



A Better Bang for the Buck 3.0: Post-Retirement Experience Drives Pension Cost Advantage

Webinar | January 13, 2022

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President



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Agenda

- Logistics and Introductions
- Research Review
- Q&A



Logistics

- Attendees in listen only mode.
- Questions welcome. Type question using “Question” function on control panel, and we will answer.
- Audio, technical issues during webinar, call GoToWebinar at 1-800-263-6317.
- Webinar replay and slides will be posted at www.nirsonline.org/betterbang3.



Speakers



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Why This Study?

- NIRS studied “A Better Bang for the Buck” (2008, 2014): Defined Benefit (DB) plans cost 48% less in 2014, 46% less in 2008.
- This study - updated assumptions, methodology to reflect changing retirement benefit landscape:
 - DC plans: lower fees, increased use of Target Date Funds (TDFs)
 - DB asset allocation changes
- This study looks at two possible investment return environments and two career paths (full career and mid-career hire).
- Study aims to understand when inefficiencies surface: pre & post-retirement

We Found – 3 Reasons Why DB Plans Save Money Compared to DC Plans

1. Pooling the longevity risks of large numbers of individuals, providing each the security of a lifetime pension without the risk of outliving their savings.
2. Are “ageless” and therefore can perpetually maintain an optimally balanced investment portfolio rather than the typical individual strategy of down-shifting 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.

Study Methodology

- How do the costs of delivering retirement benefits through each type of plan compare?
- Apples-to-apples comparison.
- Calculate the cost to deliver the same level of retirement benefits:
 - DB plan
 - DC plan

A BETTER BANG FOR THE BUCK 3.0

POST-RETIREMENT
EXPERIENCE DRIVES
PENSION COST ADVANTAGE



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By William B. Fornia, FSA and Dan
Doonan

January 2022

Study Compares Three Plans

- **DB plan**
 - Asset allocation and fees typical of large public plan.
- **“Ideal” DC plan**
 - TDF asset allocation glide path.
 - Same fees as DB, no behavioral drag (no individual choice).
- **Individually directed DC plan**
 - Target Date Fund (TDF) glide path from equities to fixed income.
 - Industry average fees, modest “behavioral drag.”

Study Looks at Two Career Paths & Two Investment Environments

- **Career paths:**
 - Work from age 30; retire at age 62
 - Work from age 45; retire at age 62
- **Two investment return environments:**
 - Long-term investment expectations, excluding next 10 years
 - Long-term investment expectations, including next 10 years

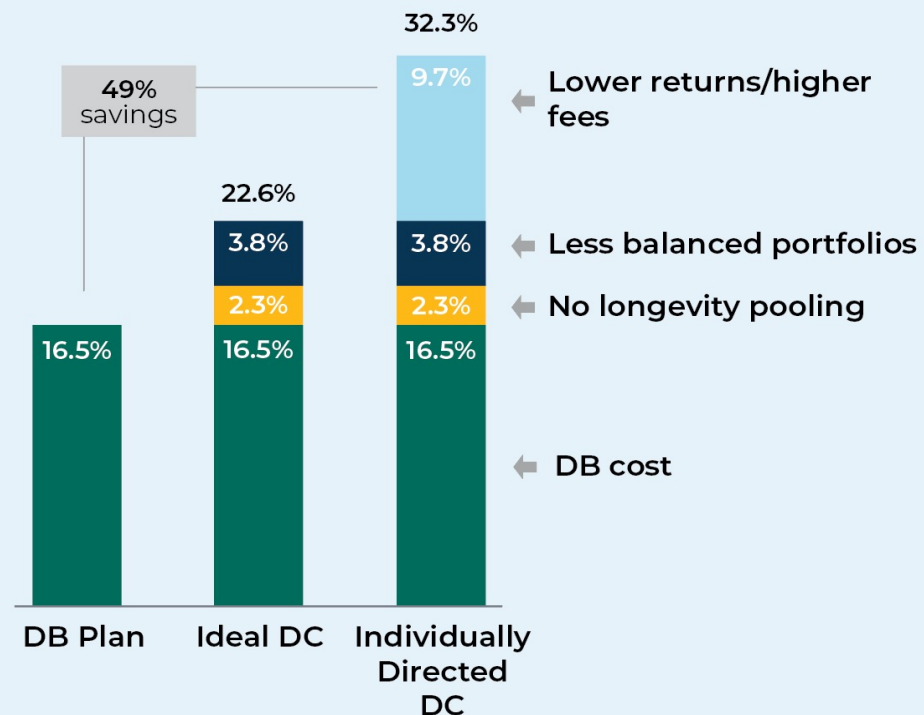
Methodology

- We model a population of 1,000 female teachers who work for 30 years - their final salary is \$60,000.
- We define a “target” retirement benefit - about \$2,700/month – at age 62.
- We calculate the cost to fund this benefit through a DB plan structure, then through a DC plan structure.



DB Plan Still Deliver Same Benefit at About Half the Cost of DC Plans

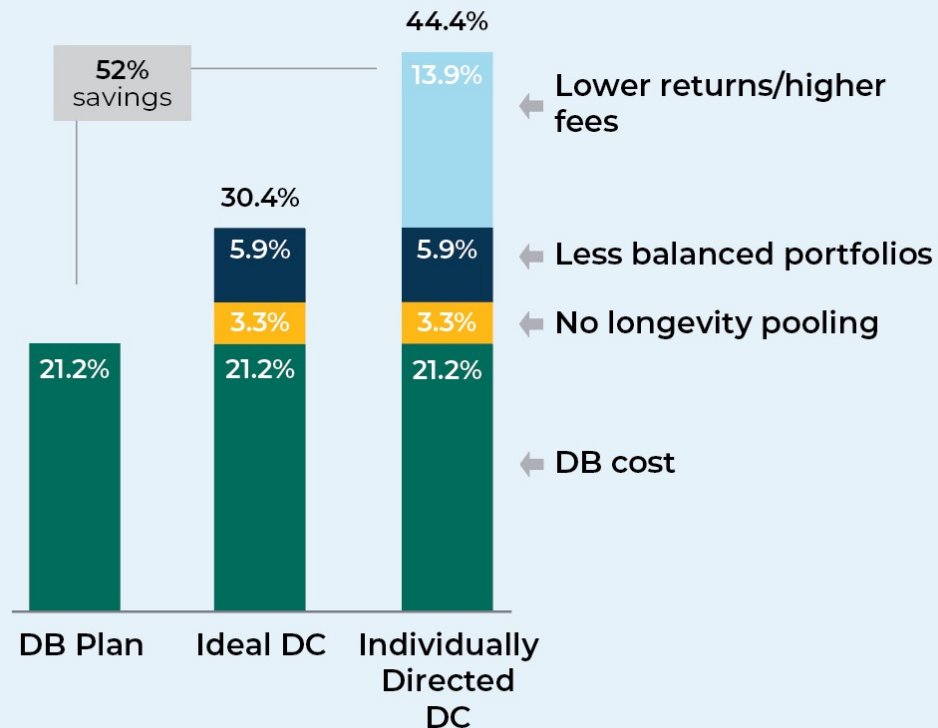
Figure 1A: Cost of DB and DC Plan as Percentage of Payroll, Baseline Scenario



