ALASKA TEACHER RECRUITMENT AND RETENTION STUDY

OPTIONS AND ANALYSIS SUPPORTING RETIREMENT PLAN DESIGN

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EXECUTIVE SUMMARY

Defined benefit (DB) pension plans remain the primary method of providing retirement benefits to workers throughout the U.S. public sector. However, the benefits offered to public-sector workers—particularly new hires—have changed significantly since the Great Recession of 2007-2009. Some of these changes were aimed at simply reducing costs, while others were adopted to minimize cost volatility.

The legal framework of DB plans in the public sector allows for a wide range of benefit designs and funding practices. Meanwhile, certain key provisions and practices are important in driving positive outcomes for employers, workers, retirees, and ultimately the citizens relying on services provided by a state's public workforce.

During the past 15 years, there has been much customization of benefit offerings, but there are few examples of states following Alaska's lead and completely abandoning DB offerings. With more hybrid, combined, and/or choice structures, as well as increased use of risk-sharing features, benefit offerings across the public sector have grown much more complex.

These plan changes can have a range of impacts. There are costs impacts, which are detailed by plan actuaries. Many of these changes were implemented to affect costs. Plan changes also can have substantial workforce implications, which may not be felt for years. These workforce impacts may not be completely obvious to those charged with delivering public services, as changes can happen slowly, and it can be difficult to clearly connect the cause and effect.

This report provides comparative information about benefit offerings among state-level plans for public education employees, discusses the evolution of public plans since the Great Recession, provides available information about retention of Alaska's educational workers, and offers insights on the policy decisions involved with returning to a DB plan.

The key findings are:

- Changing demographics and actuarial assumptions, which are created by studying the workforce trends within Alaska's plans, indicate that the percentage of workers who are leaving the Teachers Retirement System (TRS) and Public Employees Retirement System (PERS) has been significantly higher in the defined contribution (DC) plan than in the defined benefit plan. Meanwhile, based on the number of people leaving for reasons other than retirement, death, or disability, improving retention among those in the defined contribution plan presents the greatest opportunities.

- Other states have not followed Alaska in moving away from offering a pension in favor of a defined contribution plan. While changes were made to the pensions offered by all states, the vast majority offer a pension while some have moved towards offering a choice or a combination of the two plan types.

- Given the broad understanding that teacher effectiveness improves significantly after the first few years, teacher retention not only reduces burdens in maintaining an adequate workforce, but also has a positive impact on the quality of education that schools provide.

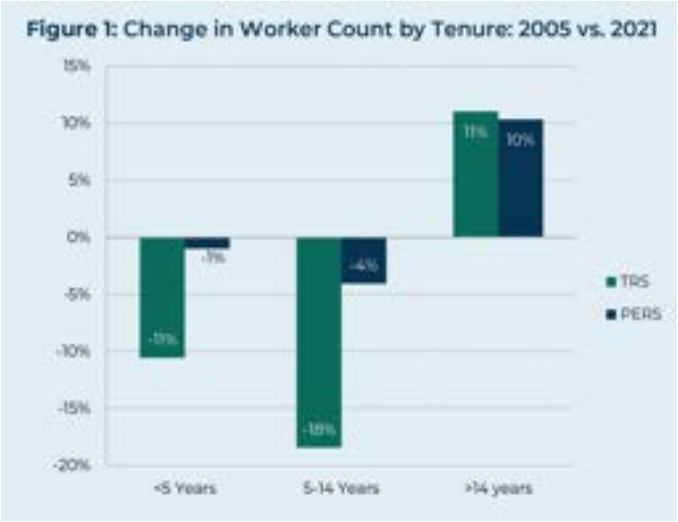
- There are many important considerations beyond simply whether Alaska returns to offering a defined benefit pension. The experiences of other states provide great insights regarding the tools that other states use to produce more stable pension costs, which include cost-sharing, conditional post-retirement benefit increases, funding strategies, and the use of a reserve fund. While few states use all four strategies, all are viable options for consideration.

- Pensions are generally much more efficient at delivering benefits per dollar of cost. However, plan demographics and cashflows may impact decision-making as the TRS and PERS plans move toward a spend-down stage, which could make existing obligations more expensive to honor. In contrast, plans in other states (which are still open) have maintained more balanced plan demographics and cashflows

SECTION 1: CHANGING DEMOGRAPHICS AMONG ALASKA'S CIVIL SERVANTS

The most reliable comparison between the workforce trends under the defined contribution (DC) plan offered to new hires since July 1, 2006, and the experiences under a DB plan may be found by simply comparing the tenure of workers in the DC plan to a similar set of workers in the DB plan before it was closed. There are limits to this method, but it seems a fairer comparison than simply looking to other states where workforce patterns are different, especially since the number of Alaska Teachers' Retirement System (TRS) participants has dropped by eight percent since 2005. One important limitation is that few participants in the DC plan will have more than 16 years of service since the plan was implemented roughly 16 years ago.

For this reason, the comparison data for the DC plan is limited to workers with less than 15 years of service compared to those with 15 or more years. Fortunately, the valuation reports show the number of workers (grouped into five-year intervals) by years of service. Below is a chart laying out the change in the number of workers, grouped by years of service, for both TRS and PERS. The first two categories, 0-4 and 5-14 years of service, are almost all DC plan participants. Those with 15 or more years of service are almost all DB plan participants.



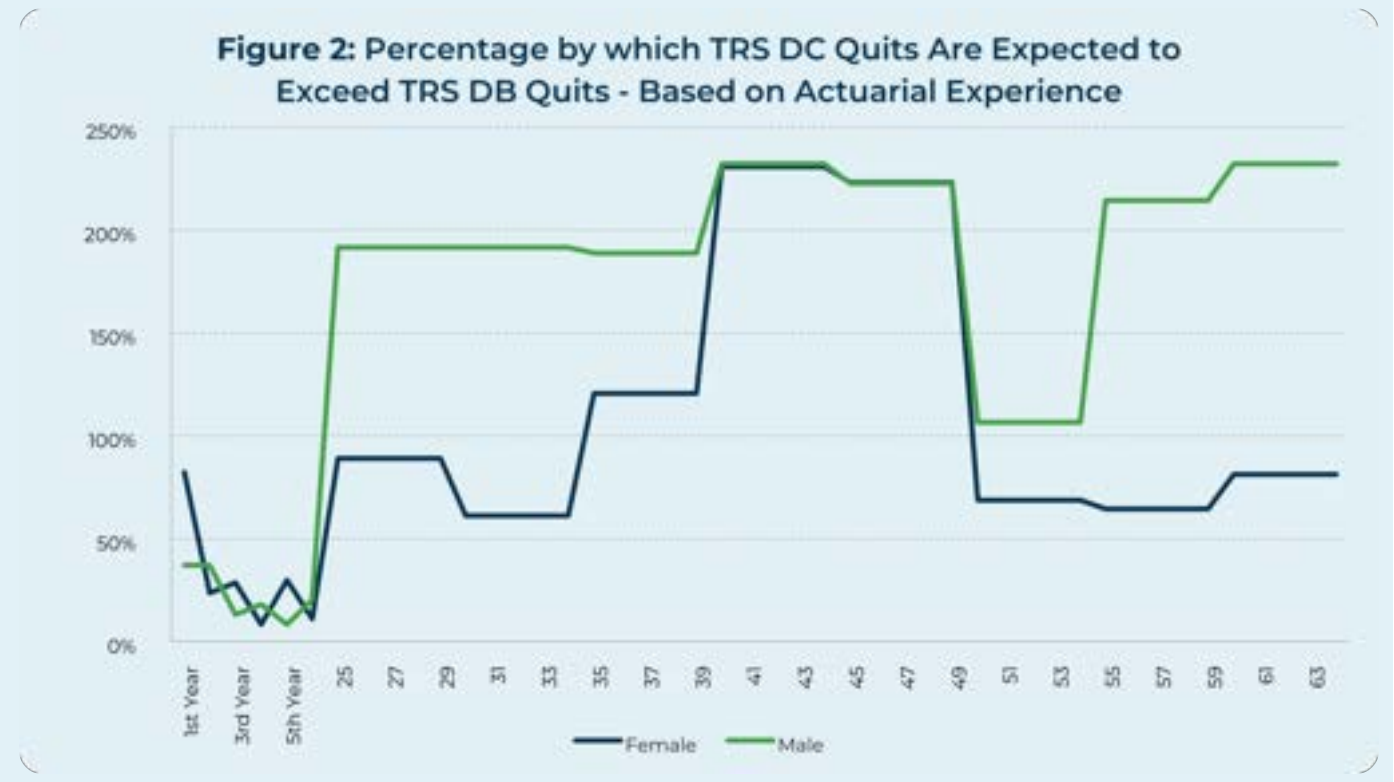
The TRS plans (DB and DC combined) had eight percent fewer members (or 739 fewer teachers) in 2021 compared to 2005. The first point to note is that the number of teachers with 0-4 and 5-14 years of experience fell by 11 and 18 percent respectively in the TRS plans. This represents a total decline of 1,052 TRS participants with fewer than 15 years of service compared to the similar data in 2005.

In contrast, the number of teachers with 15 or more years of service has increased substantially (11 percent). It is interesting that the headcounts in the DB and DC plans have moved in opposite directions relative to 2005.

The drop among those with less than 15 years of service was less severe in the Alaska Public Employees' Retirement System (PERS) plan. Overall, PERS membership has increased 0.3 percent (or 91 people), but the increase in long-serving DB participants is offset by fewer hires remaining in the DC plan.

This data suggests two points. First, worker retention during the early years of employment has dropped significantly between 2005 and 2021. Second, it is quite possible the workers hired into the DB plan in the years just before it closed may have been more likely to stay than those hired into the DB in earlier years. If so, Alaska will not benefit from this dynamic much longer as the active DB population will continue to decline. The data does not show that pensions are the only cause for lower retention rates among those in the DC plan, but retirement offerings are a significant component of employment terms and retention seems to be stronger among the DB participants. Other factors, like alternative employment opportunities and salaries, can play a role as well.

These observations are backed up by the assumptions that Alaska's plan actuary has developed from examining actual experience for each plan*. The chart below shows the increase in turnover assumed among TRS DC plan participants relative to TRS DB participants, separately for males and females. On the chart, zero percent would mean the expectations are the same, and 100 percent would mean



The Plan Actuary uses select and ultimate rates. For those in their first five to seven years, the rates at the left side of the chart are applied. For those past these early years, the assumption is age-based. The aged-based rates are considered the 'ultimate termination rates.'

turnover is expected to be twice as high in the TRS DC plan. There are some interesting takeaways from this chart. First, the difference in turnover is lower during the first five years (before vesting), though the DC plan generally has higher turnover. DC plans are sometimes suggested as a tool to improve teacher retention during the early years in the classroom. However, your experiences show that 28 percent of newly hired male teachers are not expected to return for a second year and 28 percent of those returning will not return for a third. In short, you expect to lose 48 percent of newly hired male teachers in the first two years. The data for newly hired females are very similar, with only 55 percent of new hires expected to reach their third year in the classroom. This is significantly worse than what you experienced when the DB plan was offered and the trends in other states.

There also is a noticeable difference between men and women. Among the ultimate termination rates in the valuation report, women in their prime working years (ages 30-50) have turnover that averages 138 percent higher in the DC plan. Meanwhile, the difference among men is an astounding 189 percent higher, which indicates that the retention incentives of the DB plan are driving the behavior of men more than women. Interestingly, during these prime working years, men show lower quit rates than women in the DB plan, but higher rates in the DC plan.

While these findings are consistent with the theory behind offering a DB plan to improve retention, it is rare to have data from the same employer that has tracked quits in a DC plan to make these comparisons.

While understanding turnover is important, retention is the goal. The charts below compare how successful retention is in the TRS DB and DC plans, based on the actuarial assumptions that were developed specifically for these plans. The charts show how many teachers would remain among a group of 100 30-year-olds who just reached vesting. As mentioned above, both the DB and DC plans have higher turnover before vesting, which is common in teaching, but the differences between the DB and DC plans are smaller.

However, once vesting is reached, the DB plan's power to retain becomes very clear. Among 100 male teachers vesting at age 30 in the DC plan, only seven are expected to be working at age 55. This is far short of the 38 that are expected to be retained in the DB plan. The difference among women who vest at age 30 is smaller, but still significant as three times more women (36) are expected to remain in the DB plan at age 55. Another way of thinking about the cumulative difference between the blue and orange lines below is that we expect:

- 100 male teachers vesting in the DB plan at age 30 to provide 1,914 years of teaching (which is an average of 19.14 years per teacher).

