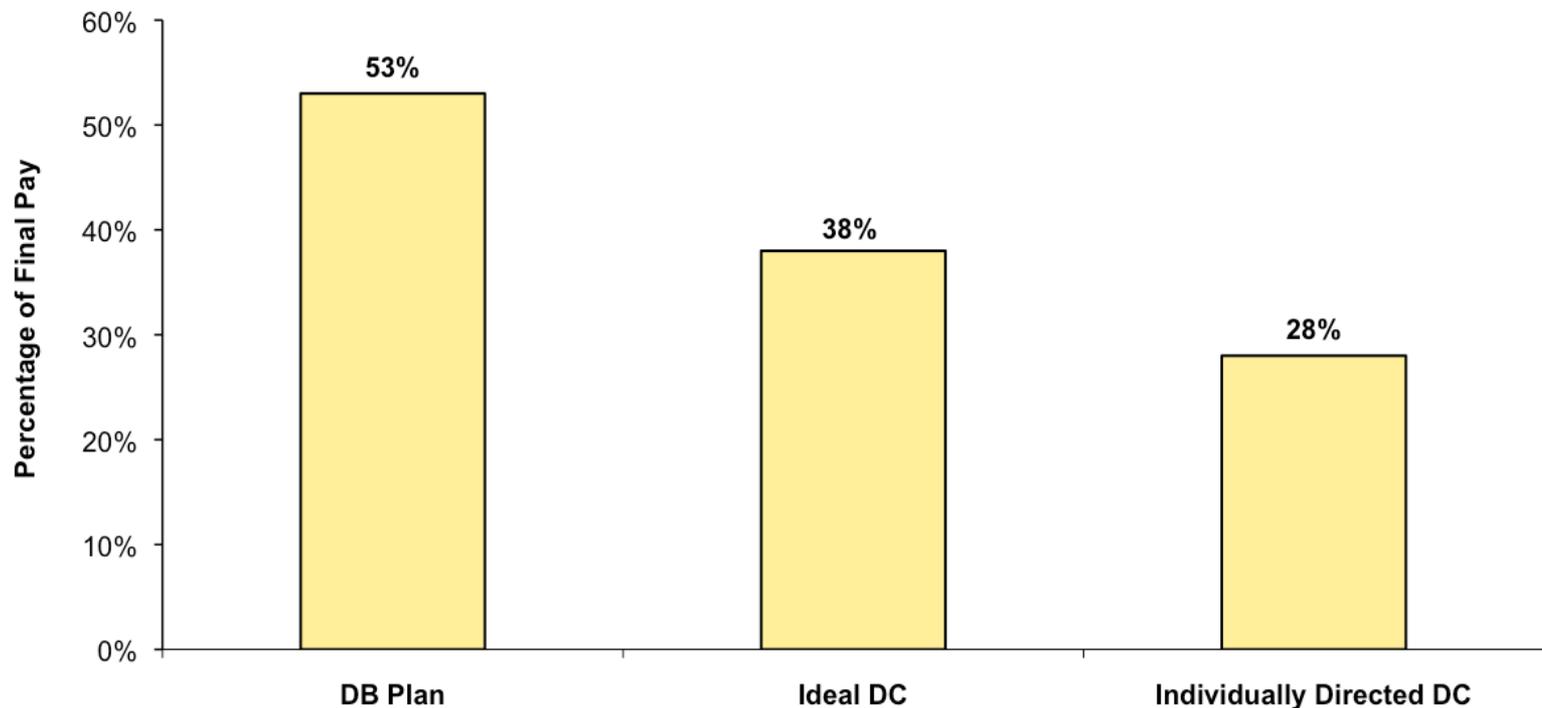
Summary: DB Plan Delivers Same Benefit at About Half the Cost of DC Plan

Figure 1: Cost of DB & DC Plans as Percentage of Payroll



Fiscal Reality is that cost can't increase – What if same cost?

Retirement Benefit from 16.3% Contribution Rate, by Type of Plan



NIRS Sensitivity Analyses

- Variations in return, expense and behavior assumptions still show significant DB-DC disparity.
- Cost if retirees buy annuities at current rates at age 62 is 25.4% of payroll vs. 23.0% for the ideal plan.
- Driven by annuity rate of return tradeoff: Public DB plan real ROR of 5.4% but Fixed Annuity only 2.8% historical real ROR. (NIRS & CRS)
- Cost of fixed annuities is **57 to 180 percent more** than funding DB pensions.