- True DC costs 32.3% of payroll for the same benefit that DB plan provides with 16.5%/pay
- DB advantages add up to 49% savings in baseline scenario

Lower Returns Increase Costs Across All Plans, But DB Advantage Remains

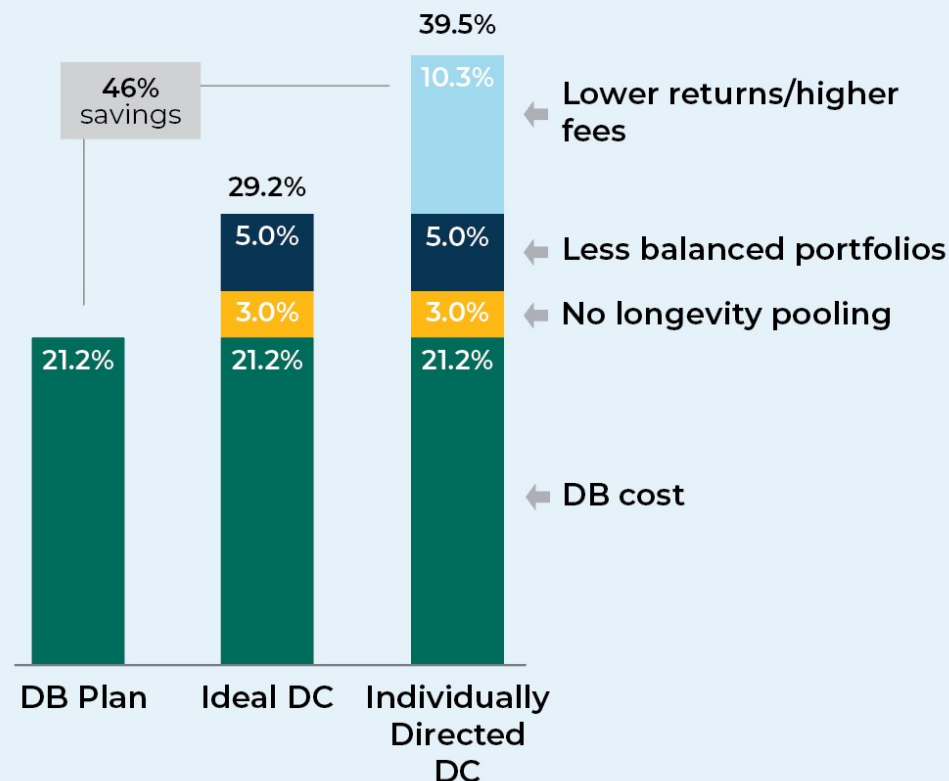
Figure 1B: Cost of DB and DC Plan as Percentage of Payroll, Low Return Scenario



- All costs are higher due to lower return scenario
- True DC costs 44.4% of payroll for the same benefit that DB plan provides with 21.2%/pay
- DB advantages add up to 52% savings in baseline scenario

Mid-Career Hire: DB Advantage Reduced Slightly, With Fewer Years

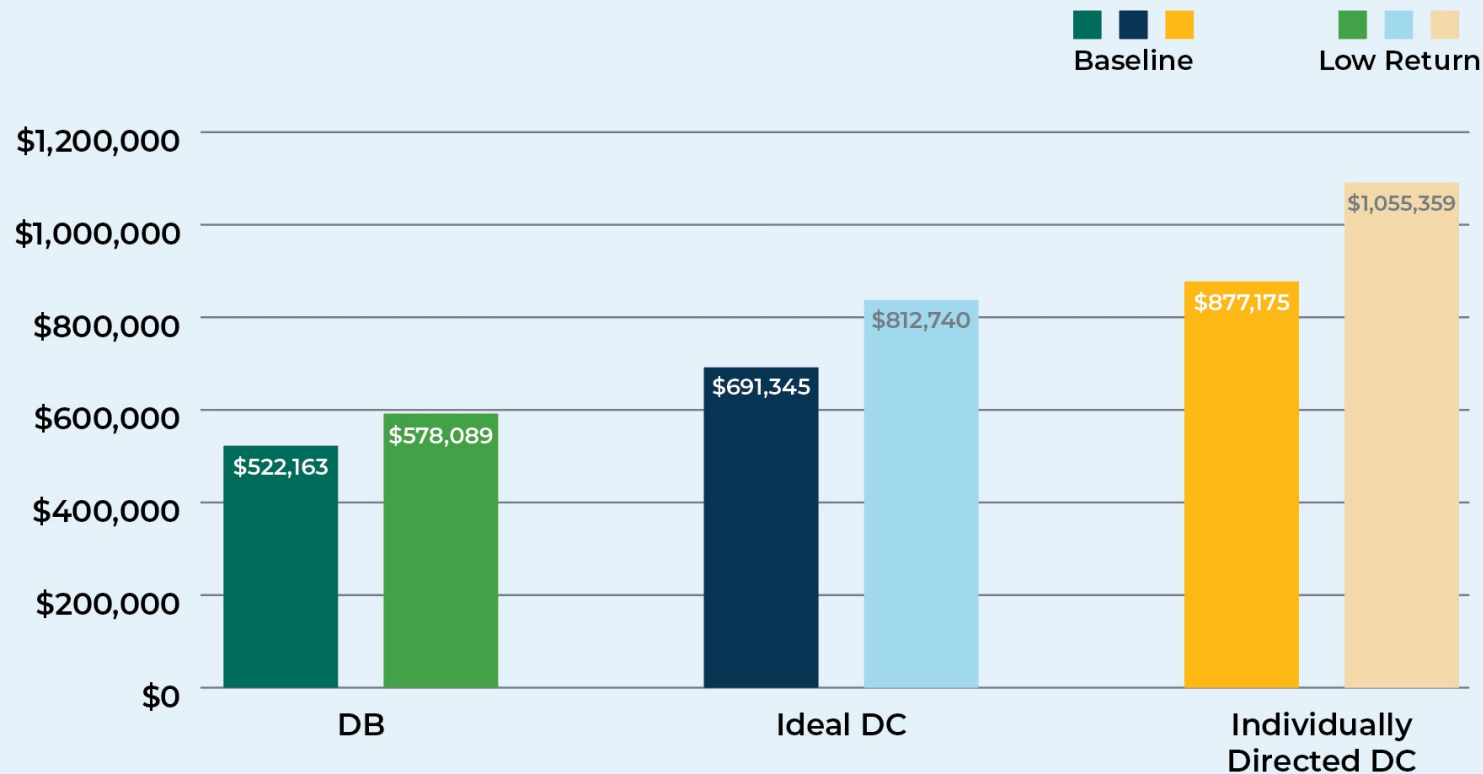
Figure 1C: Cost of DB and DC Plan as Percentage of Payroll, Mid-Career Hire