Figure 3: Retention of Female Teachers (TRS): DB & DC Plans Based on Ultimate Termination Rates

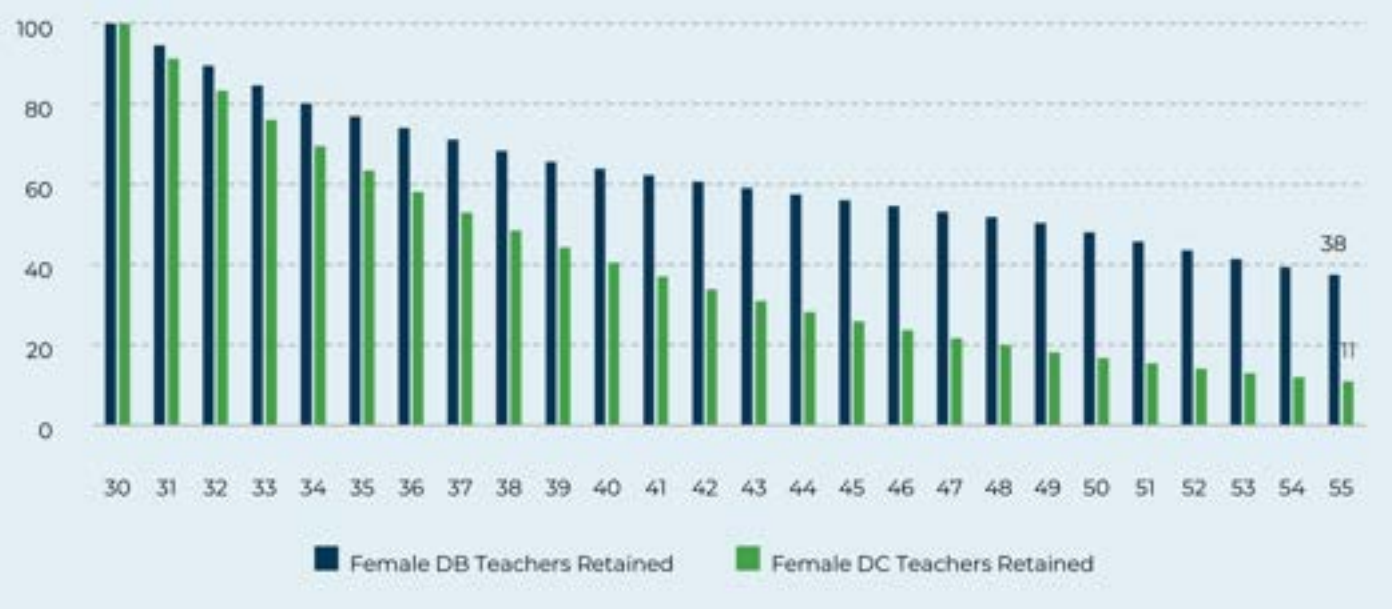
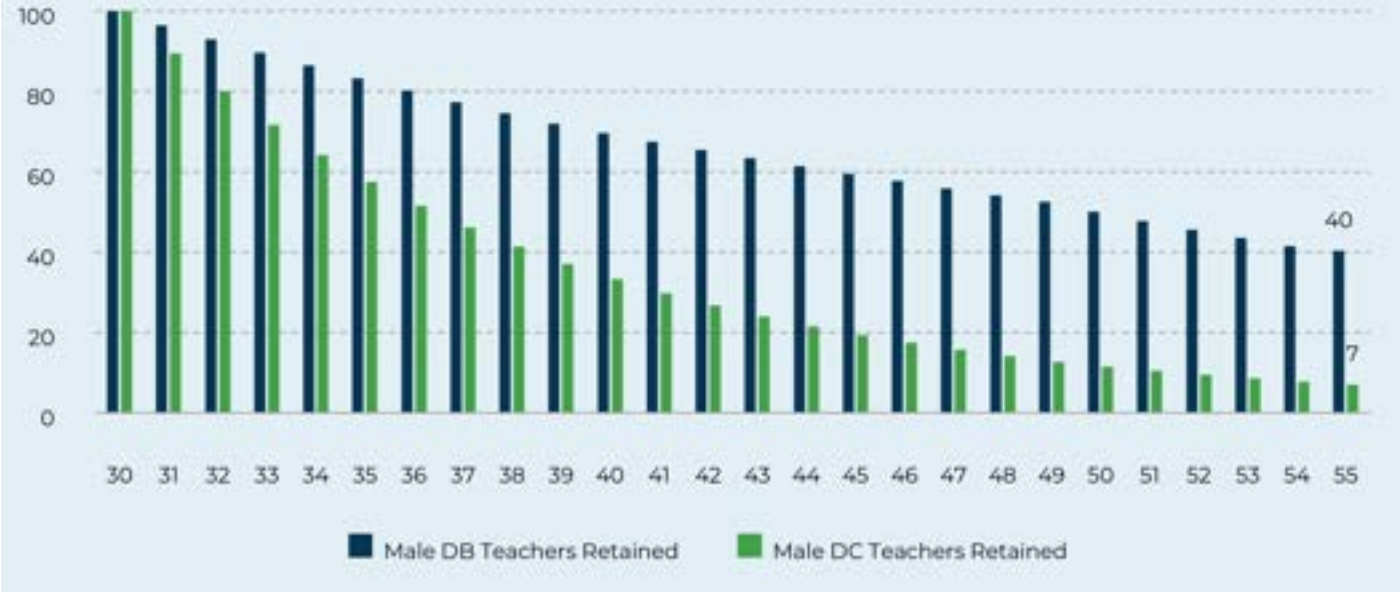


Figure 4: Retention of Male Teachers (TRS): DB & DC Plans Based on Ultimate Termination Rates



- 100 male teachers vesting in the DC plan at age 30 to provide 935 years of teaching (which is 978 less than the DB plan).
- 100 female teachers vesting in the DB plan at age 30 to provide 1,792 years of teaching.
- 100 female teachers vesting in the DC plan at age 30 to provide 1,093 years of teaching (which is 699 less than the DB plan).

The appendix includes similar charts for the PERS plans (Peace Officers and all others separately) and a chart showing the assumed turnover rates for men and women separately for each plan.

Who is Leaving and Why?

It is true that a significant number of workers are leaving both the legacy DB plans and the DC plans. However, it also is important to understand that the reasons people are leaving each system are quite different. In total, 28,592 workers left PERS and TRS employment in the past five years. These figures are broken down below by plan and the reasons they left.

The bar graph shows the vast majority of workers leaving the TRS (70%) and PERS (63%) DB plans retired, passed away, or became disabled. It is more a matter of natural occurrences than simply quitting their jobs. These events typically are not considered human resource failures, and the DB plan provisions themselves likely play a vital role in retirement decision-making.

In contrast, 99 percent of workers leaving the DC plans are quitting. Only one percent are leaving for retirement, death, or disability. Some of this stark contrast can be explained simply by the age of the participants themselves, as a new tier should have much younger workers and fewer retirements.

The important takeaway is that in order to reduce turnover, it makes sense to focus on the groups where the most workers are quitting. In both the TRS and PERS plans, the number of workers quitting (excluding retirements, deaths, and disabilities) from the DC plans is between 4.5-4.7 times greater than the number quitting in the DB plan. Not only is that true today, but in the future, it is expected that the number of workers quitting (not including retirements) from the DB plan will continue falling. In both sheer numbers and trends, improving the retention of those hired into the DC plans would be more beneficial to improving overall retention outcomes, especially considering that the DB population will continue to decline if the plans remain closed.

SECTION 2: PLAN TYPES FOUND IN THE PUBLIC SECTOR

There are a wide range of retirement plan structures in use among state and local government retirement systems today, though the core benefit provided by most state-level plans remains a defined benefit plan.

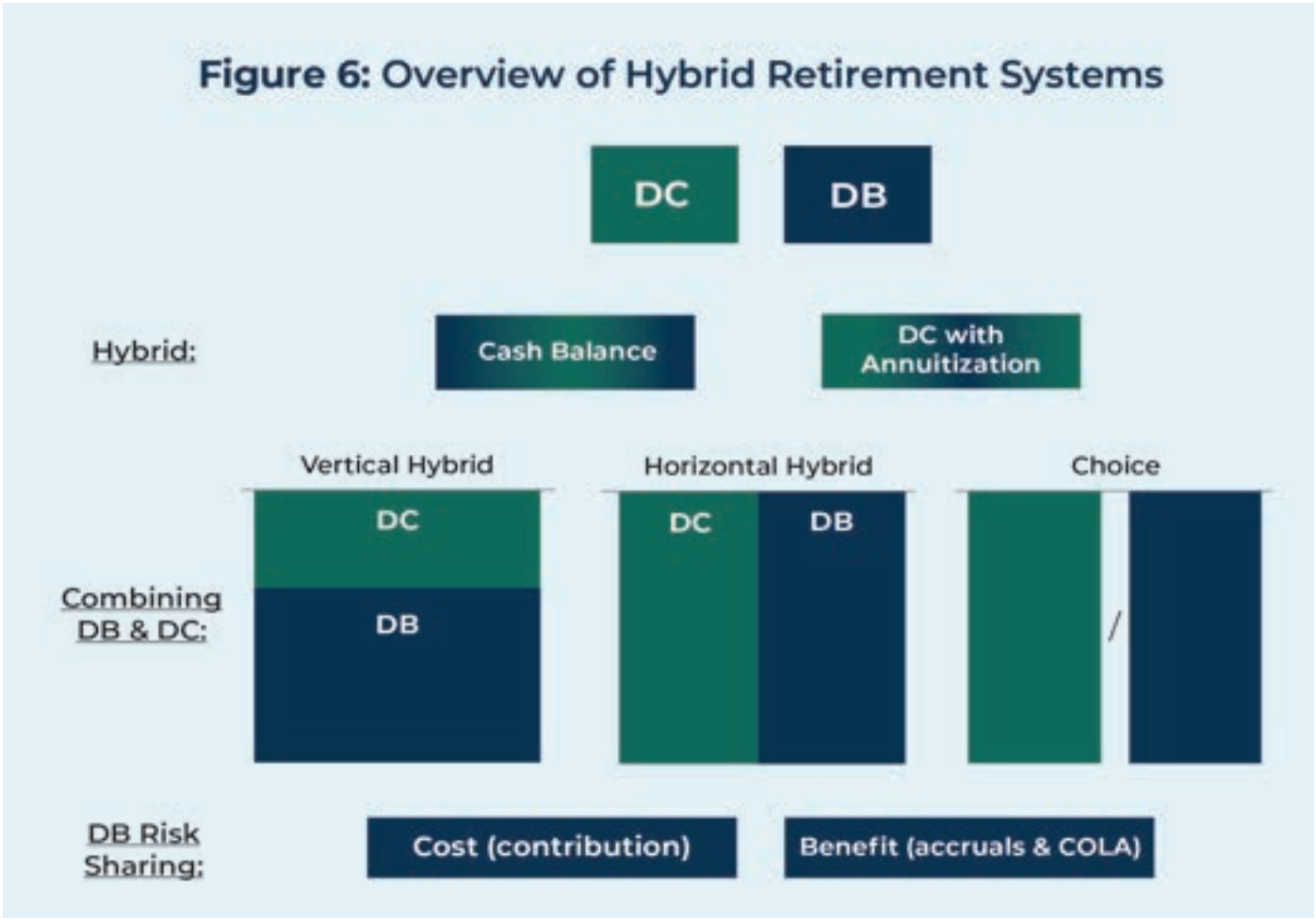
To provide an overview of high-level plan designs, this report refers to a recent National Institute on Retirement Security (NIRS) report, *The Hybrid Handbook*. This report organizes the various types of benefit structures that exist in the U.S. public sector as detailed in the graphic below. Importantly, the benefit offerings can combine more than one of these features. For instance, it is possible to have a combined DB/DC offering where the DB plan includes risk sharing. In fact, public-sector workers in Pennsylvania are offered such a benefit structure.

Most discussions about retirement plans offered in the public sector start with a DB pension plan and a DC plan, commonly thought of as a 401(k) plan. This was a fairly accurate classification for many decades, but both plan types have evolved over time, especially in the public sector. For instance, many public DB plans have added risk-sharing features. The National Association of State Retirement Administrators (NASRA) researched this issue in *In-depth: Risk Sharing in Public Retirement Plans*, which provides a fairly comprehensive list of plans with risk-sharing features.

Also, more public plan offerings combine participation in both a DB and a DC plan, often with both being mandatory. Other states offer a choice between plan types.

Below is a description of the different structures from Figure 1 that combine DB and DC features and plan types:

- **Cash Balance Plans:** Legally, these plans are defined benefit plans. To participants, cash balance plans look much like savings-based plans. At retirement, participants can take their resources as a life annuity,



similar to pensions. These plans remain less common in the public sector.
  - » Accrual rates are very similar to DC plans.
  - » Contributions are calculated by the Plan Actuary, like a DB plan.
  - » Can share risk with participants via interest credits (in lieu of investment returns in a DC plan) that are based on actual plan returns.
  - » Post-retirement risks, if any, are still borne by the plan/employer.
  - » Beginning participation in a cash balance plan at later ages can prevent workers from reaching a point where interest credits grow rapidly due to fewer years in the plan, just like in a DC plan.

- **DC with Annuitization:** Some DC plans offer annuitization through in-plan options, as PERS and TRS do. This offers both advantages and disadvantages compared to other arrangements.
  - » In-plan options allow employers to evaluate and buy on a wholesale basis, instead of individuals buying on a retail level.
  - » However, the amount of income provided can be far less than what DB plans offer due to the limited risk pooling and insurance regulations. For instance, when Indiana changed its DC annuitization from being done by the plan itself (based on plan assumptions) to outsourcing the annuitization, income received by participants was expected to drop by about 40 percent.
  - » The value proposition is based on market conditions. Thus, changing interest rates will also mean a worker retiring this year may be offered a different deal than someone retiring last year, because bond yields have increased.

- **Combining DB and DC:** There are three ways DB and DC plans have been combined in different states.
  - » Vertical or Stacked Hybrid: Income up to a certain level is covered by the DB plan, with dollars above that level covered by the DC plan. This is fairly uncommon, but the City of Philadelphia does offer a "stacked" plan. This plan has the benefit of providing more retirement security to lower paid workers.
  - » Horizontal or Side-by-Side Hybrids: In these designs, workers participate in both DB and DC plans. In the public sector, it is customary for the DB plan to provide most of the benefit, and many of the DC plans were added as DB benefits were trimmed.
  - » Choice Structures: There are more choice structures offered today than in the past, though even many of these offer a choice between a DB and a combination of DB and DC. Only Ohio and Colorado offer options to be DC-only without providing Social Security coverage.