NIRS Fact Check: Manhattan Institute Exclusively Uses Private Plan Data

Fact Check

- Data misleading
- Not relevant to public pensions
- NIRS Numbers add up to a fair, accurate model
- DB investment tops TDF's

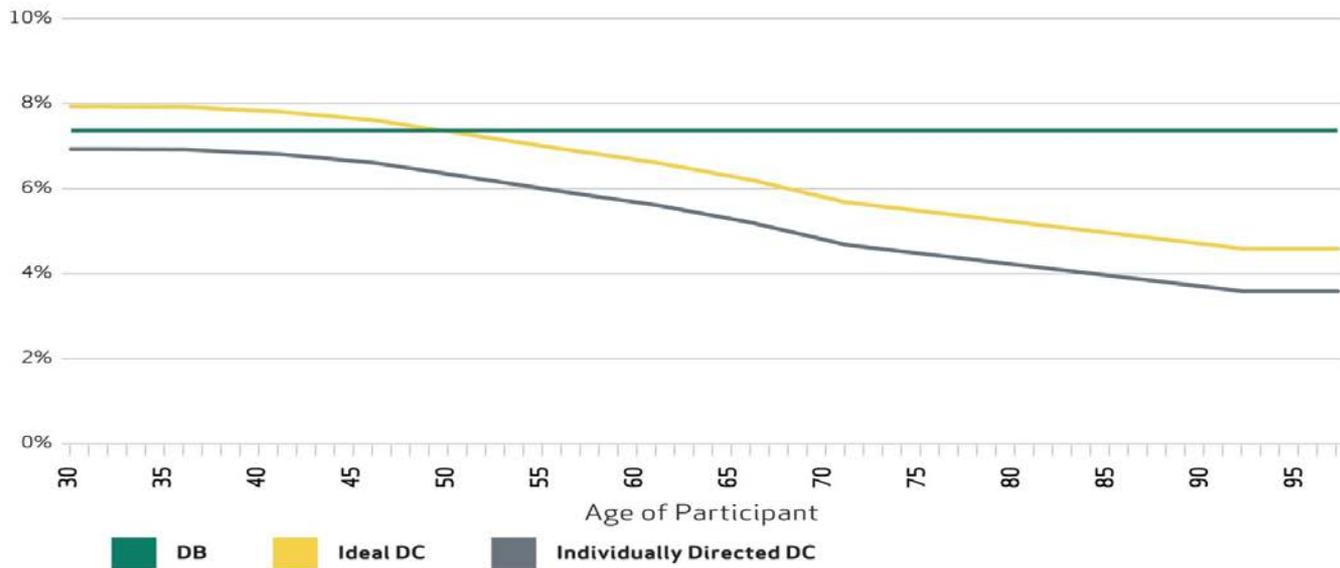
Asset Class	Typical Public Allocation	Private Sector Allocation
Cash	2.4%	3.4%
Equity	50.9%	42.0%
Debt	24.8%	39.4%
Real Estate	7.1%	3.7%
Private Equity	8.3%	4.9%
Hedge Funds	4.6%	3.8%
Other	1.9%	2.8%
Weighted Average Assumed Return	7.81%	7.26%

Maintenance of Portfolio Diversification

ROR: DB Plan 7.81% vs. TDF downshift

In a DC account, target date funds adjust risk downward lowering returns. Thus, participants get lower returns when they have the highest assets values in DC accounts.

Figure 6: **Expected Annual Investment Return (Net of Fees)**



Colorado Pension Design Study

A Comprehensive Study Comparing the Cost and Effectiveness

Office of the State Auditor Considered Alternative Plan Designs Costs

SAME BENEFIT for a 30-year Employee at 65.

Comparison of Defined Benefit and Defined Contribution Side-by-Side Plan with PERA Hybrid Defined Benefit Plan					
Targeted Benefit Approach					
State Division					
				PERA Hybrid Defined Benefit Plan	Defined Benefit and Defined Contribution Side-by-Side Plan ¹
Employer Contribution²				0.82%	5.29%
Member Contribution²				8.00%	9.03%
Relative Cost (to replace the same age-65 benefits as under the PERA Hybrid Defined Benefit Plan)				100%	160%
REPLACEMENT RATIOS (set equal at age 65 with 30 years of service)					
Age at Hire	Age at Termination	Years of Service	Benefit Commencement Age		
35	65	30	65	72.2%	72.2%
35	62	27	62	62.5%	61.0%
35	60	25	60	49.7%	50.2%
40	60	20	65	39.6%	43.3%
25	45	20	65	20.6%	32.5%
40	50	10	65	13.0%	18.0%
40	43	3	65	4.4%	2.0%

Source: Gabriel, Roeder, Smith & Company.

