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Public Pension Cash Balance Plans

A Primer

Overview

More than $1 trillion in unfunded pension promises made to current and retired government employees are placing a strain on state and local budgets, prompting policymakers across the country to take a closer look at alternative ways to design a retirement plan. A number of states and municipalities have made the move to a pension design called a cash balance plan. While there is no one-size-fits-all solution, well-designed cash balance plans, like well-designed traditional defined benefit or defined contribution plans, can help government employers meet their recruitment and retention goals while offering the following key elements needed to help employees achieve a secure retirement:

- Fully funded retirement benefits.
- Access to professionally managed, low-fee, pooled investments with appropriate asset allocations.
- Access to lifetime income options, or annuities.

All public employees deserve a secure retirement. States need a fair set of solutions that will make their retirement system financially sustainable in the long run. By explicitly promising a minimum investment return and sharing any additional earnings, a cash balance plan may be a vehicle that public employers use to improve the predictability of their costs, which will protect their budgets from economic downturns while ensuring that employees receive a significant benefit.

This brief will provide an overview of cash balance plan designs and discuss related policy issues. Other types of retirement plans, such as defined benefit/defined contribution hybrids and double-defined benefit plans, will be discussed in subsequent briefs.

How does a cash balance plan work?

Accumulation of retirement benefits

Benefits under a cash balance plan are based on the value of individual employee retirement accounts maintained by the state.[1] Employee accounts grow as workers and their employers make annual contributions to the plan and as investment returns—called interest credits— accumulate on those contributions.

Employees' cash balance accounts are guaranteed a minimum annual investment return. Investment returns in excess of this minimum guarantee can be shared with employees or saved by the plan for years when actual returns fall short of the minimum. Employee accounts are not individually managed. Instead, they are pooled and professionally managed by the retirement plan, allowing employees to take advantage of low-fee, professional money management.

Benefits at retirement

Upon retirement, employees are eligible to receive a lifetime benefit based on the accumulated value of their account. This lifetime benefit, or annuity, can be structured various ways to provide employees with significant flexibility in how they receive benefits. Public employers have the authority to partially or even fully restrict lump sum distributions. Of the six state-sponsored cash balance plans, three permit employees to receive their entire retirement benefit as a lump sum and three permit partial lump sum payments.[2]

Portability

Cash balance plans provide employees with a portable retirement account that they can take with them if they leave their employer before retirement. Once employees have worked long enough to vest in their benefits, the value of the account includes employee and employer contributions and the interest credits associated with investment returns. For non-vested employees, the benefits they are able to withdraw may reflect only the value of their contributions plus some minimum amount of interest crediting that is typically less than what is offered to vested employees. (See Table 1.)

Table 1

How Retirement Plans Work

The terms and conditions of retirement plans

Term	Definition
Interest credits	Investment returns on employee cash balance accounts. Employee accounts are guaranteed to receive a minimum investment return, set by the plan. Plan rules can also allow employees to share in returns that exceed the guaranteed rate, sometimes called a dividend.
Annuity	A financial product that provides guaranteed benefit payments for a retiree's lifetime. This benefit protects retirees (and often surviving family members) from outliving their retirement savings and running out of money. This is a key protection in a well-designed retirement plan.
Vesting schedule	The number of years an employee must work before becoming fully eligible to receive an employer provided benefit upon retirement.
Traditional defined benefit plan	A final average salary defined benefit plan in which retirement income is provided at a specified age through a fixed annuity that is calculated based on employee length of service, highest average salary, and a multiplier, such as 2 percent of salary per year of service, applied to the employee's length of service.
Defined contribution plan	A plan in which retirement benefits are based on accumulated employer and employee pre-tax contributions, and the returns on those investments. The investment returns are generally based on market rates with no guaranteed return.[3]

Source: The Pew Charitable Trusts

Comparison with defined benefit and defined contribution plans

The design features of a cash balance plan contain attributes that are commonly associated with both traditional defined benefit plans, which provide guaranteed monthly retirement income based on a retiree's years of service and final salary, and defined contribution plans, which provide an individual account made up of contributions and market investment returns. The guaranteed rate of return, use of pooled investments, and access to annuities are characteristic of defined benefit plans, while the portability of benefits, predictability of costs, and employees bearing risk are more typical of defined contribution plans.