- **DB with Cost-Sharing:** More plans have added some level of cost-sharing, e.g., variable employee contribution rates, with participants in the plan, which is typically limited and modest to avoid large changes in take-home pay. This directly reduces some of the cost increase that employers would have experienced. Put simply, it is a cost-shift to employees based on various policy triggers.
  - » The following plans have some level of cost-sharing with employees --through variable employee contribution rates-- based on plan actuarial experience: Arizona SRS, Arizona PSPRS, CalPERS, CalSTRS, Colorado PERA, Connecticut SERS, Idaho PERS, Iowa PERS, Maine PERS, Michigan PSERS, Pennsylvania PSERS, Pennsylvania SERS, Montana PERA, Montana TRS, Nevada PERS, North Dakota PERS.

- **DB with Contingent Post-Retirement Increases**
  - » Post-retirement increases have long been linked to the Consumer Price Index (CPI) in some fashion. Because of the perceived successes in South Dakota and Wisconsin in keeping costs stable, more states have recently moved in this direction.
  - » According to NASRA, the following plans have contingent or limited cost-of-living adjustments: Arizona SRS, Louisiana SERS and TRS, Maryland SRPS, Massachusetts SERS and TRS, Nebraska RS, South Dakota RS, Wisconsin RS.

SECTION 3: BENCHMARKING ALASKA'S RETIREMENT OFFERINGS

In Appendix 1, a comparison of benefit offerings in all state-level plans is provided for teachers, education support professions, higher education faculty, and higher education support professions.

Note that the column labeled "Covered Employees" indicates the plan in which each employee classification participates. For instance, teachers (notated with a "T") participate in the Alaska/TRS plans and the Washington/TRS Plans 2 and 3. The scope was limited to tiers that are currently open to new hires, as that is the most relevant comparison when thinking about workers making decisions about employment. For instance, a teacher would not leave their job in Alaska today because of the benefits offered under Washington's TRS Plan 1 that was closed to new entrants in 1977.

All states outside of Alaska offer K-12 teachers at least the option of a defined benefit plan. The vast majority of states also offer support professionals DB plans as well, though some (like the District of Columbia) offer only a DC plan and Social Security.

Below is a summary of state offerings for teachers, educational support professionals (ESPs), higher education faculty (HEF), and higher education support professionals (HESP):

Table 1: Summary of Benefit Offerings Among State-Level Plans for Teachers, Faculty, and Support Professionals

Social Security States (All or Most)				
	Teachers	**ESPs**	**HEF**	**HESP**
DB (Pension)	AL, AZ, AR, CA, DE, GA, HI, IA, ID, MD, MN, MS, MT, NE, NH, NJ, NM, NY, NC, ND, OK, SD, VT, WV, WI, WY	AL, AZ, AR, CA, DE, DC, GA, HI, ID, IL, IA, MD, MN, MO, MS, MT, NE, NH, NJ, NM, NY, NC, OK, SD, WV, WI, WY	AL, AZ, AR, CA, DE, DC, GA, HI, IA, ID, KS, MD, MN, MS, MT, NE, NH, NJ, NM, NY, NC, ND, OK, SD, WV, WI, WY	AL, AZ, AR, CA, DE, DC, GA, HI, IA, ID, MD, MN, MO, MS, MT, NE, NH, NJ, NM, NY, NC, OK, SD, WV, WI, WY
DB, Plus DC Component	OR, RI, TN, VA	OR, RI, TN, VA	OR, RI, TN, VA	OR, RI, TN, VA
Choice: DB or Combo (DB/DC)	WA	WA, KY	WA, KY	WA
DB; Optional DC Choice	SC	MT, ND, SC, VT	CA, SC	CA, MT, ND, SC, VT
Choice: Combo or DC	FL, MI, IN, PA, UT	FL, MI, IN, PA, UT	FL, MI, IN, PA, UT	FL, MI, IN, PA, UT
Cash Balance	KS	KS		KS
Non-Social Security States (Some, Few/None)				
	Teachers	**ESPs**	**HEF**	**HESP**
DB (Pension)	CA, CO, CT, DC, IL, KY, LA, ME, MA, MO, NV, TX	CA, CO, CT, GA, KY, LA, ME, MA, NV, TX	CA, CO, CT, KY, ME, MA, MO, NV	CA, CO, CT, KY, ME, MA, NV
DB, Plus DC Component			IL	IL
Choice: DB or Combo (DB/DC)	WA	WA	WA	WA
DB; Optional DC Choice			CO, LA, TX	CO, LA, TX
Choice DB, DC or Combo	OH	OH	OH	OH
DC-Only	**AK**	**AK**	**AK**	**AK**

Note: The University of Missouri is DC only.

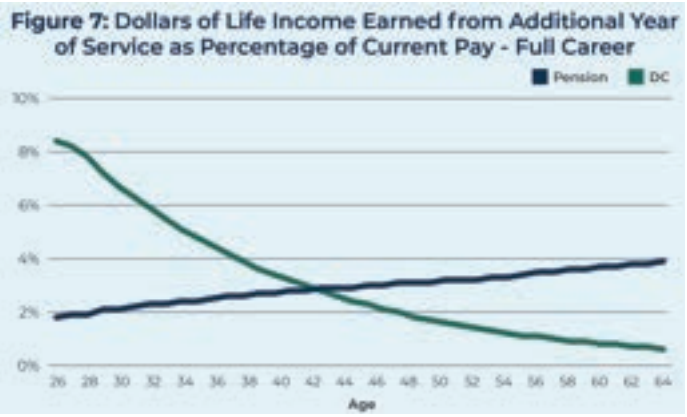
A couple of points are worth noting, given the complexity of grouping states accurately in this manner. First, Social Security coverage can be more complicated than the chart suggests. The states with some or few/none employees participating in Social Security are grouped as Non-Social Security States in the chart above. Similarly, states with all or most participating are grouped as having Social Security. Second, most of the education workforce has access to an individual savings plan through the workplace whether it is a formal part of the retirement system they participate in, simply an option, or something that is arranged locally at the school district level. Some systems do identify as having a hybrid or DB/DC benefit, usually because there is a choice or mandatory participation in both plans. It seems that only a small percentage of teachers do not at least have access to 403(b) savings plans through their workplace, even if many retirement systems refer to their plans as DB-only.

Key Takeaways: Changes Since the Great Recession (2007-2009)

- Most states retained DB benefits, but with much more customization. There are more combinations of DB and DC designs, and the number of risk-sharing plans grew from a relatively small number and now represent one of the more interesting aspects of the pension industry.
- Where combined plans were adopted, typically the DB is the core benefit, with the DC plan used as more of a supplemental plan, often to compensate for DB reductions.
- Where plan choice is present, the majority of workers choose the DB plan. However, the default option and the administrative process governing the choice also seem influential on these outcomes.
- A few cash balance plans were adopted, but this type of plan remains an outlier.
- Much more risk sharing has been adopted in new tiers and among existing plans. This allows states to take advantage of the key strengths of DB plans (worker retention, retirement security, and cost efficiency), with reduced employer risk (as workers/retirees absorb some risks).

SECTION 4: PLAN DESIGN AND RETENTION

It also is important to understand accrual patterns when thinking about workforce retention. The amount of life income that is earned under a DB plan grows throughout one's career because it grows in two ways: adding years of service and final pay increases. In contrast, the early dollars in a DC plan are the most powerful in generating retirement income because investment earnings are generally larger than pay increases. This leads to two obvious conclusions: 1) DC plans are much more efficient if workers start saving early; and 2) it is much more advantageous to work in a DC plan when one is young, then move to a DB plan as one ages, than the reverse.



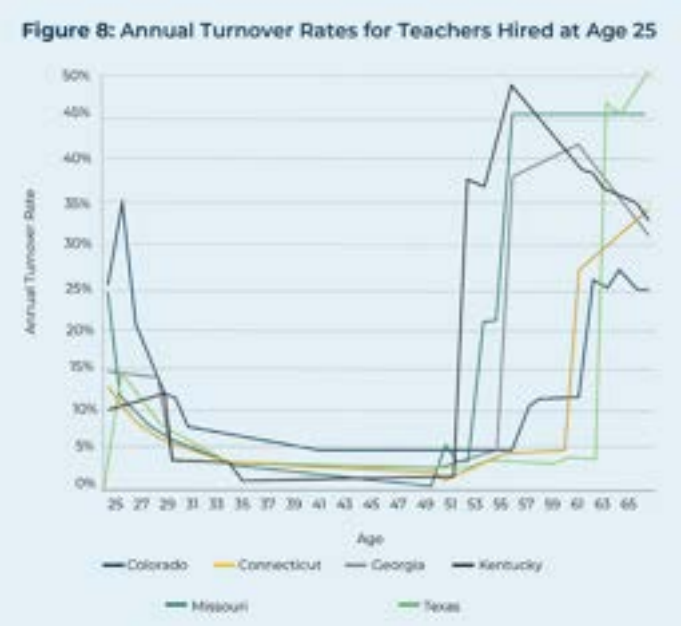
It is common to evaluate plans by looking at full-career employees hired around age 25 and working until retirement, which is considered an ideal. However, while this is worth looking at, it is important to understand who is really being hired into these plans. Given that earning retirement income becomes more expensive over time in a DC plan, these plans provide less opportunity for people hired at a later age to earn that income because there are not as many decades for investments to grow before approaching retirement. This is all the more important for those who do not earn Social Security benefits at work.

Therefore, in addition to the full career scenario, it is worth noting that 42 percent of TRS (and 38 percent of PERS)

participants with less than five years of service are over the age of 40. In addition, more than half of this group in each plan are over the age of 35.

Referring again to The Hybrid Handbook, this dynamic is explored in Figures A2 (above) and 3. Figure 2 shows that in the full career example, the vast majority of the increases in a DC account come from returns on prior contributions. Those hired later (Figure 3) simply do not receive returns from contributions that were never made. In contrast, participating in a DB plan when hired mid-career without a strong level of prior savings can be a lifeline.

While few workers likely do this math, many educators understand the value of staying in a pension system throughout their career. Changing to a DC plan or a cash balance plan may not change behavior overnight, but the modified incentives are likely to become understood over time.



As a result of how pension accruals are received during a career, teacher turnover patterns in states that offer DB plans largely reflect these incentives. Figure 3 below shows the percentage of teachers (the Colorado data is for all educators, including ESPs) that leave in any given year, based on their actual turnover experience. There are relatively high quit rates in the early years, but once employees work for five years, turnover is greatly reduced until reaching retirement eligibility (which varies from state to state), which is just like we saw with the DB turnover experience in the Alaska TRS plan above.

These turnover patterns illustrate the pull and push of the incentives that pensions were designed to provide to employers.

Turnover is an important outcome to understand when considering the goal of providing a high-quality education because teacher effectiveness is broadly understood to improve rapidly during the early years of teaching, with effectiveness continuing to improve at a slower rate thereafter.

This teacher effectiveness research supports the idea of prioritizing efforts to make teaching a career endeavor. It also may help explain why other states have retained a career employment model that incentivizes teachers to accrue benefits and provides maximum value to educators if they leave/retire at times that are incentivized by retirement provisions (in both DB and retiree health plans, where retirement provisions are typically coordinated).

If Alaska ends up as a teacher training ground that other states can hire from, there are both cost (e.g., recruiting, the need to increase pay) and education quality impacts.

SECTION 5: KEY PLAN PROVISIONS

DB Benefit Multiplier

Retirement programs were typically developed to replace roughly 80 percent of pay for career employees, including income from Social Security, pension plans, and individual savings. The pension benefit itself has three components: final average salary, years of service, and a benefit multiplier. In one respect, the pension benefit multiplier utilized by plans is a function of cost and affordability because it costs more to offer a higher benefit.

In recent years, many states that made changes to public plans put reducing costs ahead of benefit adequacy in response to the Great Recession. Among plans that have reduced benefit offerings in recent years, there have generally been larger reductions in benefits among plans that have faced greater funding challenges. But developing plan designs historically started with considering benefit adequacy. As such, states that do not participate in Social Security typically offer somewhat higher pension benefit multipliers. As the Wisconsin Legislative Council noted,

"The plans in which employees are not covered by Social Security frequently have a higher formula multiplier to compensate for the lack of Social Security coverage."

FIGURE X below summarizes the offerings in other states, with each tier that is open to future hires counted as one data point. As Social Security coverage is a key component to retirement security, the chart below shows current benefit multipliers separately for workers covered, or not covered, by Social Security. The states not providing Social Security coverage typically have multipliers of two percent or above, and those not participating in Social Security are more likely to offer a multiplier up to 2.24 percent.

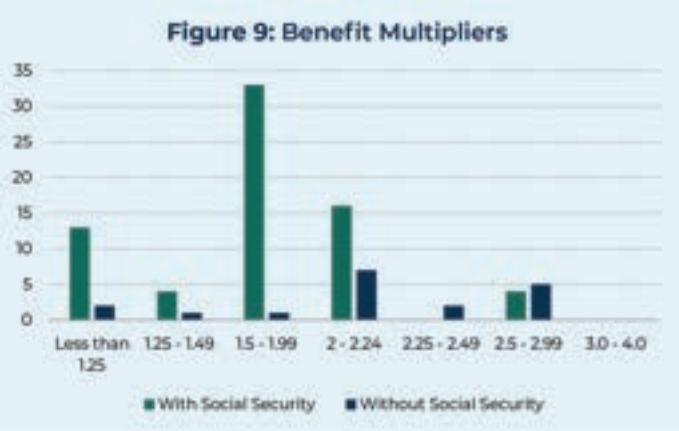
It is worth noting that some tiers that appear to be less generous also include a side DC plan that supplements retirement resources. For instance, the two plans that offer a multiplier of less than 1.25—and do not include Social Security participation—are both plans where this tier is an option in Ohio (STRS and PERS). These Combined Plans include a DC component. These two plans are included in the chart, but new hires also have the option to choose a DB-only benefit with a 2.2 percent multiplier (which is included in the 2-2.24 group). In fact, the DB-only plan (2.2 percent multiplier) had over 45,000 members compared to less than 1,600 for the Combined Plan on June 30, 2022. These state-specific variations can be a bit misleading (because they are not always obvious at first glance), but excluding open plans from the chart seemed more misleading.