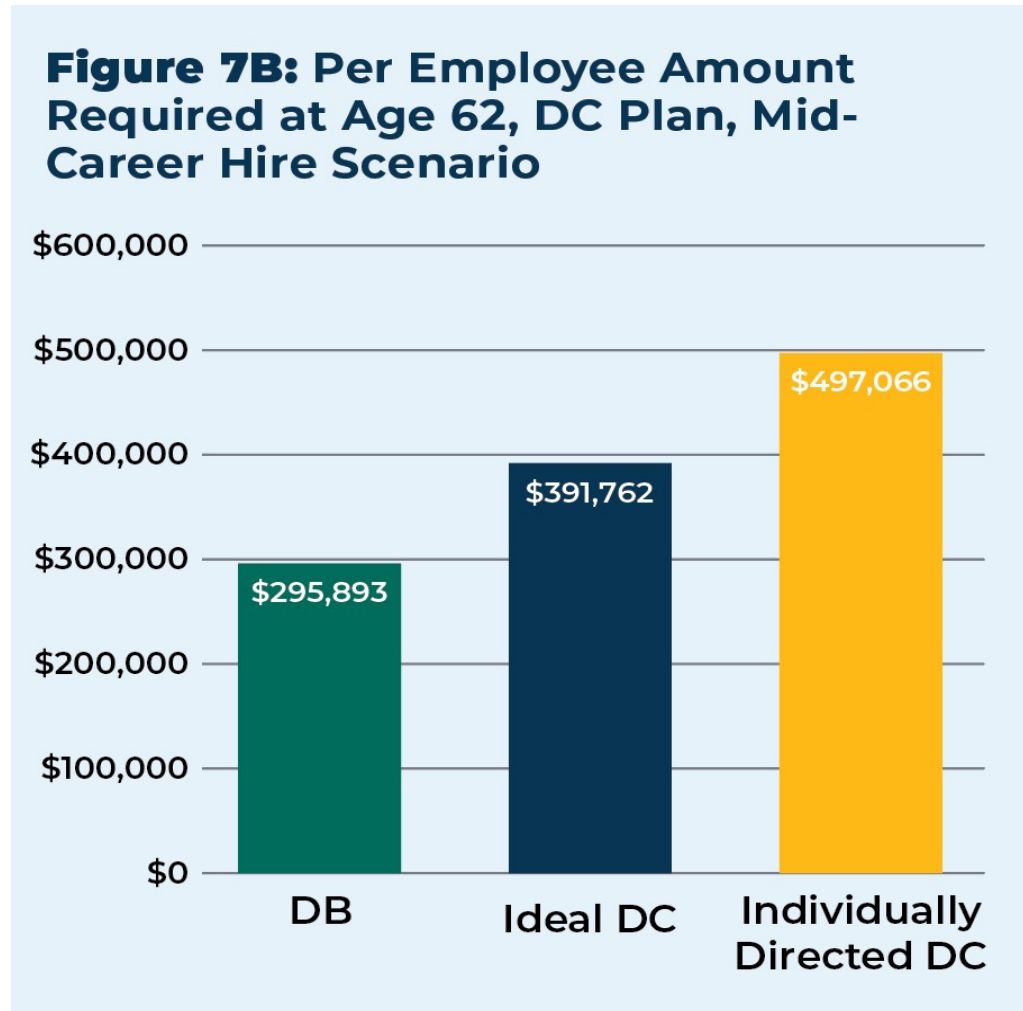
- Benefit costs higher in all scenarios with late start
- True DC costs 39.5% of payroll for the same benefit that DB plan provides with 21.2%/pay
- DB advantages add up to 46% savings in baseline scenario

DB Plan Requires Less For the Same Benefit in Both Return Scenarios

Figure 7A: Per Employee Amount Required at Age 62, DB Plan vs. DC Plan, Baseline Scenario and Low Interest Rate Scenario



DB Plan Costs Less For Mid-Career Hires



Amount Needed at Age 62 to Fund Target Retirement in DB Plan

- The DB plan must have over **\$500,000** set aside for each person in the plan at age 62.
- In order to fund this amount, contributions must be **16.5% of payroll** each year.
- This has increased since our 2008 study (\$355,000 & 12.5%)
 - Longer life expectancies.
 - Reduced DB Assumed Rate of Return from 8.00% to 7.36% to 6.80%.
 - DC plan had similar impact from assumption changes.