Considerations for public employers

More predictable costs

Under a cash balance plan, employers promise workers a periodic contribution, a minimum annual investment return, and an annuity upon retirement. By explicitly promising a minimum investment return and sharing any additional earnings, employers can largely ensure the predictability of their costs, which will protect their budgets from economic downturns while ensuring employees receive a significant benefit.

Cash balance plans can provide a more predictable cost structure than traditional defined benefit plans by reducing the number of assumptions policymakers must make to accurately project costs. The expected cost of a traditional defined benefit plan is based on many actuarial assumptions, which include long-term investment returns, salary increases, employee turnover, and life expectancy. Plan sponsors set aside funds for future benefits based on these assumptions and may incur unexpected liabilities if investment returns are lower than expected or life expectancy is longer than assumed. Cash balance plans move the annuity promise to the end of an employee's career rather than requiring the plan sponsor to estimate the cost of a lifetime benefit while the employee is still working—an important feature to consider as the average U.S. life expectancy increases.[4]

Case in point: Illinois' unfunded liability for the state's retirement plans increased by about $79 billion between 2001 and 2012. Although a significant portion of this increase was the result of missed contributions, more than half, about $40 billion, of the shortfall was due to failure to meet expected investment returns and changes in assumptions that weren't matching reality.[5] Other state and local pension plans faced similar challenges over the past 12 years.

Higher-return years can also contribute to cost uncertainty in a traditional defined benefit plan. When public pension plans approach 100 percent funding levels, often due to strong rate of returns in prior years, plans often face pressure to reduce contributions and increase benefits. When the market return rates fall to more typical levels, these changes can lead to a deficit. Many plan sponsors took pension holidays or increased benefits in the late 1990s, when the economy and investment returns were strong, placing plans in a weaker position through the tough economy of the 2000s.[6]

Cash balance plans are likely to have less predictable costs than a typical defined contribution plan. Under most defined contribution plans, employers contribute a set percent of employee's salary each year and do not guarantee any level of interest return or final benefit for employees. In contrast, under cash balance plans, employers have an established contribution rate and guarantee employee accounts a minimum rate of return. In years with very low returns, employers are responsible for making up the difference between the actual return and the guaranteed rate.

Considerations for public employees

Cash balance plans smooth retirement benefit accumulation

In a cash balance plan, contributions and interest credits build up retirement wealth through a "smooth accrual" in a consistent manner for all employees. Under this smooth accrual pattern, early and mid-career employees are able to build retirement savings, independent of age or whether they stay with their current employer until retirement. This pattern of accrual is similar to what employees experience under a defined contribution plan. As a result of the fairly even accrual pattern, cash balance and defined contribution plans distribute benefits more equally across the workforce than a traditional defined benefit plan.

Benefits under a traditional defined benefit plan are often described as "backloaded" because they are based on an employee's final average salary. In most cases, public sector retirement plans determine the employee's final average salary by averaging the three or last five years, often either the most recent years or the highest-earning years. Because of the backloaded accrual pattern, employees who leave before the plan's specified normal retirement age often earn significantly less than those who work an entire career under one system.[7] In addition, defined benefit plans discourage older employees from working past retirement age. Employees forfeit a year of retirement earnings for each year they work after becoming eligible for retirement.

Proponents of traditional defined benefit plans argue that the plans were designed with several objectives in mind: to encourage long-term public service, to attract career-minded workers to join public service, to retain experienced workers, and to encourage older workers to retire. With those goals in mind, backloaded retirement plans may be the appropriate design for some public sector employers who want to retain mid-career workers or encourage older workers to retire. Cash balance plans can also be designed to provide increased benefits for career workers by increasing employer contributions or interest returns for employees that have worked longer.