Benefit Limitations

The attached chart of plan comparisons also includes various benefit limitations, often in the form of something like 80 or 100 percent of final average salary (FAS). Some plans have long had such limits on benefits, and others have been added more recently. Again, Social Security participation should be a consideration.

There are two competing factors to think about when considering benefit limitations. First, benefit limitations can prevent the appearance of an overly generous plan, in which a worker might receive a pension benefit higher than their pay at retirement. (It is not clear if this was at all common in Alaska's closed DB plans.)

Second, the benefit limitations can create a stronger financial incentive to retire once a worker has 'capped out.' When designing a plan, it is reasonable to look at how many years are needed under a benefit formula to hit certain replacement rates and whether incentivizing another retirement is more problematic than the issue it may solve.



Under the terms laid out in SB 88 for educators (2-2.5 percent multipliers, based on service), a worker would have to participate in the re-opened TRS plan for 42 years to hit the 100 percent FAS mark. Therefore, it is likely that only a small subset of participants would be impacted by a cap at 100 percent of FAS.

Options for Choice Structure

Given the interest among stakeholders in providing workers a choice between a DB and a DC plan, below are information and views on this topic.

Many DB/DC choice structures require workers—often young—to make a decision about plan type by forecasting their length of service under the plan. The problem with this plan provision is that workers simply do not know the future. Many take jobs that they anticipate staying in for a long time, only to find their paths veer in other directions. The situation in Alaska may be particularly difficult. Someone moving to Alaska to teach may anticipate an eventual return home at their date of hire. But they might get married, have a family, and ultimately decide to stay. This might be considered a successful outcome from a school management perspective, but the teacher may have made the "wrong" choice about which retirement plan would be best based on the career path they thought they would follow.

The Florida Retirement System (FRS) has a DB/DC choice structure, but that plan has a provision that allows workers to make a 'second choice' at any point in their career. This is a worker-friendly policy, but also requires a few key decisions that complicate any 'second choice' structure.

Second Choice: From DC to DB

If someone is mid-career and decides to switch to the DB plan, the resources accumulated in their DC plan likely will

not be exactly the same as the cost of the DB benefit that was not earned (to that point). So, the provisions governing the second choice must define a conversion process. Below are a few options that are worth considering:

1. One could choose to give credit for the service that was worked—with the plan taking gains or losses at conversion. This presents additional financial risk to the plan. Recent market trends would likely impact the gains and losses to the plan.

2. Another option would be to only grant the service that DC resources can pay for. This may seem unfair and result in bitter feelings once a worker realizes they will not receive credit for all years worked. It could also result in some workers receiving more years of DB credit than they've actually worked, which is more likely to occur after a bull market.

3. One could also offer a 'second choice' without converting past service to DB service. Only future service would be in the DB plan and DC funds would stay in the DC account.

Second Choice: From DB to DC

Conversion from DB to DC is much simpler. A conversion can be done at cost and would not appear to be unfair. A participant simply would receive the present value of accrued benefits deposited into the DC plan account.

Alternatively, one could keep the DB accrual up to that point, and simply start saving in the DC plan going forward. However, in many cases, this would be very disadvantageous to the worker who is freezing their DB benefit often at a young age (as the value of the benefit would erode due to years of inflation).

Reciprocity between TRS and PERS

Many states have chosen to provide a way to address the reduction in value that occurs when a worker leaves a job in one pension plan and begins a new job in a different plan, e.g., moving from PERS-covered employment to TRS-covered employment in Alaska. The reduction in value stems from freezing the DB benefit in one plan (where final pay is frozen and inflation reduces the value of the frozen benefit), while the worker begins accruing a fresh benefit in the other plan. States have taken different approaches to resolving this issue. According to research by the National Association of State Retirement Administrators (NASRA), most states with multiple public retirement systems provide some amount of reciprocity among plans. This reciprocity enables public employees who change jobs within the same state to transfer their service credit to a different pension plan for another public employer.

The key decisions involve whether to transfer service and assets between systems or to pay retirement benefits from each system; whether to recognize future pay raises in the system that was left; and whether to recognize service in the other system for purposes of vesting and retirement eligibility. States have taken different approaches to this issue, but most seem to pay benefits from both systems.

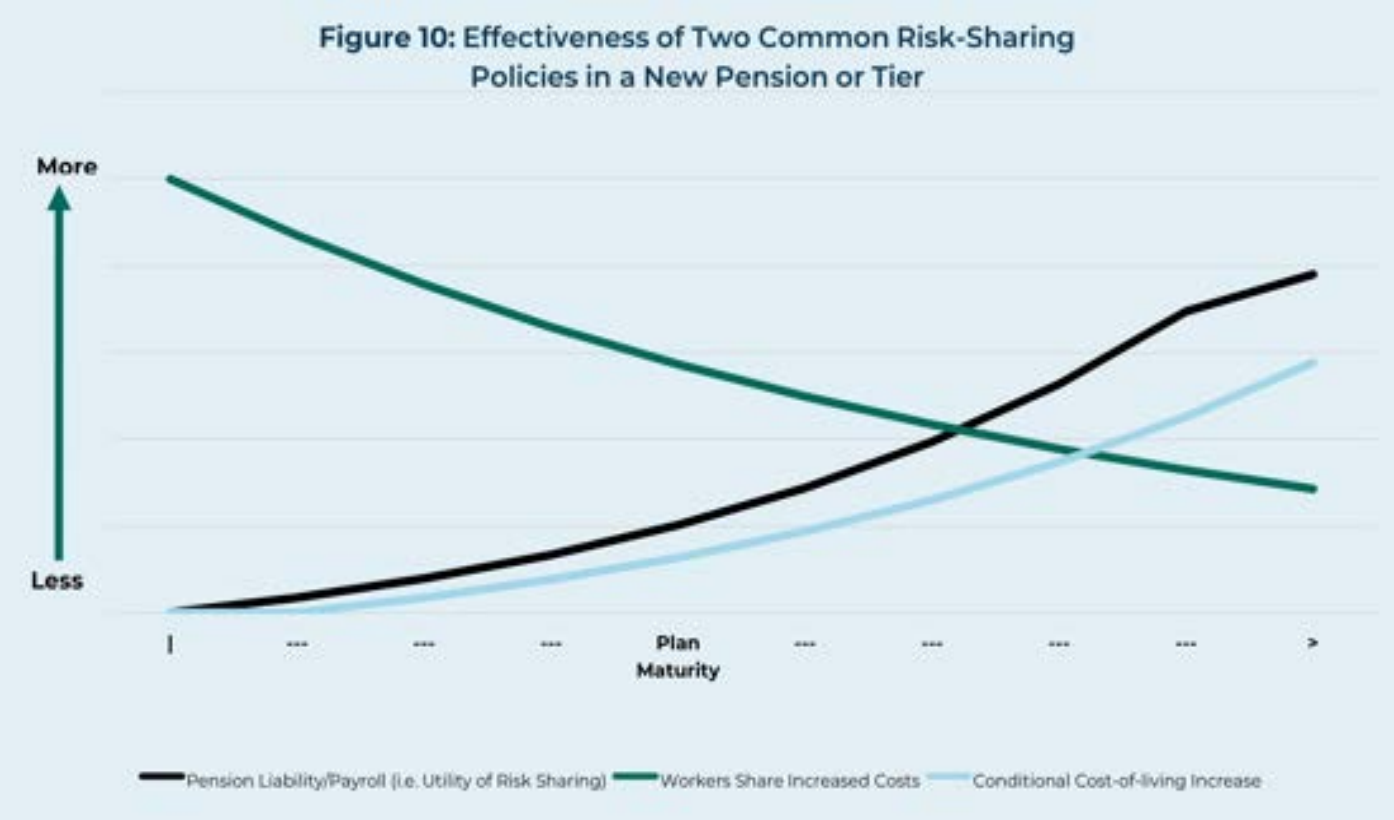
SECTION 6: NOTES ON RISK-SHARING

There are a few ways to measure the risks presented by sponsoring a pension plan for workers. One simple measure is to look at plan liabilities relative to plan payroll for an open and ongoing plan. This is an important measure when considering the cost impact of missing a return assumption. For instance, if a plan has liabilities equal to two years of payroll, missing the return goal means the creation of unfunded liabilities of 20 percent of payroll. In a more mature plan, like a plan with liabilities equal to five times payroll, that same return is equal to 50 percent of payroll.

Given that plan liabilities tend to grow relative to payroll as a plan becomes more mature (a higher percentage of retirees receiving benefits compared to workers accruing a benefit), it is clear that a more mature plan can present more financial risk to the plan sponsor and that risk-sharing provides more utility in a mature plan or tier.

Therefore, it is important to look at the most common forms of risk-sharing and evaluate how they change as a plan matures. The two most common forms of risk-sharing are making post-retirement benefit changes conditional on plan health, and simply having active workers contribute more (in some form) when costs rise or the funding status declines.

The chart below illustrates how these two policies change over the life of a pension plan or tier. Given that plan liabilities start out as small relative to payroll, cost-sharing (with active workers) is effective during the early years because payroll is large compared to liabilities. However, as noted above, financial risk grows as a plan matures. In contrast, conditional Post-Retirement Pension Adjustments (PRPAs) grow in effectiveness because the value of retiree benefit increases grows over time just as the liabilities do relative to payroll.



In short, if Alaska's taxpayers understand these provisions, a taxpayer in the early years of the plan would likely appreciate the cost-sharing provisions, though the likelihood that costs become unmanageable in a new tier are much lower. However, future taxpayers are much more likely to appreciate the conditional PRPA provisions.

The Impact of Conditional Post-Retirement Pension Adjustments (PRPAs)

The table below illustrates how a conditional inflation adjustment grows more effective as a tier ages. The table uses real plan demographics and costs for three large public systems with very different demographic profiles (INPRS TRS 96 Plan, Texas TRS, and Alaska's closed TRS Plan).

The scenario aims to evaluate what would happen if a large economic event occurred similar in scale to the Great Recession, which was the biggest economic crash since the Great Depression (1929).

First, notice the percentage of participants who are in pay status, which ranges from 11 percent in the 'Newer' tier to 77 percent in the 'Retiree-Heavy' closed plan. Given that retiree benefits generally have higher liabilities than younger workers, their costs accounted for 22 percent to 76 percent of all plan liabilities. Plan liabilities are much larger relative to payroll in the more mature plans as well. In the case of the 'Retiree-Heavy' plan, some of this is due to the lack of new entrants.

Then what happens? The scenario assumes that these plans had their funding ratio (based on market assets, not smoothed assets) fall from 100 percent to 80 percent due to the hypothetical recession. This would represent a very significant event. If this event caused the funding ratio to be less than 90 percent for three years (HB 220 provision), then three adjustments would be denied to retirees. The unfunded liabilities would be reduced by eight percent in the newer tier because those three PRPAs were skipped. In the more mature tiers, the unfunded liabilities would be reduced by 18-28 percent.

The reason is simple: More mature tiers have more retirees, and their benefits make up a larger part of total plan costs, so the skipped PRPAs provide a larger cost reduction.

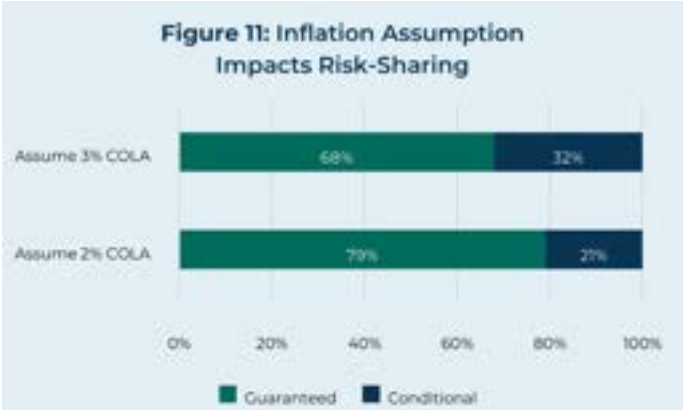
Another item to note in this scenario is that the initial losses would be smoothed in during the three to five years following the crash. Thus, these cost reductions would occur before the plan fully recognized the losses through higher contributions, and while investment markets were recovering.

Table 2: Evaluating Conditional PRPAs in HB 220 as Plan Matures				
Plan Maturity	% of Participants Receiving Benefits	% of Liabilities for those Receiving Benefits	Liabilities as % of Payroll	Reduction in UAL if 3 PRPAs Skipped
Newer Tier	11%	22%	199%	8%
Established Tier	31%	49%	444%	18%
Retiree-Heavy Tier	77%	76%	2288%	28%

Conditional PRPAs: Size Matters

Another aspect of conditional PRPAs to understand is that the smaller the assumed annual adjustment, the less effective the risk-sharing. For instance, in a typical plan, a two percent assumed inflation adjustment represents roughly 21 percent of the cost of all benefits. A plan with three percent annual adjustments will have post-retirement increases representing nearly a third of all benefit costs.

Thus, if there are two plans with equal costs, one with a higher multiplier and a smaller conditional inflation adjustment and another with a lower multiplier and higher conditional adjustment, the second should have more cost stability over time. This occurs because a larger portion of the benefit is not guaranteed. Or, put another way, the gap between the benefit that the funding mechanism assumes will be provided and what is guaranteed is larger.