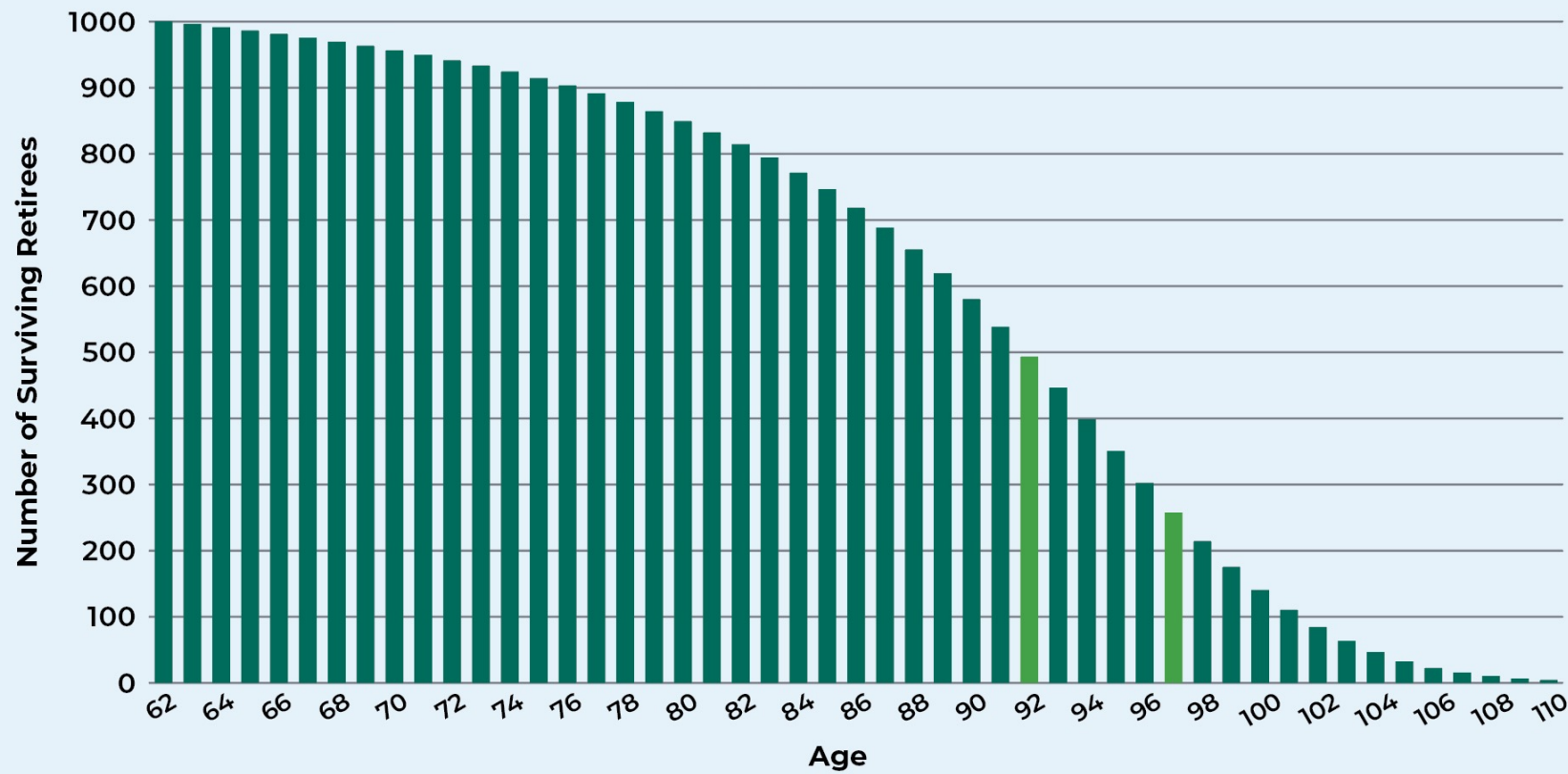
\$522,163

DB Plan Strength #1: Longevity Risk Pooling

- Because they cover large numbers of retirees, DB plans can be funded to last the **average life expectancy** for each person, while paying monthly benefits to each retiree for life.
- An individual under a DC plan will want to avoid the risk of running out of money if they live a long life. We assume they plan for longevity at the 75 percentile (or 25% would outlive resources).
- Because individuals must plan for significantly longer than average life expectancy, more money must be accumulated in a DC plan compared to a DB plan.
- Another consequence is about 1-in-6 dollars in our model flows to estates, i.e. not producing retirement income.