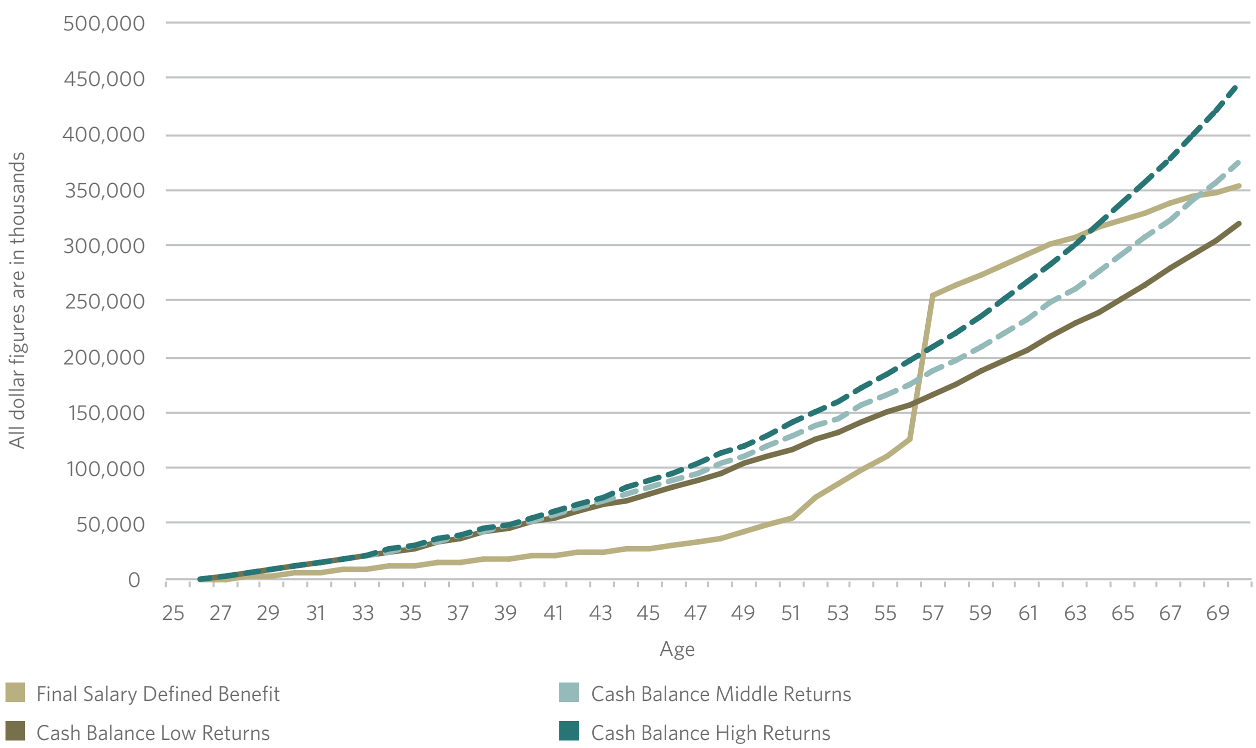
Critics of defined benefit pensions believe they leave workers who change employers before retirement with insufficient retirement savings, discourage some workers from joining public service, lock in workers who might otherwise prefer to work for a different employer, and push out older workers who may wish to work longer. As noted above, policymakers should think carefully about their recruitment and retention needs when selecting a plan design. In 2013, for example, the Kentucky Retirement System adopted a cash balance plan for new employees in the state retirement system. Prior to reform, Kentucky's traditional defined benefit plan was even more backloaded than most defined benefit plans due to a multiplier that increased with tenure and an early retirement option.[8] The state's new cash balance system allows workers to earn a more meaningful benefit earlier in their careers, while also providing career employees with a significant lifetime benefit. (See Figure 1).

Figure 1

Kentucky's Cash Balance Plan

Value of retirement benefits for a worker who entered at 25 and joined the state's employee retirement system non-hazardous plan

The cash balance plan is represented by three lines in order to illustrate the range of benefits an employee may experience under this plan. The middle line, the 50th percentile of investment returns, represents the expected benefit accrual for employees under this plan. The 75th and 25th percentile lines illustrate what the benefit might look like if investment returns are higher or lower than expected. The fourth line represents retirement benefit accrual under the state's traditional defined benefit plan.



Note: The y-axis values refer to the estimated present value of the sum of benefit payments.

Source: October Three, LLC

Other considerations

As with any retirement system change, a move to a cash balance plan can raise concerns among policymakers, employers, or employees. For cash balance plans, the most common concerns include transition costs, investment performance, lump sum options, the level of benefits for career workers, and benefits for later-career workers. These are important factors for policymakers to consider, and they highlight the importance of providing complete and clear information around a plan's design.

Transition costs

Some critics argue that closing an existing defined benefit plan to new employees reduces cash flow into the plan, which in turn requires the plan sponsor to pay off any unfunded liability more quickly and to progressively lower investment risk and increase liquidity over time. The result of these necessary changes, it is argued, is higher contributions in the near term and potentially higher cost overall.