The conditional PRPA included in HB 220 (2022 session) changes the political incentives, as well. Each year the plan is less than 90 percent funded, benefit increases are denied to retirees. The PRPA also can lead to higher contribution rates for both workers and employers. Thus, the incentives point to a need to maintain a well-funded plan for all major stakeholders, including retirees, workers, legislators, employers, the retirement system, and those who represent plan participants.

For Conditional PRPAs to Reduce Risk, Plan Must Pre-Fund It

The reason liabilities are reduced when a PRPA is skipped is because the plan assumed it would be provided each year. For this risk-sharing mechanism to work well, the plan must assume PRPAs will always be provided to retirees. Then, when they are not provided, there is a gap created between expectations and reality, which produces the savings that are captured in the next valuation.

In a way, this is the opposite of ad-hoc PRPAs, which are not part of a plan's benefit but provided via legislation. Some plans had funding troubles when legislatures routinely provided retirees with PRPAs, while the plan didn't assume it would happen. This is akin to adding additional liabilities every time an increase was granted—in essence, the opposite of a conditional adjustment. This also created a gap between expectations and reality, but in the other direction.

Key Takeaways:

- Risk-sharing generally becomes more significant as a way to mitigate costs as a tier matures, i.e., has more retirees per active employee, because the plan liability grows larger relative to plan payroll over time, presenting more risk.
- Risk-sharing through conditional PRPAs specifically grows more effective as a means to alleviate cost increases as a tier matures.
- Cost-sharing with active workers, e.g., employees paying more or losing some other form of benefit, grows less effective over time because payroll becomes smaller relative to plan liabilities.
- The inflation adjustment assumption itself has an impact on the amount of risk-sharing that takes place in the HB 220 legislation. A higher assumption means more risk-sharing. Thus, as legislation is considered,

any reduction or limitation in this assumption, e.g., a maximum two percent PRPA, would effectively hinder the effectiveness of this risk-sharing provision. If there is a need to tweak benefits to hit cost targets, it may be wise to look elsewhere.

- Conditional PRPAs must be pre-funded (assumed to be provided) for risk-sharing to work well.
- Having conditional PRPAs based upon funding being 90 percent or above is a reasonably safe level to use as a trigger. Setting conditional PRPAs at 60 percent allows the fiscal condition to deteriorate much further before the policy trigger is activated.

SECTION 7: HOW OTHER STATE SYSTEMS KEEP COSTS STABLE

Several states have achieved high degrees of contribution rate stability through plan design, funding policy, or a combination of the two. This report will highlight four states: Wisconsin, South Dakota, Indiana, and Tennessee.

Table 3: Strategies to Produce Stable Costs Employed by Four States

Wisconsin WRS	Automatic Benefit Adjustments & Cost Sharing
South Dakota SDRS	Automatic Process Triggered by Policy
Indiana INPRS	Funding Policy
Tennessee CRS	Use of Reserve Fund & Risk Sharing

The **Wisconsin Retirement System (WRS)** often is held up as a model public pension system. While the exact details of the plan design are somewhat technical and unique to Wisconsin, the basic premise of the system works like this: upon retirement, a member receives their base benefit amount, which is a defined benefit amount payable for life. The value of this base benefit can never be reduced. Each year, depending on the investment performance of the plan, the retired member can receive an additional amount on top of their base benefit. This additional amount can be reduced in the future if the investment performance of the plan declines, but the reduction in benefits can never go below the base amount awarded at retirement. The additional benefit amount is not a cost-of-living adjustment (COLA) as it is tied to the performance of the plan.

The participating employers in WRS have consistently maintained a high degree of funding discipline and the plan almost always receives its full annual required contribution. This funding discipline, combined with the unique structure of providing annual benefit increases, has allowed WRS to maintain a remarkably steady contribution rate over the years.

From a benefit adequacy standpoint, it is worth noting that the adjustable nature of the benefit does depend upon market returns and other factors. The plan is funded under the assumption that post-retirement increases will occur, but the actual changes have varied. Since 1986, the average post-retirement increase (Core Fund) has been 3.4 percent. However, since 2000, the average post-retirement increase has been 1.3 percent. This occurred because the strong bull market in the 1990s produced large increases, but two serious recessions (2001 and 2008) caused a drag in post-retirement increases more recently. The history of WRS benefit adjustments can be found at https://etf.wi.gov/wrs-performance/annual-returns-rates-and-adjustments. More information is available at Our Wisconsin Retirement System: Strong for Wisconsin.

Another public pension plan that has achieved a very stable contribution rate is the **South Dakota Retirement System (SDRS)**. The South Dakota model relies upon building consensus among the different stakeholders in the plan. Contribution rates are held steady in state law, as are benefit levels. The plan also is explicit about its goal of remaining fully funded at existing contribution levels. If the investment performance (or other actuarial experience) of the plan falters to such a degree that a contribution rate increase would be necessary, then that triggers a process through which the different stakeholders meet to come up with a solution, which may or may not involve benefit changes or a contribution rate increase. As shown in Figure XX, the contribution rate in South Dakota has been nearly flat for two decades, with the only increase coming after an agreed-upon decision to increase benefit levels.

The important contrast between WRS and SDRS is that, when actual results veer from expectations significantly, SDRS's governance triggers a process with stakeholders instead of changing benefits based upon pre-negotiated

formulaic responses. Some states may find this remarkable degree of consensus difficult to achieve but it is a model that South Dakotans have bought into.

More information is available at The South Dakota Perspective on Public Employee Retirement Benefits and the South Dakota Retirement System (SDRS).

The **Indiana Public Retirement System (INPRS)** covers multiple plans, including one for teachers (TRF) and other public employees (PERF). Like many retirement systems, the distressed markets during the Great Recession (2007-2009) caused stakeholders to reexamine how they are managing their pension funding.

To make costs less volatile over time, INPRS developed a funding policy that builds in some safeguards and applies strategies that produce more level costs for INPRS' participating employers. These ideas include:

- Setting the Required Contribution:
  - » For plans without state appropriations, employer contribution rates do not decrease until the plan's funded status equals or exceeds 95 percent.
  - » The employer contribution rate of plans over 95 percent at each valuation date will be decreased by 25 percent of the difference between the existing rate and the actuarially determined employer contribution (ADEC).
  - » When the plan reaches 110 percent funded status based on the total benefits of the plan, the employer contribution rate decreases to equal the ADEC.

- Amortization policy amortizes underfunding more quickly than overfunding (a fiscally conservative bias):
  - » For a plan that is less than 100 percent funded, the amortization method is level dollar, with a closed amortization period of twenty (20) years.
  - » For a plan that is equal to or greater than 100 percent funded (surplus assets), the amortization method is level dollar, with an open amortization period of thirty (30) years.
  - » If an INPRS Defined Benefit retirement plan subsequently falls below 100 percent funded, this 30-year open amortization base is eliminated, and amortization reverts to the 20-year closed amortization method described above.

The thrust of these policies, which vary from the more commonly used methods, is to require unfunded obligations to be paid off over a reasonable period, but to hold surpluses longer and utilize them to offset market shocks. In addition, by not reducing contribution rates when the plan is underfunded, the plan will reach full funding again more quickly than the amortization policy alone would provide. In short, it allows the system to go back to employers frequently with news that next year's contribution rate will be the same as last year's rate. In fact, as INPRS's actuaries noted in the funding policy award submission:

> *The policy applies to four of the system's plans, and of those four plans, from 2014 to 2020 there have only been three contribution rate changes, one of which was forced by legislation and would not have otherwise occurred.*

INPRS Funding Policy is available at https://www.in.gov/inprs/files/INPRS_Funding_Policy.pdf.

Read about INPRS funding policy in the NIRS Funding Policy Award Submission and Webinar: The Cost of Stability: A Case Study and NIRS Funding Contest Webinar.

Finally, the **Tennessee Consolidated Retirement System** implemented some significant changes following the Great Recession, one of which was moving to a hybrid DB-DC plan for new hires. Another major change was adopting a funding policy that prioritizes building up a large reserve fund so the plan is well-prepared to weather future economic downturns. Known as the Stabilization Reserve Trust Account, the express purpose of the reserve fund is to act as a cost control mechanism to keep costs stable for employers.

Tennessee fixed employer contributions into the DB component of the hybrid plan at four percent of payroll. When the required contributions into the DB plan are less than four percent because the ADEC is lower, then the difference goes into the reserve fund. In a year in which the ADEC exceeds four percent of payroll, then the state can draw on the reserve fund to keep costs stable.

It is important to note that the reserve fund is not included in plan assets for the development of contribution rates. Instead, it is held on the side to be used to offset higher costs at some future point.

Tennessee is not alone in utilizing a reserve stabilization fund for its pension plan. Indiana uses a pension stabilization fund to manage the legacy debt in the TRF Pre-96 Plan. Additionally, Louisiana, North Carolina, and Oklahoma all have some version of a stabilization fund into which surplus revenues and excess funds are contributed and the money in the stabilization fund can be used to fund pension contributions. Montana uses a portion of revenue

from its coal severance tax to pay down the state's unfunded pension liabilities. Legislation passed in 2013 states that on July 1st each year, a certain portion of the coal severance tax is to be appropriated to the Montana PERS defined benefit plan trust fund.

In addition to the reserve fund, the new plan in Tennessee includes other cost measures, as laid out here:

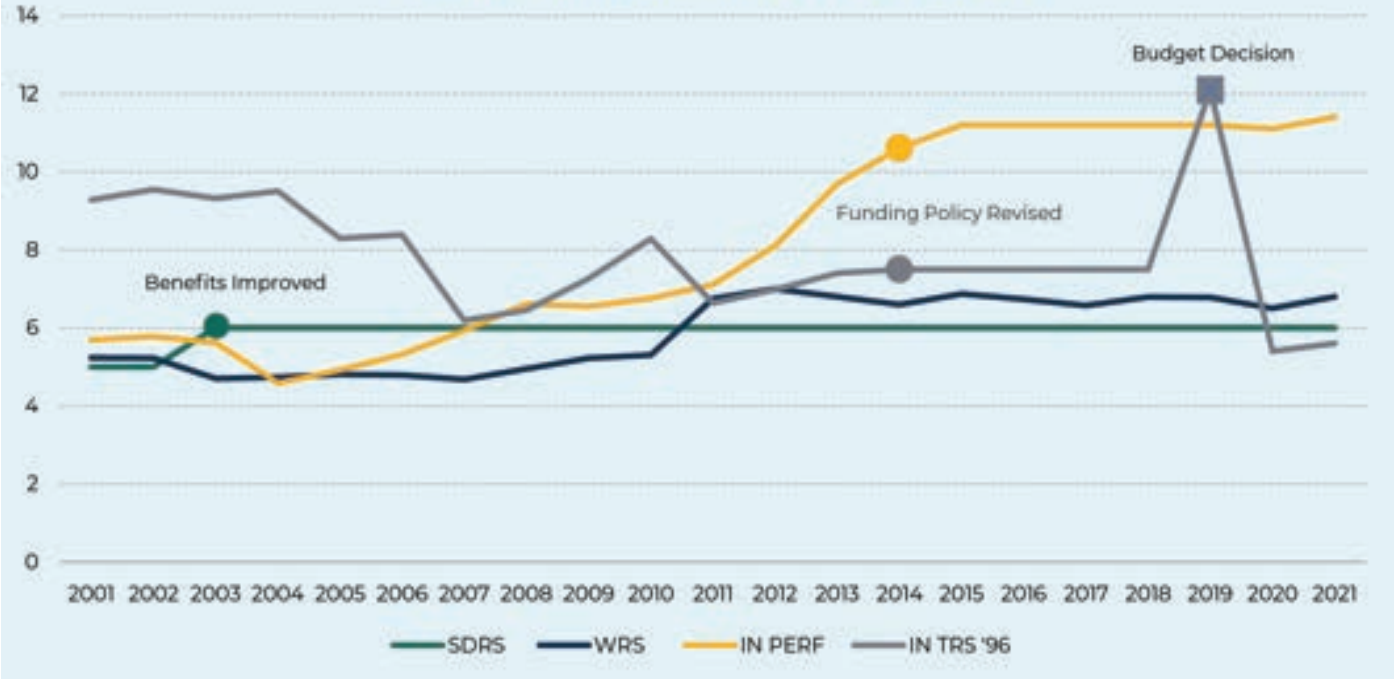
The Stabilization Reserve Trust Account is just the first cost control established as part of the hybrid plan. The other mechanisms kick in based on an established sequence when the plan's unfunded liabilities exceed the thresholds established in the plan document.

The second cost control—reducing the maximum 3% retiree annual cost of living adjustment—would be triggered if the Stabilization Reserve Trust Account were exhausted.

If those reductions don't improve the state's funded status, the next cost control to kick in would shift at least some of the 401(k) employer contributions to the defined benefit plan. And then, if this control is insufficient to restore the plan to full funding, additional cost controls will be enacted, including an increase of 1% of payroll in employee contributions to the defined benefit plan…

The results of these policies are shown in the following chart, though it is important to note that the updated funding policy in the Indiana plans was not adopted until 2014. The new Tennessee plan is not included due to the lack of adequate historical data.

Figure 12: Contribution Rates as a Percentage of Pay in Indiana, South Dakota, and Wisconsin



SECTION 8: COMBINING REVENUE TRENDS AND RETIREMENT COSTS

Most states that have studied or adopted risk sharing in DB plans have done so to produce more level costs, without much consideration to state revenue trends. The idea generally has been that one advantage of defined contribution plans is stable costs, so efforts were made to have pension costs be more predictable in how they were allocated over time and to reduce volatility.

It is clear when looking at past contributions to the TRS and PERS plans, pension contributions in Alaska have not always tracked the Actuarially Determined Employer Contribution (ADEC) amount. In certain years, contributions were below the ADEC and in others very large catch-up contributions have been made. These larger contributions typically have occurred when tax revenues were above expectations.