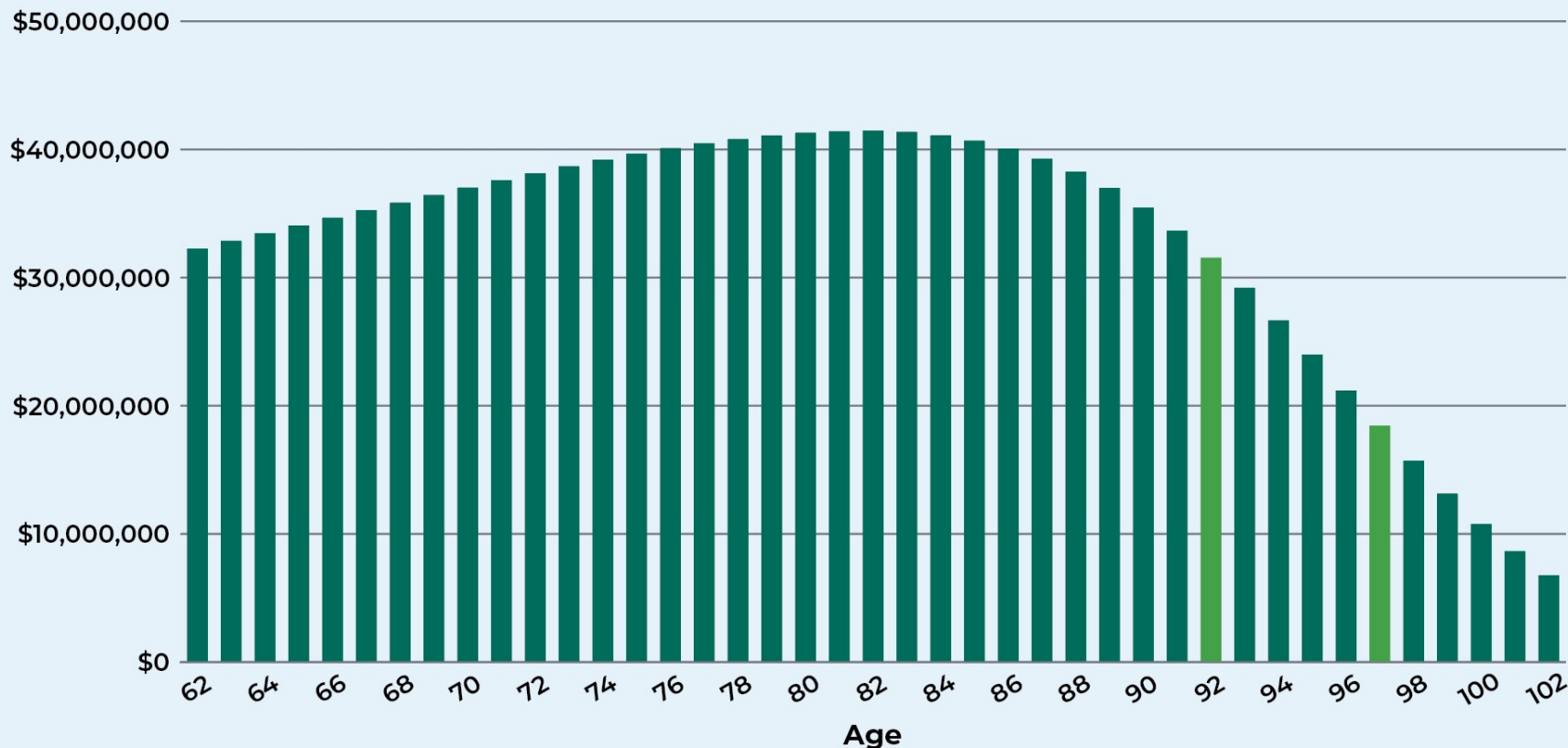
Life Expectancy for 1,000 Teachers

Figure 2: Longevity of 1,000 Retired Female Teachers



Annual Retirement Payments for 1,000 Teachers

Figure 3: Total Payments Under the Defined Benefit Plan



Under DC Plan, 15% of Assets Are Not Used for Retirement

Figure 5: Total Benefit and Estate Payments Under the DC Plan Based on Adjusted Withdrawal Strategy



15% of DC assets
are not used for
retirement
benefits
&
25% of people
outlive savings

Lack of Longevity Risk Pooling Drives Up Cost in DC Plans

- Individuals must “self-insure” longevity risks – each retiree at age 62 needs nearly **\$600,000** in DC plan for same monthly income.
- Analysis uses an **75th percentile life expectancy**, thus a 1 in 4 chance of insufficient savings.
- Contributions must be **18.8%** of payroll for benefit.

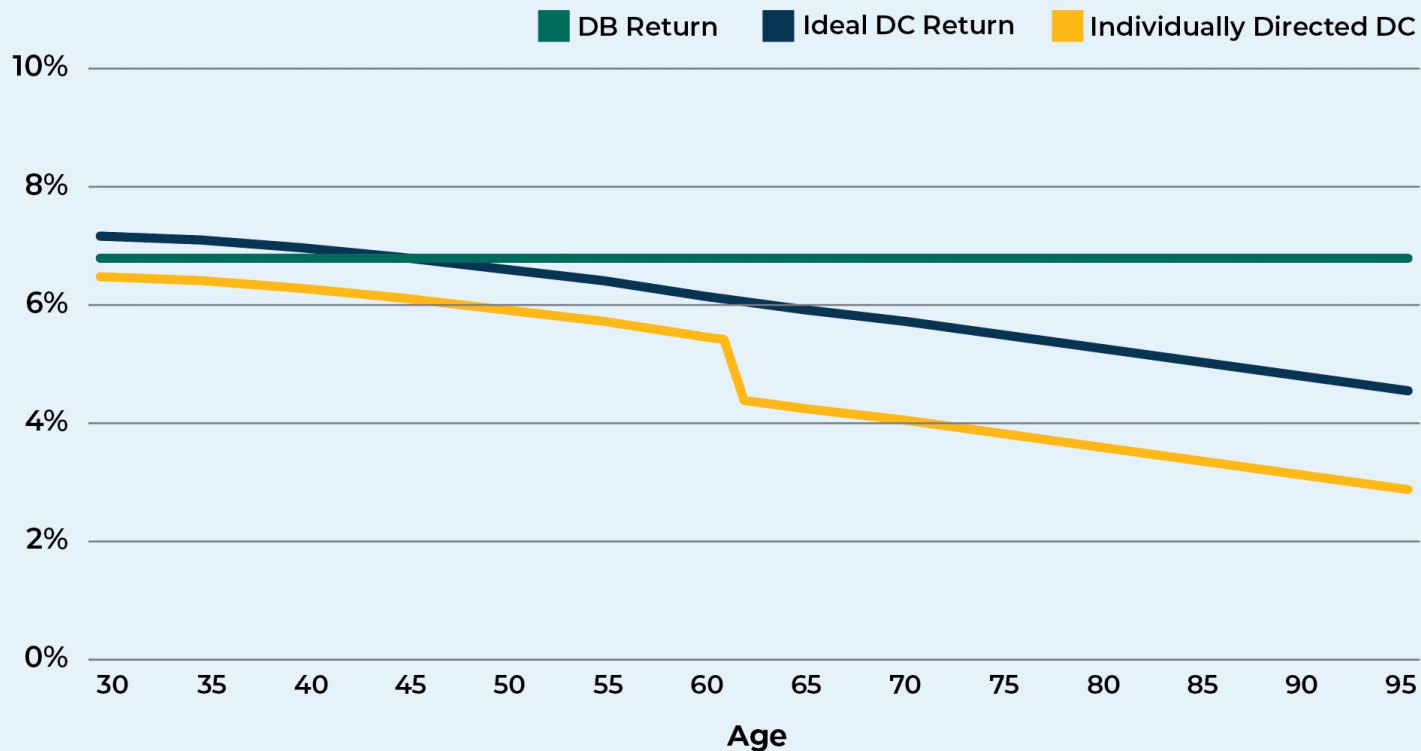


DB Plan Strength #2: Maintenance of Portfolio Diversification

- DB plans can maintain a well diversified portfolio over time – unlike individuals who must adjust risk as they age.
- To protect against market shocks, individuals in DC plans are advised to shift toward more conservative investments as they age, sacrificing some expected return.
- We modeled typical TDF asset allocation until age 70, then gradual shift to 100% fixed income by age 100.
- Correlation exists between when amounts are large and when DC participants must dial back risk.
- Lower returns mean more money must be contributed to deliver the same level of benefits.