These "transition cost" arguments do not apply to a cash balance plan because the current defined benefit plan would not need to be closed. Instead, new employees would be covered by a new "tier" of benefits within the existing plan which would be supported by a single investment fund that would continue to be managed by the retirement system.

Investment return targets and investment performance

In states considering a move from defined benefit plans to cash balance plans, there are concerns among policymakers that retirement systems might lower investment targets, which would result in a reduction of benefits. Yet several retirement systems that currently manage cash balance plans have kept their investment targets and have had ten-year investment performance close to these targets. [9]

Retirement systems need to set investment return targets that are achievable, reflect an appropriate asset allocation strategy, and support an understanding of investment risk. The implementation of a cash balance plan does not, by itself, require a change in investment strategy. Defined contribution plans, however, often do not provide investment management of employee accounts. Instead, employees manage their account on their own. States considering adopting defined contributions plans should offer employees professional investment management and pooled accounts and set similar investment strategies and return targets as cash balance or defined benefit plans.

Lump sum options

Cash balance plans are required to provide workers with annuities, ensuring that all retirees have access to secure lifetime income. Like traditional defined benefit plans, cash balance retirement plans can also allow retirees to take a portion of their benefit as a lump sum. Defined contribution plans often offer employees only a lump sum option, but can be designed to provide employees with annuities options. While lump sum options can be a significant benefit to employees, they can also put employees at risk of outliving their retirement savings.

Policymakers should carefully consider whether and how to offer a lump sum option. Importantly, public sector employers have complete discretion to limit or completely eliminate lump sum options. Cash balance plan sponsors, as with traditional plans, have often chosen to tightly restrict lump sum dispersals. Kansas' cash balance system, for example, only allows an employee to take up to 30 percent of their account as a lump sum.[10]

Benefits for career workers

There are also concerns that cash balance plans may reduce the retirement benefits of a career worker when compared to a traditional defined benefit plan. Policymakers can design a cash balance plan that delivers a comparable benefit to a traditional defined benefit plan by paying careful attention to plan design in terms of the guaranteed rate of return, investment return target, and annuity structure. Policymakers can choose to provide a high guaranteed rate of return, such as the 7 percent provided by the Texas County and District Retirement Plan, in order to reduce benefit uncertainty for employees. Another strategy to reduce risk for employees when switching from a defined benefit plan to a cash balance plan is for employers to increase their contribution level. The higher contribution would increase an employee's minimum guaranteed benefit, thus increasing retirement security for employees.

Another element of benefit certainty is the design of the annuity. All stakeholders should have a clear understanding of how the annuities are calculated upon retirement, as annuity calculation determines benefit level. Annuity structure should be transparent and communicated clearly so that employees have a reasonable understanding of their expected final benefit.

A cash balance plan increases benefit certainty for employees compared to a typical defined contribution benefit where employee retirement savings can be severely reduced in a market downturn. By providing a guaranteed rate of return, a cash balance plan strikes a balance between traditional defined contribution plans, where the employee bears all the risk, and a typical defined benefit plan, where the employer bears all the risk.

Impact to late-career workers

Workers who switch to the public sector late in their careers will typically not receive as substantial a benefit as they would under a traditional defined benefit plan. A concern is that the reduced benefit may make it more difficult for employers hoping to attract late-career, highly skilled workers. If employers are concerned about their ability to attract late-career workers, they could implement other incentives or benefit enhancements that apply to workers later in their careers. Designing cash balance benefits that place a greater emphasis on contributions, relative to interest credits, to generate retirement wealth can also help late-career workers.

How to design a cash balance plan

All public sector retirement plans should meet four key principles. The principles described below outline the most basic provisions that all retirement system should provide:

- Benefits are fully funded. Employer and employee contributions are made consistently and on time, and the plan does not take on unmanageable risks.
- Career employees will be able to replace a substantial amount of their income at retirement. Short-term and medium-term employees will be able to accumulate a meaningful amount of retirement savings.
- There is access to professionally managed, low-fee, pooled investments with appropriate asset allocations.
- There are lifetime income options, or annuities.

When designing a cash balance plan, policymakers should carefully consider the following parameters:

- Contribution levels
- Interest crediting

- Retirement options
- Provisions for workers who separate before retirement
- Vesting schedule
- Death and disability benefits

For each of these parameters, the sections below provide a brief description and a discussion of the appropriate value and design. While the sections focus on how to set these parameter values for a cash balance design, most of these provisions would also be appropriate to consider when designing other types of retirement plans.