Alaska's tax revenues can be more volatile than in other states, which can be challenging for those charged with delivering consistent, quality public services each year. Part of this fluctuation in state tax revenues is tied to oil prices. While some states have reformed their pension plans in a manner that sought to stabilize costs, the same tools could be utilized to make pension costs more counter-cyclical with respect to budget volatility.

NIRS does not research oil prices or markets, so this paper will not present a specific formula for managing volatile energy market revenues. However, NIRS does examine pension funding practices. As such, these concepts are provided to inform policymakers when developing a pension funding plan that could actually help alleviate broader budgetary challenges.

For instance, if there is a broad understanding that tax revenues will be atypically high when oil prices rise above a certain level (or in-state production rises above expectations), the state could choose to make a supplemental contribution to their pension systems instead of taking on more recurring spending. If the plan actuary tracks these contributions in excess of the ADEC, the state should be able to reduce future contributions to the plans when oil prices or production dips in a more difficult year.

The idea is to take dollars from high-revenue years and use those to fill budget gaps in low-revenue years, but in a systemic manner, while maintaining a disciplined funding strategy. **The most important aspect from the perspective of the pension fund is that cumulative contributions are always at—or above—adequate levels, to prevent underfunding**. This could be done by establishing a separate pool of contributions, such as a reserve fund as other states have done.

An example of a funding policy is presented below, but this example should not be taken as a specific recommendation. Policymakers and other stakeholders with expertise in the budget and revenue situation in Alaska should play a role in determining the various triggers for a funding policy of this kind.

An Example of Counter-Cyclical Funding Policy

To develop a pension funding policy that would help offset the cyclical nature of tax revenues in Alaska, there would need to be a way of defining good, normal, and bad years. One could start by looking at a five- or ten-year revenue trend to establish a baseline, or possibly revenue projections. Or the funding policy could directly link to oil prices, revenues from oil-related sources, or production levels. Alternatively, if revenue growth exceeds projections, that could be another way to distinguish between a) strong revenue years, b) normal years, and c) years where it might be appropriate to use some of the excess contributions to provide budgetary relief.

From there, it is possible to simply identify a portion of revenues above expected levels that would prepay future pension costs and, in turn, define when it is appropriate for the excess contributions to be used to provide budgetary relief for the state.

In good years, the state would make a payment above the ADEC. In normal years, the state would make the full ADEC. In bad years, the state could use a portion of accumulated excess contributions (above the ADEC) to reduce its pension contribution.

This is a technique that private plans have built into their regulatory structure, referred to as the Credit Balance. Private firms can contribute more than the minimum in good years, which spares them during difficult years. The

new decision-making process becomes about when and how much to overfund, when and how to use it, and how to use the mechanism to produce more level costs (or possibly to provide relief during downturns).

In contrast, public plans have historically looked to Governmental Accounting Standards Board (GASB) accounting rules for guidance on funding, which produced a number that was supposed to be funded. But recently, GASB and accounting functions have been formally separated as GASB made clear that it sought to separate accounting and funding rules. This permits more flexibility on funding, including adopting strategies that produce less volatile costs.

Therefore, an opportunity arises to reduce overall budget volatility (not just pension costs) if the state prioritizes responsible funding and prepaying future costs when tax revenues are above trend.

NIRS, along with the Conference of Consulting Actuaries, held a contest in 2021-2022 that sought strong ideas on pension funding strategies. The papers that were recognized are available at: https://www.nirsonline.org/award/award-overview.

It is important to reiterate: Any plan to depart from paying the ADEC each year should have **strong requirements that the ADEC must be made on a cumulative basis, if not an annual basis** (meaning the flexibility is earned by contributing ahead, instead of shorting contributions only with the promise of future corrections).

An Additional Note about Keeping a Long-Term Perspective

It will be important, if prefunding is provided to a new DB tier, to keep a long-term perspective about benefit increases—particularly following bull markets. When these discussions arise, it is important to fund benefit increases, e.g., increases for future service vs. granting past service increases. Failure to do so can result in material differences in benefit offerings to different generations, which can seem unfair to new workers and ultimately harm retention efforts.

SECTION 9: DOES RE-OPENING THE ALASKA PLANS IMPACT CURRENT PLANS?

Beyond the merits of studying benefit adequacy, the impact on recruitment and retention, and the strategies to make costs manageable for the State of Alaska, it is reasonable to ask, "How might reopening the plan impact our financing of the obligations owed to those in the prior DB tiers?" Or, more simply, will the closed plan be easier or more difficult to manage if it is reopened?

The following section provides data and thoughts about this issue. Specifically, it may help to have a better understanding of the impact of plan demographics and plan cashflows.

The Role of Plan Demographics: A Warning from Multiemployer Systems

It can be difficult to provide analytical data showing the impact of plan demographics on funding status and other metrics, especially given that the 'all else equal' assumption that is necessary for strong conclusions is not a safe assumption with pension funds because other factors impact public-sector employment trends and, thus, plan participation. However, there is a tremendous amount of data available from the private multiemployer sector, including for plans that have very different demographic profiles that are worth understanding. The charts below were developed by and are being shared courtesy of Jason Russell of Segal, who pulled this information together for other purposes.

The four charts below show (where plans are grouped based upon their funding zone status today):

- In 2001, the funding statuses of private sector, multiemployer pension plans were fairly clustered at around 80-85 percent.
- The investment returns achieved by plans that today have been the most and least successful are virtually the same.

- Plan funding efforts have been very similar in terms of increasing contributions and plans that are facing the most critical situations actually raised contributions more than plans that are in stronger funding positions.

- The one area where significant differences do exist is the changing demographics of the plan. The demographic profile of plans (as measured by the ratio of retirees to actives) has been a strong predictor of which plans did not recover well following the Great Recession (2007-2009), with the small share of all plans that have more retirees per active worker being much more likely to face funding challenges.

The chart below shows the trajectory of plan zone status, with plans grouped by their most recently reported zone status. The chart also shows most of the fiscal status of plans in 2001 was not a strong predictor of what was to come. In fact, the relatively small number of plans in *Declining* status had the strongest funding ratio in 2001.

Investment returns were similar among the plans with different zone statuses today, as well. The common notion that some plans invested in a superior manner, or that some invested poorly, does not stand up once one examines the data.

While this would be a logical place to look, the differences are minimal and the plans in *Declining* status today realized returns since 2001 that were similar to their peers.

Annualized Investment Returns

2021 Zone Status	2001-2015	2001-2020
Green Zone	4.8%	5.9%
Endangered	4.6%	5.7%
Critical	5.5%	5.6%
Declining	4.6%	5.6%
All Plans	4.7%	5.8%

Study of Form 5500 data by Segal. Exhibit shows cumulative net investment returns for calendar year plans. Plans are grouped by 2021 zone status.

Another common explanation that one might hear is that some plans were unwilling to make the hard decisions to raise contribution rates.

However, as the chart shows, contributions were increased by more as we move down through the zone statuses. The plans that raised contributions the most were the plans that face the biggest challenges today, so this does not provide a good explanation either.

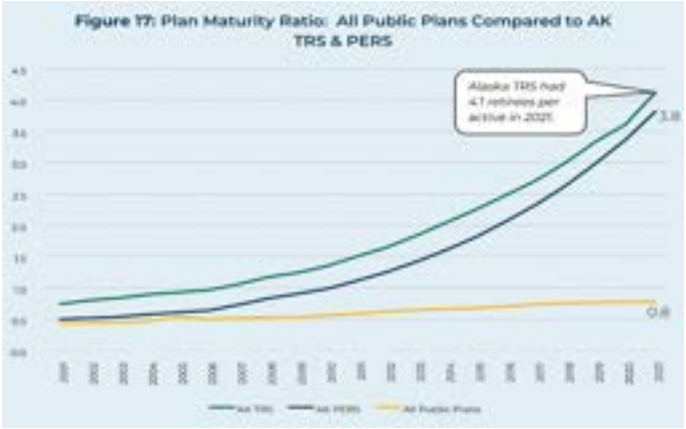
In contrast to the possible factors above, changing demographics turn out to be a strong predictor of funding problems among private sector multiemployer plans. Among the plans in the most troubled zone status, *Declining*, the ratio of retirees to actives has increased from 1.5 to 7.2 since 2001.

Multiemployer plans are largely built around specific industries and the results here represent a story about entire industries that have declined and plans that failed to bring in new, younger members who pay into the system. (Few, if any, of these plans had employed risk-sharing in their benefit design.)

If all assumptions are met in the future, changing demographics should not present major challenges. However, turbulent times can make plans with different demographics (and different levels of positive or negative cashflow) behave differently. When the Great Recession hit, the trajectory of these plans began to take different paths (as is illustrated in the Historical Funding Percentages graph above).

Not only are the *Declining* plans an extreme outlier, the demographic maturity ratio in 2020 is perfectly correlated with zone status (*Declining, Critical, Endangered* and then *Green*). This data suggests that plans with more balanced demographics can be easier to manage, especially throughout periods of market distress.

The graph below illustrates the demographic changes in all public plans included in the Public Plan Database, compared to the plans sponsored by the State of Alaska.



Alaska's TRS and PERS Plans Face a Spend-Down; Re-Opening Would Create More Balance

There are a few basic reasons that experts advise retirees to invest differently than young workers. The biggest factor is timing. If one is not going to spend a dollar of savings for 30 or more years, there is a high probability that equities will outperform bonds. However, if one needs the money next year, the same investment mix looks much riskier.

For pension plans, there are almost always dollars being contributed and dollars being paid out. Plan demographics play a role in whether a plan has a positive cashflow (more contributions than benefit payments) or negative cashflow (benefit payments exceed contributions). More mature plans tend to have a more negative cashflow relative to their less mature peers.

Closing a DB plan accelerates the maturation process. Workforce changes can as well, but to a lesser extent. For instance, if a state is hiring more teachers due to population growth, that impacts plan maturity. If a state is hiring fewer teachers due to declining needs, this would have the opposite impact, as seen in some multiemployer plans above. In the public sector, typically these workforce changes are mild compared to a full plan closure, as public services are always needed.

When thinking about the level of negative plan cashflows, it is reasonable to think of a retiree spending down their dollars. A certain portion will be needed this year, and some resources will be invested for many years in the future. Short term market fluctuations are not as relevant to dollars that will be needed far off in the future. Down markets do have a significant impact for the dollars that are needed this year, because a falling stock price means you need to sell more shares to produce the same dollar of proceeds. It is

important to think of this as a sliding scale, not an on/off switch. The degree of negative cashflow matters as well.

This is likely why there was a great divergence among multiemployer plans following the Great Recession. Making matters even worse for private multiemployer plans, employers can depart when they see trouble on the horizon (compounding their demographic problems further).

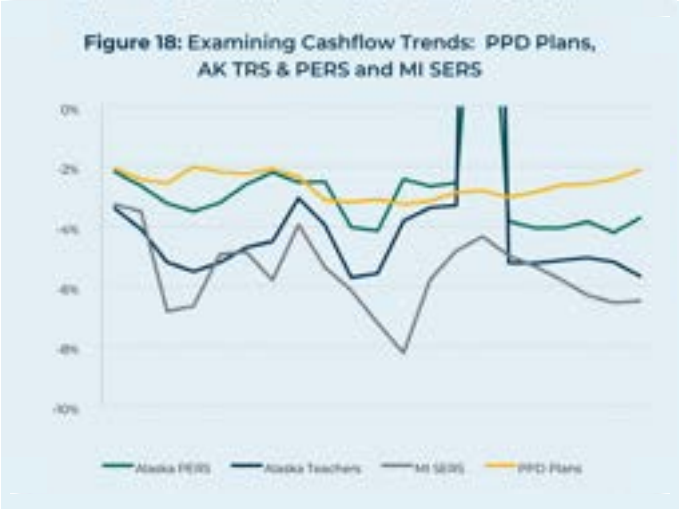
Below are a few ways to look at cashflow data for the two Alaska plans, Michigan's State Employees Retirement System (SERS) plan (closed in 1996), and all public plans.

The following chart shows the level of negative cashflows in each plan. You will notice that the black line, representing all public plans in the Public Plan Database (PPD), drops from a negative two percent cashflow in 2001 to below three percent during the Great Recession. There are a few things causing this, including Baby Boomers retiring and increasing benefit payments and increased contributions following the recession. However, the black line does not change dramatically over this 20 year period.

In contrast, the negative cashflow of the MI SERS plan fell from negative 3.5 to negative 6.5 percent. There are a few ways to think about this. First, if the plan earns 6.5 percent in returns and all other actuarial assumptions are accurate, you'd expect assets to end the year roughly at the same level as the beginning of the year. Another aspect to realize is that if there is a bad year, for instance a negative 10 percent return, the plan is selling a considerable portion of assets to pay benefit payments. And, the selling occurs when stock prices are down.

The Alaska plans are trailing MI SERS as they move towards a higher negative cashflow, which is an expected consequence of closing a DB plan. It is also important to note that the massive contributions, particularly to the TRS plan, have helped the plan delay reaching the higher level of negative cashflows.

Chart X below shows benefit payments as a share of assets. Again, in a closed plan this would be expected to grow. The yellow line, representing MI SERS, has increased much faster than other plans in the PPD. This plan has been closed to new entrants for 26 years now and is moving quickly to a spend-down stage. Alaska's plans also are seeing benefit payments as a share of assets rise more quickly than other plans. In fact, for a number of years the TRS plan had benefit payments as a higher share of assets than the closed MI SERS plan. Following the Great Recession, the MI SERS plan became the plan with the highest relative benefit payments.