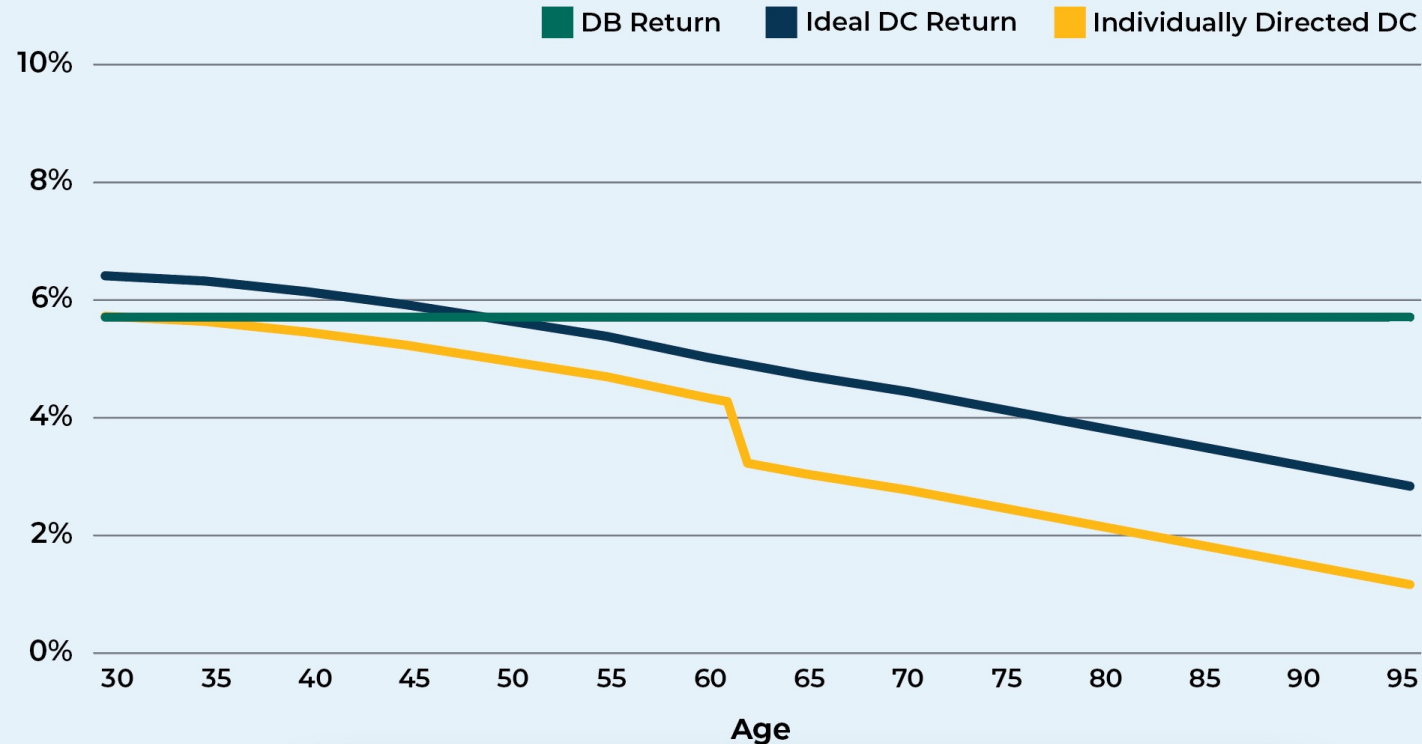
Baseline Scenario: As Individuals Shift DC Portfolio Allocation, Expected Return Reduced

Figure 6A: Expected Annual Investment Return, Baseline Scenario (net of fees)



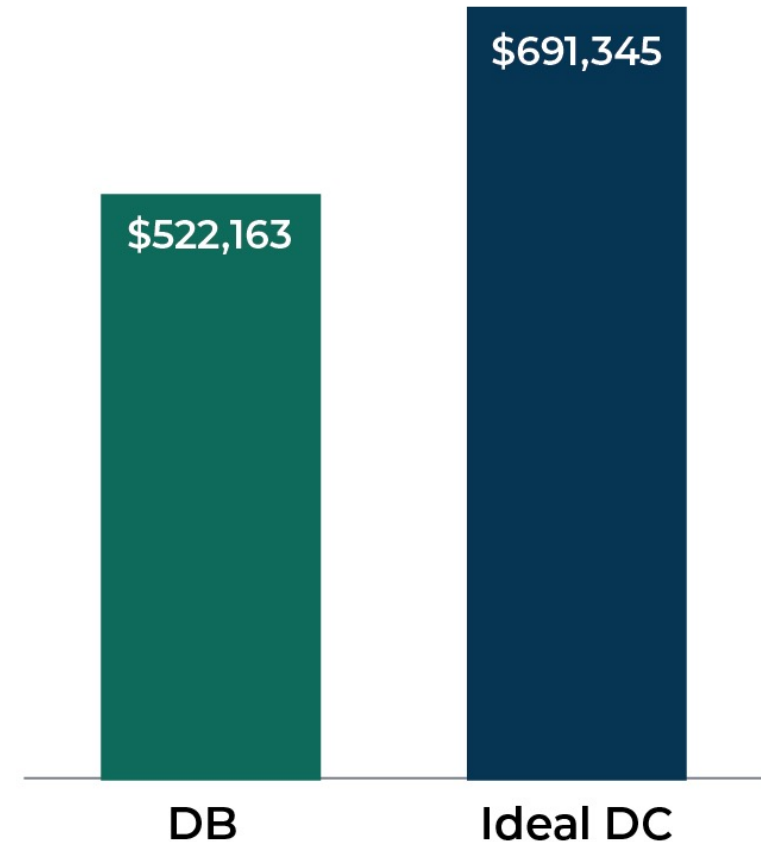
Low Return Scenario: As Individuals Shift DC Portfolio Allocation, Expected Return Reduced