Contribution levels

Under a cash balance plan, employees and their employer make annual contributions that are credited to employee accounts. Employers should set a combined contribution rate that is high enough to place employees on a secure retirement savings path and is consistent with their human resources goals to attract and retain skilled workers and studies recommend a range of contribution rates. For example, the University of Michigan Retirement Research Center recommends a 68 percent replacement rate for individuals with average lifetime earnings. A 2008 study from the Georgia State RETIRE Project recommends that most retirees should be able to replace around 78 to 80 percent of their salary.[11] A TIAA-CREF analysis found that a combined contribution rate of at least 12 percent of salary if the employee has access to social security, and 18 to 20 percent without social security, is needed to achieve the RETIRE Project replacement rate.[12] However, this range is only a benchmark and determining the sufficient savings rate for a plan is a complicated undertaking. Policymakers need an analytical framework to assess the impact of plan design on their employees' retirement security.

Interest crediting

The plan's rules for crediting interest from investment returns to employee accounts determine the level of benefits in a plan and how much investment risk protection is offered by employers. In cash balance plans, the crediting of a guaranteed rate of return to an employee account and the interest above the guaranteed rate on that account are two different things. Employee accounts are guaranteed a set rate of return. But dividends can be distributed in a variety of ways. The plan rules can be designed to enable public employers to build a cushion against economic downturns while also sharing some or all of the upside with employees.

Policymakers should select a guaranteed minimum rate of return that ensures all employees have a basic level of retirement coverage while understanding the level of risk that is allocated to both employees and employers. Cash balance plans may not have an interest credit guarantee below zero, meaning that an employee account will not lose money in years with negative returns.

In practice, the states and localities with cash balance plans use a range of interest crediting designs. In Montgomery County, Maryland, for example, employees are guaranteed an annual return of 7.25 percent leaving much of the investment risk with employers.[13] But in Kentucky and Nebraska, employers and employees share risk more evenly. In Kentucky, employees receive a minimum guaranteed return of four percent and employee accounts are credited with 75 percent of any returns above this floor based on the five-year average of returns. Similarly, under the Nebraska plan, employee accounts receive 5 percent annually and will receive some of the upside when returns are above this guarantee and the plan achieves a certain funding level.

The way returns above the guaranteed rate are distributed can vary based on a state's or locality's decisions. In plans with high guaranteed returns, such as the Montgomery County plan, the plan often keeps all excess dividends as a cushion for low-return years. Plans that provide a more modest guaranteed rate, such as the 4 percent in Kentucky, typically share some excess dividends with employees.[14]

A well-designed cash balance plan should also ensure that any excess dividends remain within the plan and are not used to fund other state services.

Retirement options

Employers are required to provide retirees in a cash balance plan with access to guaranteed lifetime income in the form of an annuity.[15] Public employers must offer members at least one annuity option and may choose to offer a range of annuity products, including options with inflation protection. Plans may require employees to annuitize their entire benefit or may offer employees a lump sum or partial lump sum option.

Setting the interest rate used to convert account balances into annuities has a significant impact on the value of retirement benefits. A lower interest rate would result in a lower monthly benefit, whereas a higher interest rate would mean a higher monthly benefit for retirees. Two retirees with the same account balance who are subject to different annuity interest rates will have different monthly benefits. The interest rate used for annuity conversion is set implicitly in traditional defined benefit systems—the annuity rate is equal to the plan's discount rate, or expected rate of return.

Under a cash balance system, the annuity rate needs to be set explicitly and can be set at a constant value or may be allowed to float more freely with interest rates. Nebraska's cash balance plan, for example, has set the annuity rate equal to the assumed rate of return for the plan. Similarly, Texas' cash balance plan for counties and districts converts account balances to annuities using a rate of 7 percent, which is also the plan's guaranteed rate of return.[16]

Lump sum payments can be a benefit to employees who would like to spend more of their retirement savings earlier in their retirement and those who wish to leave some of their wealth to their heirs. Lump sum payments, however, can also reduce retirement security if employees do not properly manage their spending or if they live longer than they expected. Retirees who cash out and spend their savings may face financial risk later in their lives. Policymakers should consider the pros and cons of lump sum payments, with special consideration to retirement security, when deciding whether or not to offer full or partial lump sum options.