¹ **Features of the Alternative Plan:** Defined benefit plan multiplier of 1.50% of final 3 year's pay; the Employer contributes 5.29% of pay. Defined Contribution Plan: Members contribute 9.03% of pay, the Employer contributes 0% of pay, the fund earns 5.5% return each year; the account balance at age 65 is converted to a lifetime annuity based on 5.5% and the valuation mortality table.

² Contribution amounts are calculated as a percentage of employee salary.

Colorado Pension Design Study

A Comprehensive Study Comparing the Cost and Effectiveness

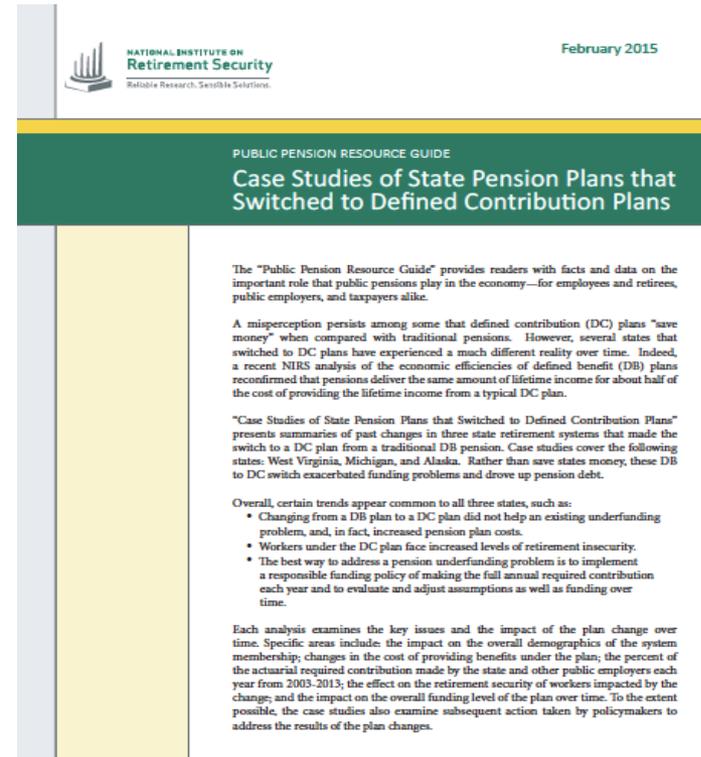
Office of the
State Auditor
Considered Plan
Benefits from
Alternative
Designs

KEEP COSTS
THE SAME

Comparison of Defined Benefit and Defined Contribution Side-by-Side Plan with PERA Hybrid Defined Benefit Plan					
Targeted Contribution Approach					
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Employer Contribution ²				0.82%	5.29%
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Relative Cost (set equal)				100%	100%
REPLACEMENT RATIOS					
Age at Hire	Age at Termination	Years of Service	Benefit Commencement Age		
35	65	30	65	72.2%	54.4%
35	62	27	62	62.5%	46.5%
35	60	25	60	49.7%	37.7%
40	60	20	65	39.6%	31.3%
25	45	20	65	20.6%	20.1%
40	50	10	65	13.0%	11.7%
40	43	3	65	4.4%	0.8%
Source: Gabriel, Roeder, Smith & Company.					
¹ Features of the Alternative Plan: Defined benefit plan multiplier of 1.50% of final 3 year's pay; the Employer contributes 5.29% of pay. Defined Contribution Plan: Members contribute 3.53% of pay, the employer contributes 0% of pay, the fund earns 5.5% return each year, the account balance at age 65 is converted to a lifetime annuity based on 5.5% and the valuation mortality table.					
² Contribution amounts are calculated as a percentage of employee salary.					

NIRS' Case Studies: DB to DC Switch West Virginia, Michigan and Alaska

1. Changing from a DB plan to a DC plan did not help an existing underfunding problem; costs increased.
2. Greater retirement insecurity for workers.
3. Implement a responsible funding policy of making the full actuarial determined contribution each year.