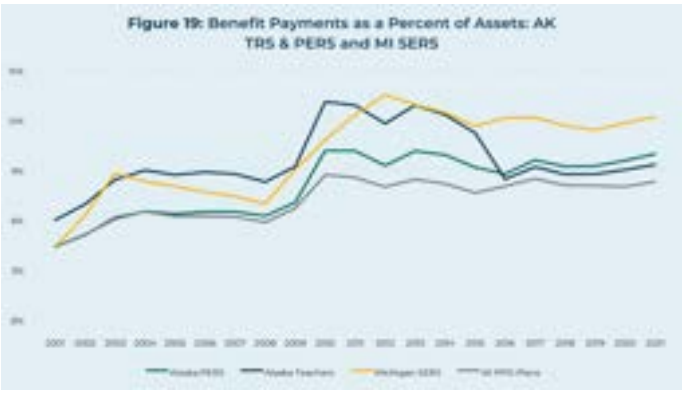


Meanwhile, the large contribution to the Alaska TRS plan is again visible in this chart, as the larger asset base moved the blue line from being close to the same trajectory as the MI SERS plan toward a more normal level.

The sudden increase of benefit payments relative to assets for the MI SERS plan is instructive. Markets were down significantly and for a longer period than a typical recession following 2007. MI SERS had less balanced cashflow, compared with open plans. They would have had to sell assets during this down market to pay benefits. That plan had only been closed for about 11 years at that point and, in hindsight, the plan seems to have been more affected by the economic slump and had a weaker recovery.

There are a few other dynamics to mention:

- All plans saw an increase around the Great Recession simply because assets declined.
- All plans have experienced increased retirements as Baby Boomers have reached retirement age, so some of this increase is a demographic bubble that has been anticipated for many years.



Given these trends, it is likely that the closed TRS and PERS plans will have worse experiences during negative market shocks in the future. The driving force is not just how much markets might decline from peak to trough, but how long prices remain low (and how many benefit dollars go out during the down market).

If these plans were re-opened, one would expect a more balanced cashflow going forward. If there is another period of serious market turmoil in the coming decades, reopening the plans may very well make financing the obligations that were earned by those hired before 2006 more manageable.

SECTION 10: ECONOMIC EFFICIENCY OF DB AND DC PLANS

Defined benefit pension plans are more economically efficient than defined contribution plans. DB plans enable participants to avoid the worst outcomes associated with investment risk, timing risk, and longevity risk through features such as risk pooling, lower investment fees, and superior investment performance through professional management. The investment staff at pension plans are able to construct more balanced portfolios across a wider range of asset classes than individuals are able to establish on their own.

Figure 1A shows how different plan features combine to make DB plans operate more efficiently. The baseline cost for providing a specified level of benefit through a DB plan is 16.5 percent of payroll. Individuals saving in a DC plan face the risk that they will outlive their savings, and this longevity risk adds another 2.3 percent to the cost of providing the same level of benefits (because the DC plan participant will need to save more to counteract longevity risk).

Additionally, since DC plans are tied to the lifespan of an individual, the balance across asset classes in the investment portfolio should change and become more conservative over time to avoid the risk of investment loss. However, this less-balanced portfolio generates lower returns, which adds 3.8 percent of payroll to the cost of the DC plan. Finally, the lower returns earned and the higher investment fees paid by individuals directing their own savings adds 9.7 percent of payroll to the cost of the DC plan. All told, the DC plan costs nearly twice as much, 32.3 percent vs 16.5 percent, to provide the same level of benefits as in the DB plan.

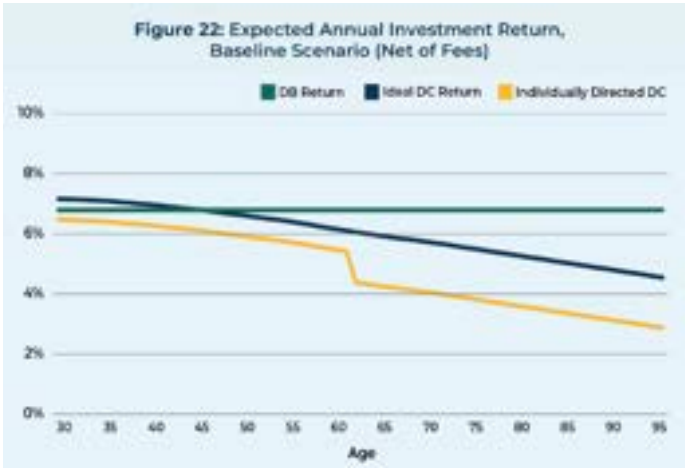
Without the benefits of risk pooling, participants in the DC plan face the challenge of determining how to spend down their accumulated savings over the course of their retirement. Plan participants run the risk of either spending too much and outliving their resources in retirement, or of spending too little and experiencing a lower quality of life than necessary. In the latter scenario, they may leave behind resources to bequeath to heirs, which may or may not be intended.

Figure 20: Cost of DB and DC Plan as Percentage of Payroll, Baseline Scenario

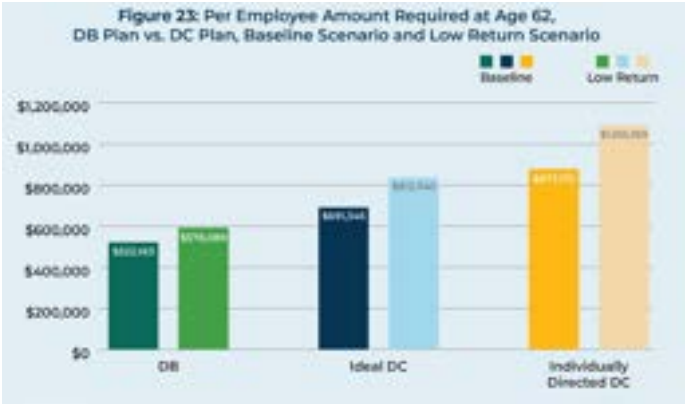
Figure 5 shows a benefit payment schedule for the DC plan based on a strategy to avoid outliving one's savings. Using the anticipated life expectancy of 1,000 teachers, this graphic depicts how benefit payments gradually increase to adjust for inflation, then begin to decline as more of the 1,000 teachers dies each year, until only a small number of payments are made in the final years. The retired teachers in this scenario are trying to avoid outliving their savings, so they are taking a lower than recommended withdrawal from their savings. Since some of those retired teachers will die before spending all of their savings, the yellow portion of the bars represents the DC plan balances that are passed onto estates. While death benefits are an important element of pension plan design, unplanned intergenerational wealth

transfers are economically inefficient because the heirs did not provide a service from which the employer or taxpayer benefitted.

Besides longevity risk, another risk faced by participants in a DC plan is investment risk. Professional investors manage the assets in a DB pension plan, and these investments are expected to generate a consistent annual return. Data from the investment consulting firm Callan shows that public pension plans do tend to meet or even exceed their investment return assumptions over time. The scenario shown in Figure 6A is one in which the well-diversified DB plan is expected to earn 6.8 percent annual returns. The DC plan delivers lower returns over time. While the ideal DC plan earns higher returns early in the teacher's career, those returns decline over time as the teacher shifts into less risky and lower return assets.



The analysis discussed and examined in NIRS' research, A Better Bang for the Buck, compares providing the same level of retirement benefit through a defined benefit plan and a defined contribution plan. A certain amount of financial resources is needed at retirement to provide that given level of retirement benefits. Figure 7A displays the differing amounts of financial resources needed at retirement to provide the same level of benefits. The amount needed in the baseline scenario for the DB plan is just over half a million dollars. This rises to nearly $700,000 in the ideal DC plan, and to almost $900,000 in the individually directed DC plan. The amount needed increases because the DC plans are less economically efficient than the DB plan, and so more financial resources are needed to counteract that inefficiency.



Finally, the research examines how much of the inefficiency occurs pre- and post-retirement. While DC plans are less efficient than DB plans across the board, much of the inefficiency occurs post-retirement. In fact, 82 percent of the inefficiency in the baseline scenario occurs after retirement. This is because individuals saving in a DC plan likely will shift to less risky and lower return assets after retirement to avoid investment risk. DC plan participants also typically move their savings from an employer-provided plan to a retail savings plan at retirement, which often comes with higher risks and fewer legal protections. The fees associated with DC plans during the saving years have declined in recent years, which does improve efficiency, but those improvements vanish during retirement because DC plans are built for saving, not for providing steady and reliable income during retirement. DB plans, on the other hand, can facilitate both saving and generating lifetime income in a much more economically efficient manner.

Table 5: 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%

CONCLUSION

Ultimately, the U.S. benefits industry aims to get workers to appreciate their employers' efforts to help them navigate life's major challenges, particularly financial- and health-related. In exchange, employers hope this will lead to them being seen as a good place to work and help them succeed in competing for talent in an increasingly knowledge-based economy.

This report has provided lots of data and analysis, but in the end the perception of workers is also very important. Employers can take advantage of their economies of scale to provide things that are economically inefficient to buy at the retail level, like health insurance. This employer-provided benefit adds value for workers, as opposed to just raising pay high enough for employees to purchase the same product at a higher cost. Defined benefit pensions are a great example of employers pooling resources and risks in a cost-efficient manner. However, offering an alternative benefit that costs more to achieve the same level of benefits, not only raises costs, but may be less attractive to potential new hires.

In the years following the decision made in Alaska to close the DB plans and move future hires into DC plans, many states had similar debates about their retirement offerings. Despite changes being made in all or nearly all state-level plans, other states have not followed the same path as Alaska. Instead, a broad array of changes was implemented that addressed various aims, including reducing risks and costs. But there were also changes that impacted plan types, though most of these either combined plan types (offering both a DB and a DC) or provided workers with a choice. As a result, it's become much more complicated to lay out what is offered across the country as both the range of types and complexity of benefits have increased dramatically.

During these debates, workers' voices were clear about their desire to retain the best parts of a DB plan, while often being willing to compromise in some areas to make the benefits more manageable for employers. In this respect, the discussions you are having today are not that different from those that took place across the country over the past 15 years.

The data above indicate that retention of teachers and PERS members is problematic in the DC plans, compared to both the DB plans and plans in other states. And that is where the focus should be to improve retention, particularly of those who reach vesting. Unfortunately, all states seem to struggle with retention of newly hired teachers. That dynamic is likely better addressed by policies outside of retirement offerings, which I will leave to those who better understand life in the classroom. But there is much potential to do better with those who stay past the first five years.

Regarding reopening the DB plans, there would be important choices about how benefits are designed and how they are funded that would play a major role in determining whether the financial experience would be more like what Wisconsin and South Dakota have seen throughout turbulent times, or what Alaska went through many years ago and continues to deal with today. The tools are there, as well as the case studies from other states who use them. And a strong case can be made that reopening the DB plans may well help reduce volatility and the cost of honoring the obligations that already exist in the legacy plans. For my part, I would be very uneasy shouldering the responsibility of managing a pension system with rapidly aging demographics and increasingly negative cashflows.

APPENDIX

Figure A1: Examining Change in Headcounts & Tenure Patterns in TRS and PERS, 2005 vs. 2021

		<5 Years	5-14 Years	>14 Years	Total
TRS Participants					
2021 Workforce		2,341	3,426	3,150	8,917
2005 Workforce		2,618	4,201	2,837	9,656
	Difference	**(277)**	**(775)**	**313**	**(739)**
	% Headcount Change	**-11**	**-18**	**11%**	**-8%**
PERS Participants					
2021 Workforce		14,236	11,730	7,855	33,821
2005 Workforce		14,381	12,229	7,120	33,730
	Difference	**(145)**	**(499)**	**735**	**91**
	% Headcount Change	**-1%**	**-4%**	**10%**	**0%**

Figure A2: Reason for Leaving Alaska's Civil Service Workforce During Past 5 Years, by Plan

	TRS DB	%	PERS DB	%	TRS DC	%	PERS DC	%
Total Quits (Vested and Non-Vested)	637	30%	2,825	37%	3,115	99%	15,524	99%
Total Retired, Died, or Disabled	1,497	70%	4,784	63%	32	1%	178	1%
Total Left Employment	2,134	100%	7,609	100%	3,147	100%	15,702	100%

Source: Valuation Reports from 2017-2021

Figure A3: Termination Assumptions for Alaska's TRS Plans-Based on Actuarial Experience

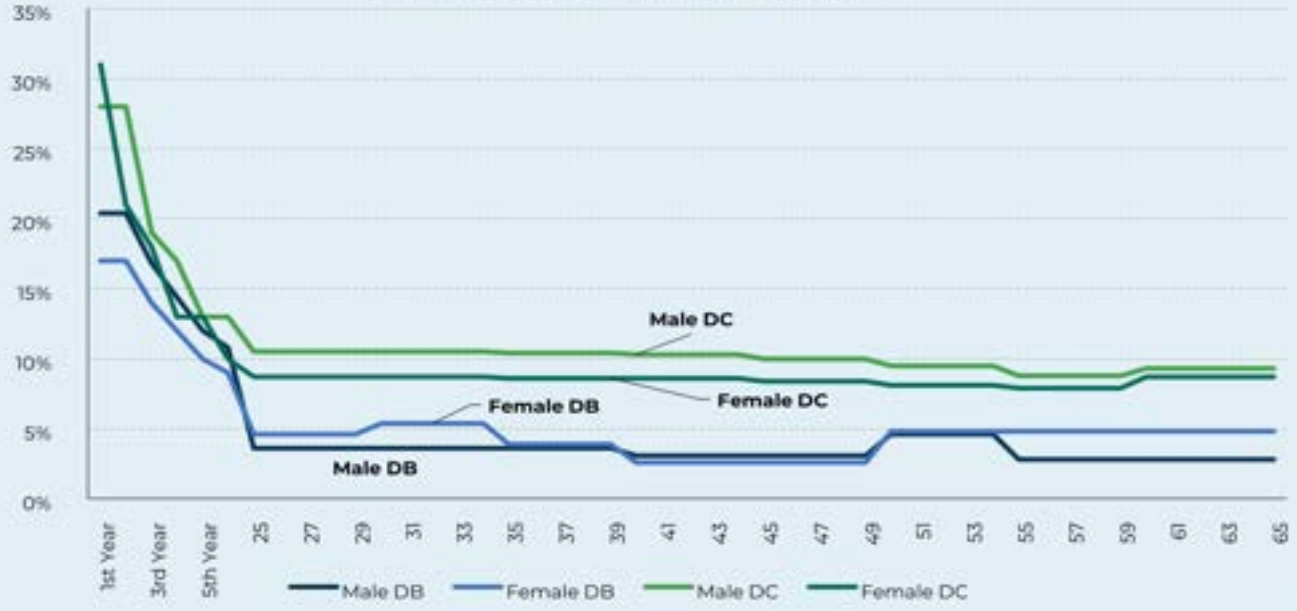


Figure A4: Retention of Males in PERS (Non-Peace Officers): DB & DC Plans Based on Ultimate Termination Rates