Provisions for workers who separate before retirement

Plan sponsors must consider what benefits they will offer to employees who leave before retirement. An employee who changes jobs before reaching the plan's designated retirement age should have two options: keep the money in the plan and let it grow under the plan's interest crediting rules until retirement or move the entire retirement savings into a new qualified retirement account. The value of the account for vested employees includes employee contributions, employer contributions, and the interest credits associated with investment returns. For non-vested employees, the benefits they are able to withdraw should at least reflect the value of their contributions plus the market rate of interest or the full interest crediting provided by the plan.

Vesting schedule

Plans should offer employees a vesting schedule of five years or less, so that employees who do not spend a significant amount of time at one employer before switching employers are still able to build toward retirement security.

Unlike the private sector, public sector retirement plans face no regulation on retirement plan vesting. In the private sector, defined benefit plans are restricted to offering a maximum vesting period of five to seven years, depending on the type of vesting formula that is being used.[17] Private sector cash balance plans, which were designed in part for a more mobile workforce, have an even shorter vesting period requirement of only three years. In contrast, many public sector defined benefit plans have vesting periods of 10 years or more. These long vesting periods can unfairly penalize workers—particularly when typical public sector employee careers are just 7.8 years[18]—and harm public employees' ability to build a secure retirement.

Death and disability benefits

Plans should provide employees with adequate death and disability benefits. In many cases, it may be most appropriate to offer the death and disability benefits equal to the benefits provided under a state or locality's traditional defined benefit plan.

Current cash balance plans

Three states, California, Nebraska, and Texas, currently offer some state and local public employees a cash balance plan as their primary retirement benefit.[19] Two other states, Kansas and Kentucky,[20] recently voted to adopt cash balance plans for future employees.[21] (See Table 2.) And several more states offer an optional retirement plan with cash balance characteristics, such as the money purchase plan in Montana.[22]

Table 2

Comparing Public Sector State and Local Cash Balance Plans

A selection of different design features of plans offered by 5 states

	Employee contribution	Employer contribution	Guaranteed return	Dividends	Vesting schedule
California (State Teachers' Retirement Plan Cash Balance Benefit Program)	4%	4%	Based on the average of 30-year U.S. Treasury bonds	Granted when plan funding ratio is more than 100 percent funded; the exact rule depends on 30-year U.S. Treasury bond rates.	Immediate
Kansas (Tier 3 Cash Balance Plan)	6%	3 to 6%, based on tenure	5.25%	Unclear	5 years
Kentucky (Kentucky Retirement System)	5% for regular members, 8% for public safety members	4% for regular members, 7.5% for public safety members	4%	75% of long-run (five-year average) returns above the guarantee	5 years
Nebraska (State Employees Pension Plan and County Employees Pension Plan)	4.5% for county members, 4.8% for state members	6.8% for county members, 7.5% for state members	The greater of 5% or the federal mid-term rate plus 1.5%	Granted depending on the plan's funding level and board approval	3 years
Texas (Texas County and District Retirement System)	4 to 7%, depending on employer election	Between 100 and 250% of the member's contribution	7%	None provided	5, 8, or 10 years depending on employer election
Texas (Texas Municipal Retirement System)	5 to 7%, depending on employer election	Between 100 and 200% of the member's contribution	Member contributions earn 5%; employer contributions earn the annual return on assets	Granted upon board approval	5, 8, or 10 years depending on employer election

Sources: 2013 Overview of the California State Teachers' Retirement System and Related Issues; Kansas Tier 3 Cash Balance Plan; Kentucky Legislature S.B. 2, http://www.lrc.ky.gov/record/11rs/SB2.htm; 2013 Annual Report Nebraska Public Employees Retirement System; Texas Municipal Retirement System Facts; Texas County and District Retirement System Guide to Member Benefits

> Well-designed cash balance plans can provide workers with a secure retirement while also providing employers with increased cost certainty. As several states have shown, well-designed cash balance plans are affordable, sustainable, and secure.

Existing plans

California, Nebraska, and Texas currently provide some public-sector employees with a cash balance plan as their primary retirement savings vehicle. Texas has two plans that offer cash balance benefits to workers in participating municipalities, counties, and districts.

The Texas Municipal Retirement System was started in 1947, and the Texas County and District Retirement System was created in 1967.[23] The county and district system provides cash balance benefits for public workers in 641 counties and districts throughout Texas.[24] Each county and district has flexibility in setting benefits: employers can set their own rules for employee and employer contribution amounts, retirement eligibility, and vesting schedule.