Figure 6B: Expected Annual Investment Return, Low Interest Rate Scenario (net of fees)



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

- Each retiree in the DC plan now must have nearly **\$700,000** account balance at age 62.
- In order to fund this amount, contributions must be **22.6%** of payroll.
- This summarizes the “Ideal” DC plan cost.



DB Plan Strength PLAN #3: Professional Management and Lower Fees

- Pooled investments in DB plans can lower expenses
 - Large group pricing negotiation.
 - Avoid expenses of individual record keeping, investment education, investment transactions.
 - DC Plans have improved significantly since 2000, but wide dispersion in plan costs exist.



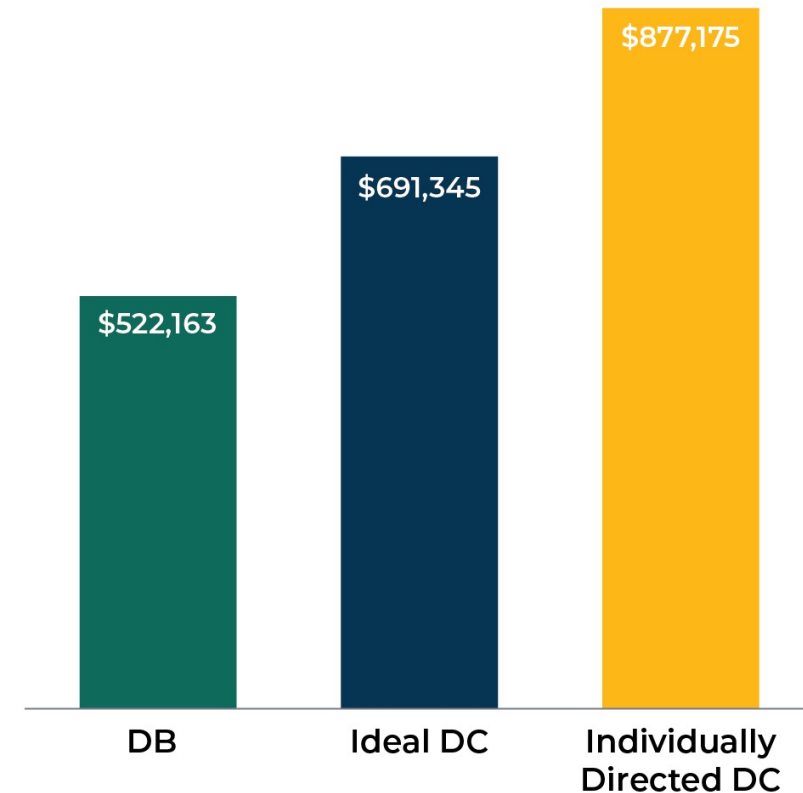
Professional Management and Lower Fees (cont.)

- While DB plan investments are professionally managed, individuals tend to underperform
 - Individual investor level returns lag behind long-term returns for any asset class, and most mutual funds.
 - Failure to re-balance, poor timing
- “Behavioral drag” estimates range from 98 bp to over 200 bp.
- 2021 study is based on DC fees and behavior drag of 0.69% before retirement and 1.68% post-retirement.

Lower Net Returns in DC Plans Drive Up Cost

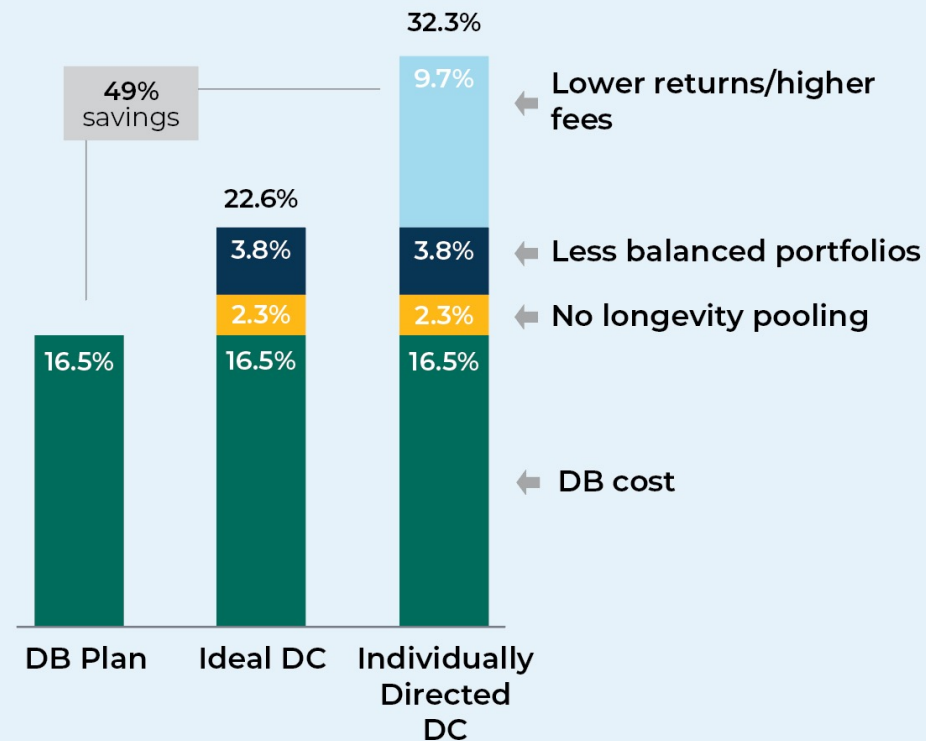
- Each retiree in the DC plan now must have nearly **\$900,000** in account at age 62.
- In order to fund this amount, contributions must be **32.3%** of payroll.