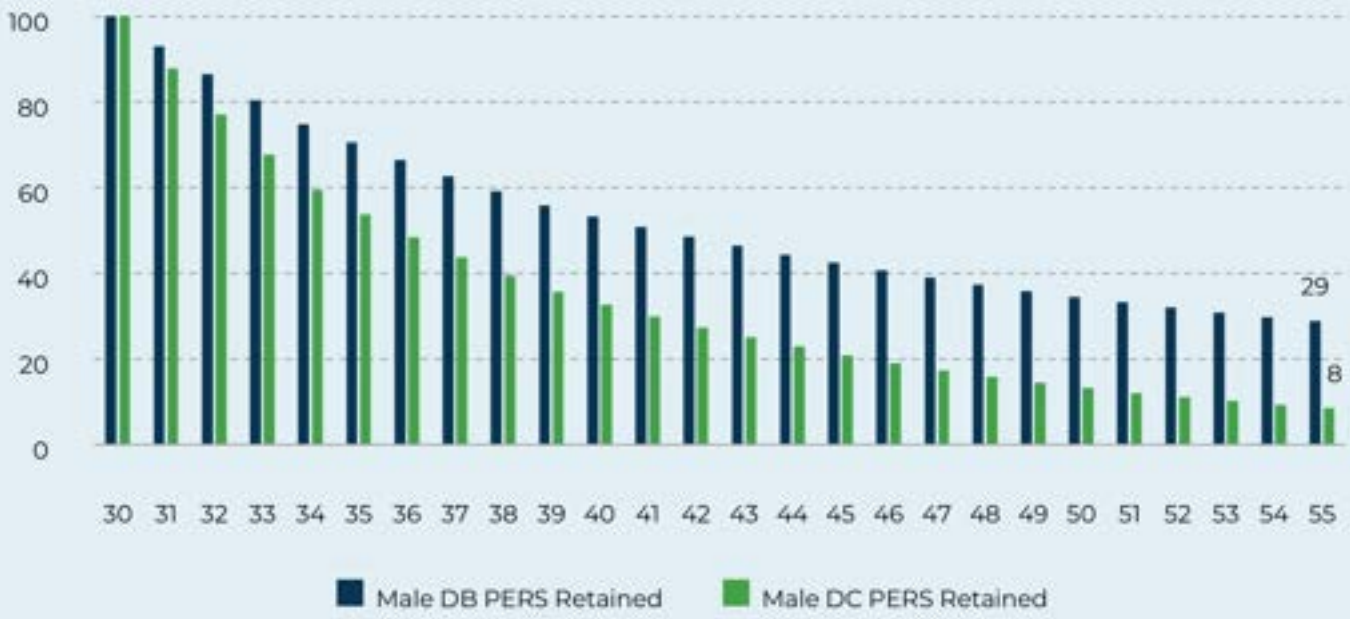


Figure A5: Retention of Females in PERS (Non-Peace Officers): DB & DC Plans Based on Ultimate Termination Rates

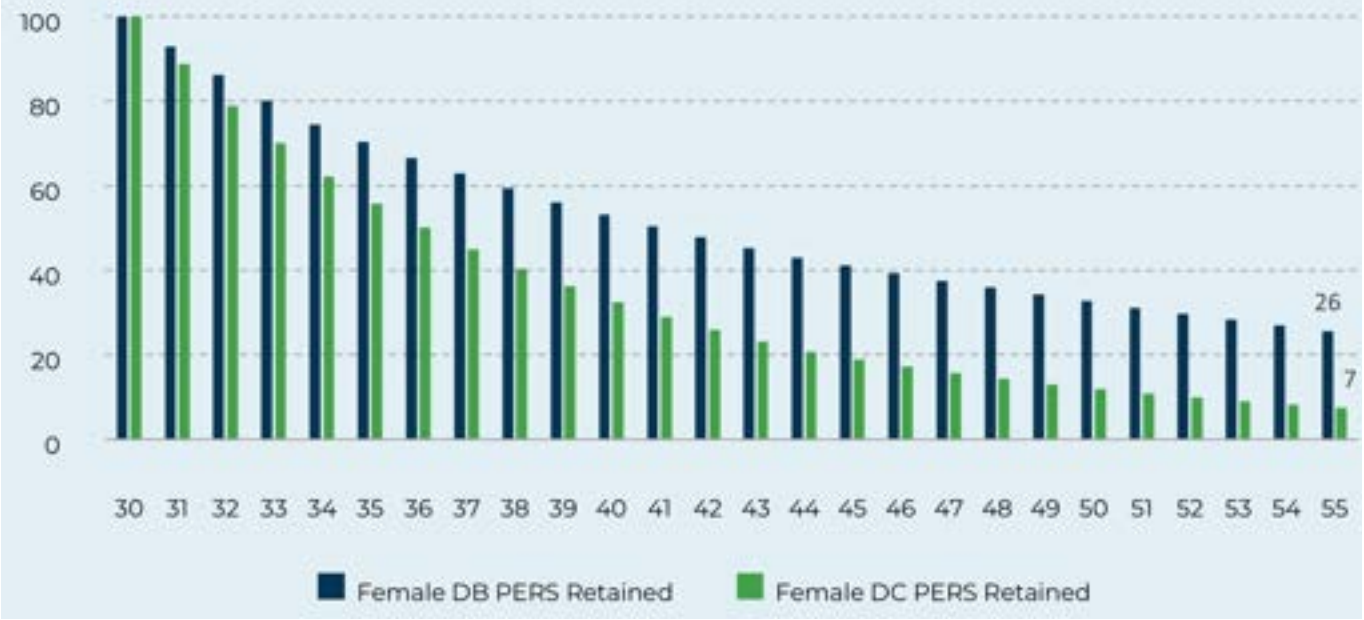


Figure A6: Retention of Male Peace Officers: DB & DC Plans Based on Ultimate Termination Rates

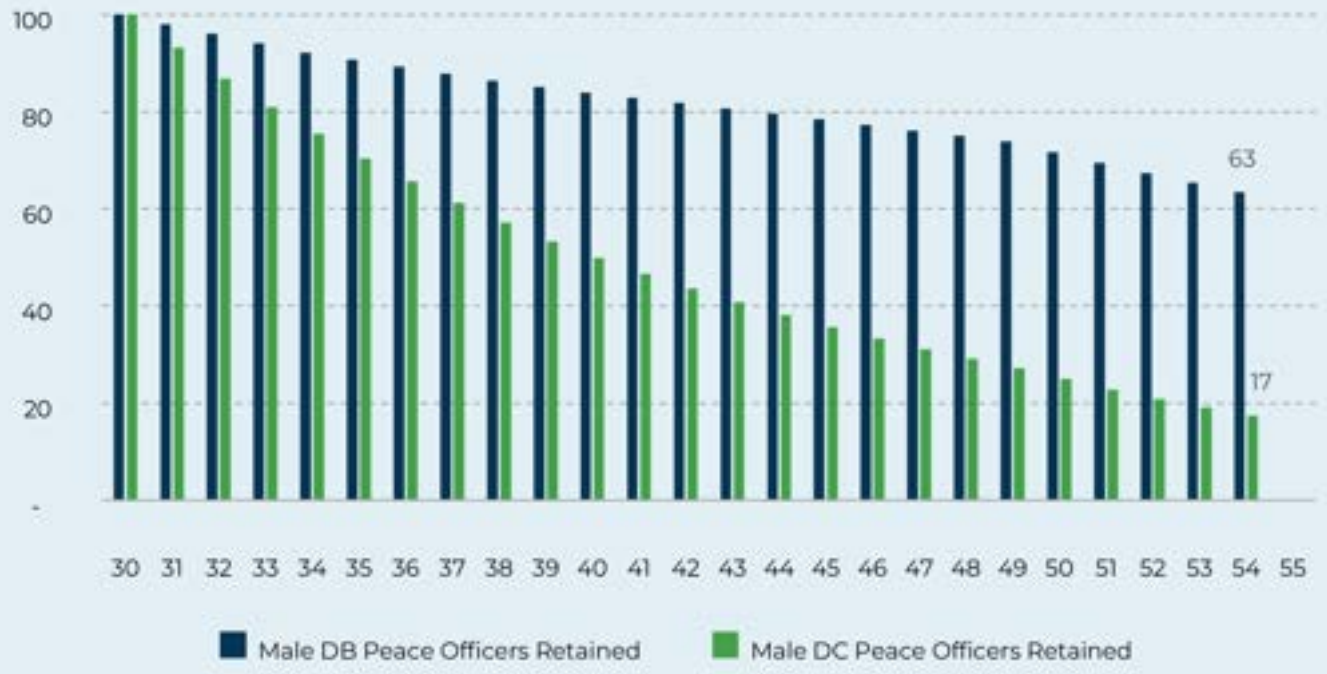


Figure A7: Retention of Female Peace Officers: DB & DC Plans Based on Ultimate Termination Rates

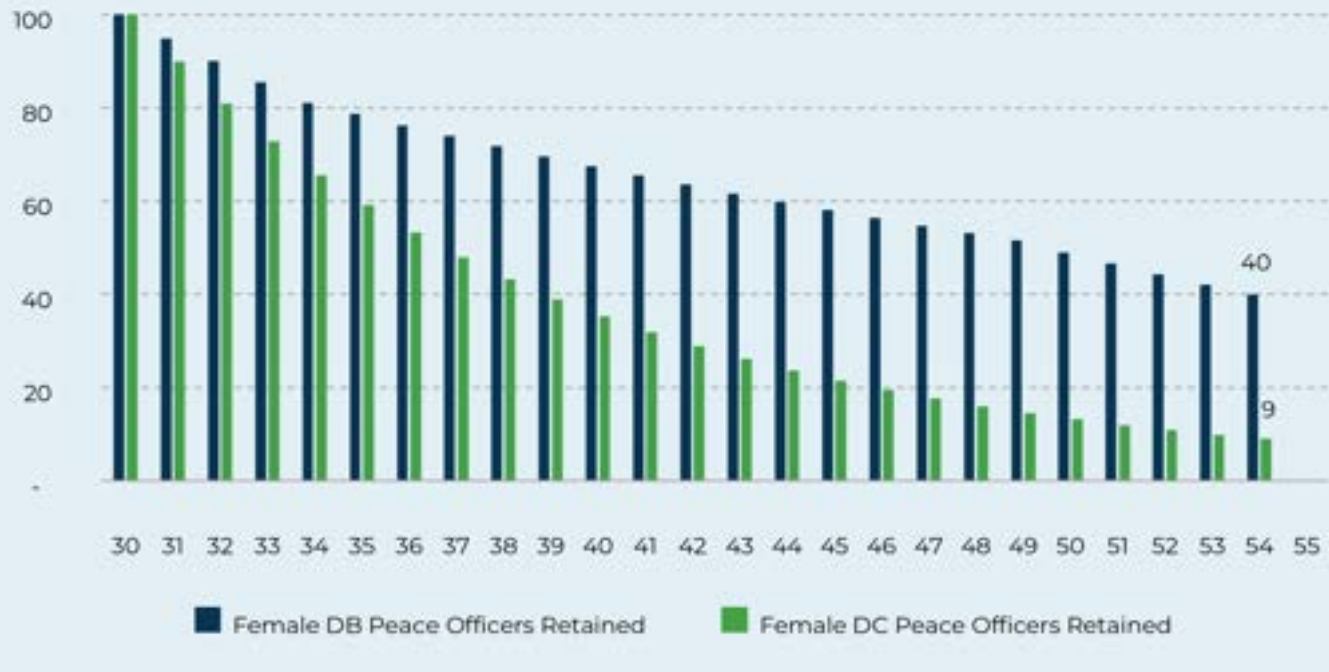


Figure A8: Evaluating COLA in HB 220 as Plan Matures

Plan Maturity	Newer	Established	Retiree-Heavy
Demographics			
Actives	80%	61%	19%
Retirees & Beneficiaries	11%	31%	77%
Vested, Non-active	9%	8%	4%
Total	100%	100%	100%
Liabilities			
Activies	78%	47%	22%
Retirees & Beneficiaries	22%	49%	76%
Vested, Non-active	0%	4%	2%
Total	100%	100%	100%
Plan Liabilities/Payroll	199%	444%	2288%
Assuming a Great-Recession-like event reduces funding from 100% to 80%...			
Skipping 3 consecutive COLAs reduces unfunded liabilities (UAL) by:			
	8.2%	18.3%	28.4%

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- employees can count on a secure source of retirement income that enables them to maintain a decent living standard after a lifetime of work; and

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