The Texas Municipal Retirement System administers cash balance plans for 849 cities.[25] Each city selects the employee contribution rate and the city's matching rate. These plans are currently paying benefits to a substantial number of retirees. As of 2012, there were 46,801 and 42,931 retirees receiving benefits from the Texas County and District Retirement System and the Texas Municipal Retirement System, respectively.[26]

In 2002, Nebraska became the third state to operate a cash balance plan to cover state and local workers. Nebraska previously offered state and local employees a defined contribution plan. As of 2013, the Nebraska plan was paying benefits to 1,260 retirees or beneficiaries.[27]

California's Cash Balance Benefit program provides benefits to part-time or temporary workers employed by school districts or community colleges.[28] As of 2013, the plan had 33 contributing school districts and 33,888 participants.[29]

The Texas and Nebraska cash balance plans are relatively well-funded, though not 100 percent funded. As of 2012, the Texas County and District Retirement System was 88 percent funded, and the Texas Municipal Retirement System was 87 percent funded.[30] Similarly, the Nebraska state and county plans are 92 percent funded.[31] The California cash balance plan was 105 percent funded in 2011.[32]

New plans

Kansas and Kentucky recently passed legislation to adopt a cash balance plan as the primary retirement savings vehicle for some portion of their public workforce. While the two states chose the same basic plan structure, the plans vary in design specifics. Kansas provides a 5.25 percent annual interest credit and Kentucky provides a 4 percent guaranteed return. Under Kansas' plan, employee accounts may receive dividends in the future, but the law prohibits additional interest credits until all retirement plans are at least 80 percent funded.[33] With Kentucky's plan, if the average annual return over the previous five years is greater than the 4 percent guarantee, workers get 75 percent of the excess.[34]

Conclusion

All public employees deserve a secure retirement. While there are strengths and drawbacks to every retirement plan, a well-designed cash balance plan can help workers achieve a secure retirement while also providing employers with increased cost certainty. When crafting such a plan, policymakers must focus on setting an adequate level of employer and employee contributions, determining how to share investment uncertainty while providing retirement security between employees and employers, and how to offer benefits to employees who are retiring or leaving for a different job. As several states have shown, well-designed cash balance plans can be affordable, sustainable, and secure.

Endnotes

1 Employees get notional or hypothetical accounts, which track how much has been saved for individual workers' retirements. Actual plan assets, however, are pooled and invested by the plan rather than being individually managed by workers.

2 National Association of State Retirement Administrators, Issue Brief: State Hybrid Retirement Plans, http://www.nasra.org/files/Issue%20Briefs/NASRAHybridBrief.pdf .

3 Defined contribution plans can be designed with a guaranteed investment return. For example, the New York City Teacher's Tax-Deferred Annuity Program offers members the option of choosing to invest their funds in a fixed return fund which guarantees either a 7 percent of 8.25 percent rate of return.

Teachers' Retirement System of the City of New York. "TDA Program Summary: Tax-Deferred Annuity Program." https://www.trsnyc.org/WebContent/tools/brochure/tdaBook.pdf.

4 U.S. Census Bureau, "Expectation of Life at Birth by Race and Sex: 1900 to 2001," http://www.census.gov/statab/hist/HS-16.pdf; U.S. Census Bureau, "Expectation of Life at Birth, 1970 to 2007, and Projections, 2010 to 2020," http://www.census.gov/compendia/statab/2011/tables/11s0103.pdf.

5 The Pew Charitable Trusts and the Laura and John Arnold Foundation, "Illinois Needs to Pass Public Pension Reform" (July 2013), http://www.pewstates.org/uploadedFiles/PCS_Assets/2013/Illinois%20Needs%20Pension%20Reform.pdf.

Kentucky is another example of the effect that inaccurate assumptions can have on a state's unfunded pension liability. The unfunded liability for one of the state's retirement plans increased by about $5.5 billion between 2006 and 2011. Approximately $2 billion of the shortfall was due to incorrect state assumptions about salary growth, life expectancy, and investment returns, according to Pew's issue brief, "Kentucky's Pension Challenges," http://www.pewstates.org/research/analysis/kentuckys-pension-challenges-85899414502.

6 The Pew Charitable Trusts, "The trillion dollar gap: Underfunded state retirement systems and the roads to reform." http://www.pewstates.org/uploadedFiles/PCS_Assets/2010/Trillion_Dollar_Gap_Underfunded_State_Retirement_Systems_and_the_Roads_to_Reform.pdf.