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



Baseline Scenario: Cost of DB Plan is About Half the Cost of DC Plan

Figure 1A: Cost of DB and DC Plan as Percentage of Payroll, Baseline Scenario



Tallying DB Plan Cost Savings Compared to a Typical DC Plan

Table 1: Tallying DB Plan Cost Savings Compared to Individually Directed DC Plan

Source	Savings
1. Longevity Risk Pooling	7%
2. Maintenance of Portfolio Diversification (staying invested in equities)	12%
3. Lower Fees and Professional Management	30%
All-In Cost Savings in DB Plan	49%

In other words - a DB plan can provide the same benefit at almost half the cost of a DC plan for a career worker. DB plans save 46% for a mid-career hire.

DC Plan Inefficiency Primarily Occurs Post-Retirement

Table 2: DC Plan Efficiency Gap

	Baseline Scenario	Mid-Career Hire	Low Return Environment
Post-Retirement Inefficiency	40%	40%	45%
Pre-Retirement Inefficiency	9%	6%	7%
Total Inefficiency	49%	46%	52%

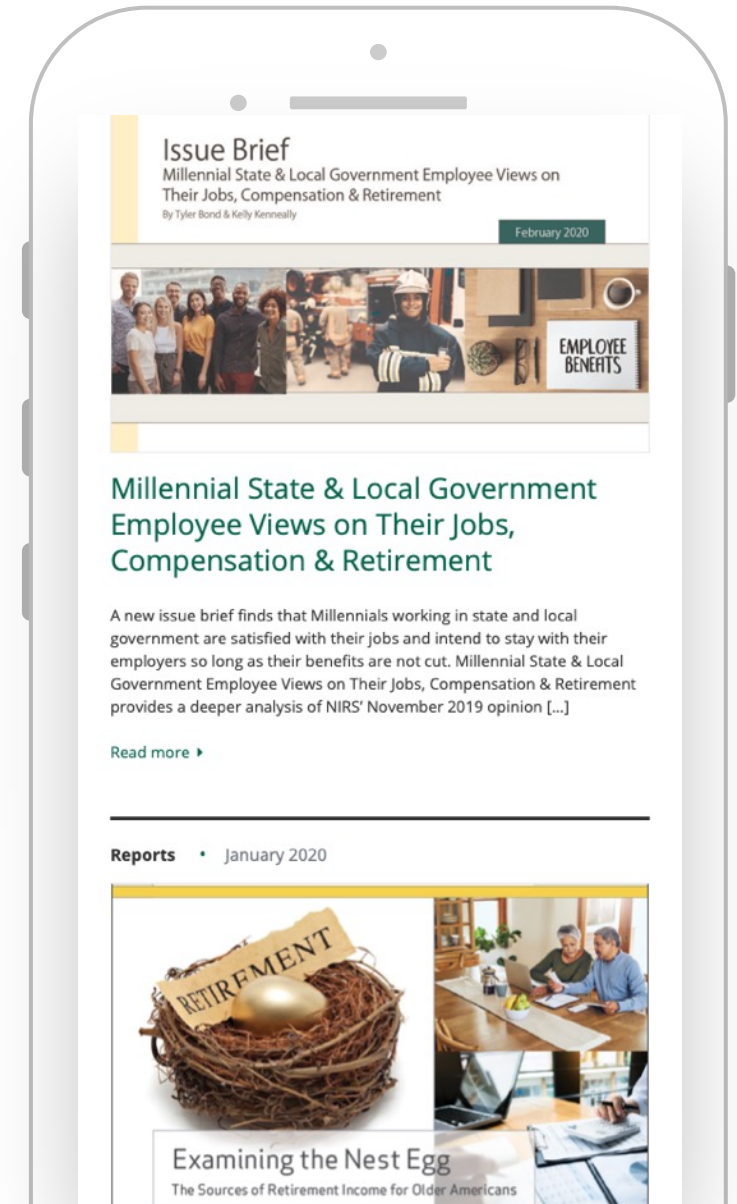
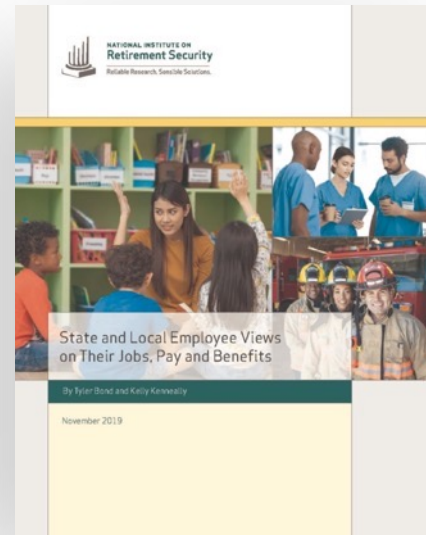
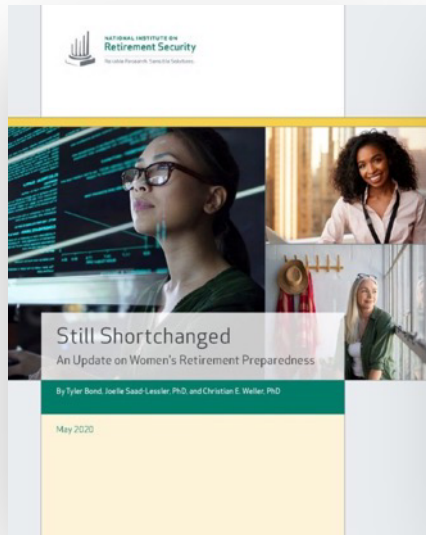
Conclusions

1. DB plans have built-in economic efficiencies – provide a “better bang for the buck.”
2. These efficiencies drive significant cost savings for taxpayers and employers.
3. As DC plans have improved with increased use of lifetime funds and reduced fees, about 4/5ths of the inefficiency stems from post-retirement years.
4. Decision makers should continue to carefully evaluate claims that “DC plans will save money.”

Questions



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