MI Case Study --Switch to DC did not Eliminate the Underfunding Risk

- Changing from DB plan to DC plan **did not protect against future** underfunding:

	1997	2012
Funded level	109%	60.3%
Unfunded liability	Excess assets of \$734 million	\$6.2 billion
Annual required contribution	\$230 million	\$611 million

- Employees under the DC plan **face increased levels of retirement insecurity:**

	DC Plan	DB Plan
Projected benefit	\$1,600 per month (\$288,000 at current annuity rates)	\$2,050 per month

Assume starting wage of \$40,000, 2% annual wage increases and 6% net investment DC returns per year.

Case Studies of AK & WV: Switch to DC did not help Underfunding

- Best way to address underfunding is to implement a funding policy of making the full annual required contribution each year. Compare West Virginia and Alaska:

Table 1. Percentage of ARC Made to West Virginia Teachers, 2003-2013

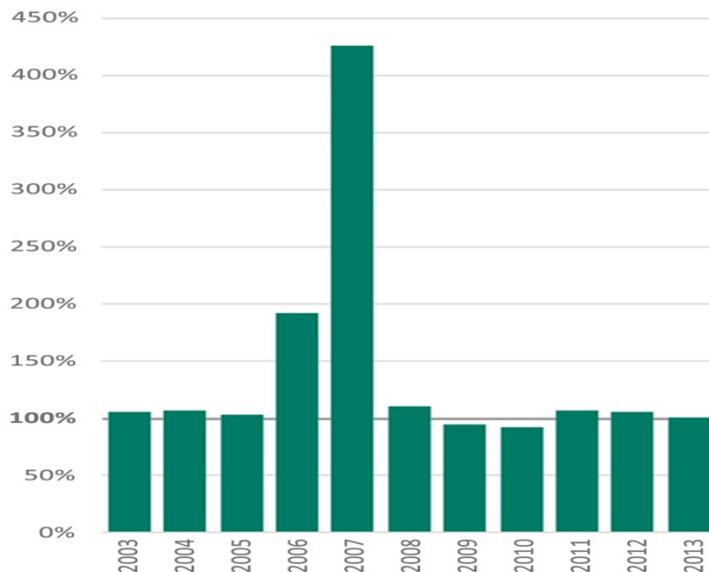
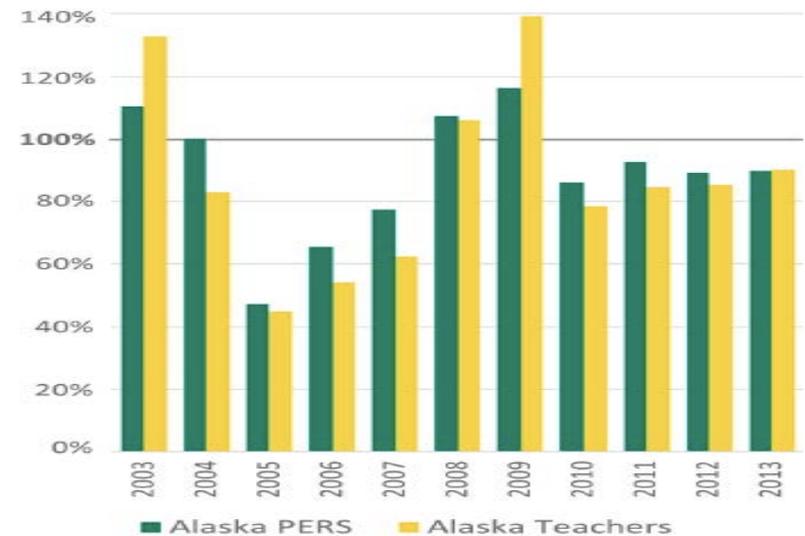


Table 1. Percentage of ARC Made to Alaska PERS and Teachers, 2003-2013



Conclusions DB Format Retained

- DB plans have built-in economic efficiencies – provide a “better bang for the buck.”
- Decision makers should continue to carefully evaluate claims that “DC plans will save money” and reduce underfunding.
- DB pensions help attract and retain workers and increase productivity.
- Public support for pension is favorable.



Links to References:

- [Still a Better Bang for the Buck](#)
- [Retirement Security 2015](#)
- [Colorado Office of the State Auditor- *A Comprehensive Study Comparing the Cost and Effectiveness*](#)
- [Case Studies of State Pension Plans that Switched to Defined Contribution Plans](#)
- [Teacher Retirement Plan Case Studies](#)
- [On the Right Track?](#)