7 Richard W. Johnson, Matthew M. Chingos, and Grover J. Whitehurst, "Are Public Pensions Keeping Up With the Times?" Brown Center on Education Policy at Brookings (June 2013), http://www.brookings.edu/~/media/research/files/reports/2013/06/12%20public%20pensions%20johnson%20chingos%20whitehurst/12%20public%20pensions%20johnson%20chingos%20whitehurst.pdf.

8 Kentucky Retirement Systems, "Member Handbook," https://kyret.ky.gov/Handbooks/2012_KRS_Member_Handbook.pdf.

9 Nebraska's cash balance plan targets an investment return of 7.75 percent; the plan's average annual return since it was created in 2002

is 7.2 percent. Similarly, the Texas County and District Retirement System has targeted returns of 8 percent which plan's ten year return of 7.2 percent comes close to meeting and the plan's thirty year return of 9.2 percent exceeds

Nebraska Public Employees Retirement Systems, "Nebraska Public Employees Retirement System Investment Report for the Plan Year Ending December 31, 2013." http://npers.ne.gov/SelfService/public/howto/handbooks/InvestmentReport.pdf; Nebraska Public Employees Retirement Systems, "2013 State Employees' Retirement System Cash Balance Benefit Fund Actuarial Valuation Results." http://npers.ne.gov/SelfService/public/howto/publications/ActuarialReports/ActuaryState2013.pdf; Texas County & District Retirement System, "2012 Comprehensive Annual Financial Report for the Year Ended December 31, 2012," https://www.tcdrs.org/TCDRS%20 Publications/2012CAFR.pdf.

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11 John Karl Scholz and Ananth Seshadri, "What Replacement Rates Should Households Use?" http://www.mrrc.isr.umich.edu/publications/papers/pdf/wp214.pdf; Bruce A. Palmer, "GSU/Aon Retire Project Report," Georgia State University (2008), http://rmictr.gsu.edu/Papers/RR08-1.pdf.

12 Roderick Crane, Michael Heller and Paul J. Yakoboski, "Best-Practice Benchmarks for Public-Sector Core Defined Benefit Plan," TIAA-CREF Institute (2008), http://www.tiaa-crefinstitute.org/institute/research/trends_issues/ti_bestpractice_0708.html; Bruce A. Palmer, "GSU/Aon Retire Project Report," Georgia State University (2008), http://rmictr.gsu.edu/Papers/RR08-1.pdf.

13 Montgomery County Employee Retirement Plans, "Summary Plan Description" (January 2013),http://www.montgomerycountymd.gov/mcerp/Resources/Files/GRIP%20SPD%20-%2001-2013.pdf.

14 Montgomery County Employee Retirement Plans, "Summary Plan Description" (January 2013), http://www.montgomerycountymd.gov/mcerp/Resources/Files/GRIP%20SPD%20-%2001-2013.pdf; Kentucky Legislature, SB2, http://www.lrc.ky.gov/record/13rs/SB2.htm.

15 Internal Revenue Service. "Overview of Hybrid Plans (Cash Balance and Pension Equity Plans)." http://www.irs.gov/pub/irs-tege/2013cpe_hybrid_plans.pdf.

16 Amy Bishop, deputy director, Texas County and District Retirement System, email to the Pew Charitable Trusts, December 17, 2013.

17 Private sector defined benefit plans are restricted to offering a maximum vesting period of seven year for graduated vesting and five years for cliff vesting. U.S. Department of Labor, "What You Should Know About Your Retirement Plan," http://www.dol.gov/ebsa/publications/wyskapr.html.

18 Bureau of Labor Statistics, "Employee Tenure in 2012," http://www.bls.gov/opub/ted/2012/ted_20120920.htm.

19 Ron Snell, "National Conference of State Legislatures; Checklist of State Defined Benefit, Defined Contribution and Hybrid Plans for State Employees and Teachers,"http://www.ncsl.org/issues-research/labor/checklist-of-db-dc-hybrid-plans.aspx.

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22 The money purchase benefit offers an annuity based on employer and employee contributions and a fixed annual interest rate. Retirees in the Montana Public Employee Retirement system receive a pension benefit under either the traditional defined benefit rules or under the money purchase plan, whichever is higher. The money purchase benefit often provides a better retirement benefit to workers who retire after a long period of inactive service.

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For further information, please visit:

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