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CDCP Contest Background Paper

Optimal Design of Collective D.C. Pension Plan

The US has witnessed a sharp decline in the number and size of defined benefit (DB) pensions in the private sector. The falloff has been attributed to a variety of factors including high financial and regulatory costs, tightened disclosure requirements, and a decline in unionization. By contrast, DB pensions are still prevalent in the public sector, where almost all states and cities sponsor such plans for their employees. However, those public plans are increasingly under financial stress and their sustainability is in question. Collectively their unfunded liabilities—the shortfall between the present value of plan assets and future benefits owed—is estimated to have a market value of $5 trillion.[1]

The leading alternative to DB pensions are defined contribution (DC) plans, such as the popular 401(k). DC plans never have an underfunding problem because future benefits are limited to what can be supported by accumulated contributions and investment returns.

Public sector unions have resisted a move to DC plans for several reasons. A switch would shift the risk of underfunding retirement from the public employer to employees, and could open the door to benefit cuts. Moreover, the costs of administering and investing in a DC plan, with individual accounts for each participant, are much higher than those of a DB plan. Participants, newly responsible for making their own investment decisions and with little financial knowledge, are at risk of making poor choices that leave them at risk for inadequate income in retirement.

Thus, the challenge is to develop a third type of retirement plan, which manages risk better than a DC plan while operating at the lower costs of a DB plan. This third way has been described as a collective retirement plan.[2]

A key feature of a collective retirement plan is that all employer and employee contributions are invested and managed in one collective pool. Benefits depend on investment performance, but risk sharing across multiple generations of retirees increases the predictability of benefit payments. Specifically, each employee would have a notional personal account balance consisting of their contributions, any employer matches, and the collective investment returns allocated to that account. While those balances would be tracked and benefit distributions would be linked to those balances, the actual assets would be held in the collective pool.

This type of collective retirement plan would have several advantages over traditional DC plans in terms of investment efficiency and predictability of benefits:

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[1] Biggs, Andew (2016), "Are State And Local Government Pensions Underfunded By $5 Trillion?," *Forbes*

[2] See Pozen (2016)

First, managing the investments in a collective pool would cost a fraction of the expenses of the average mutual fund offered in a typical DC plan. That's because collective investing can be done by pension experts at institutional rates for one large and diversified asset pool. By contrast, the mutual funds many DC plans have relatively high expense ratios based on accounts of small size.

Second, the administrative costs associated with educating and communicating with participants would be reduced. That's because employees would not need to be educated about the many investment choices typically offered by DC plans. Instead, employees would contribute a specified percentage of their salaries to the collective retirement plan, possibly with an opt-out option. Employers would also contribute a fixed or matching percentage.

Third, the investment choices of a collective retirement plan will avoid the investment mistakes that participants in DC plans too often make. Many participants put all of their plan contributions into inappropriate vehicles for long-term investing for retirement – such as a money market fund or a risky stock fund. Furthermore, plan participants often change investments too frequently, incurring costs that erode returns.

Fourth, retirement income profiles available to retirees would be safer and more transparent than in a typical DC plan. In a collective retirement plan, portfolio managers who were independent experts would construct an investment portfolio with a risk-return profile designed to ensure a floor retirement income with very high probability, with returns in excess of the floor used to enhance benefits and share risks across cohorts.

For the employer, a state or city, an advantage of a collective retirement plan is that it would no longer have to recognize unfunded pension liabilities on its balance sheet for workers covered by the new plan. Whether the cost of a collective DC plan would ultimately be more or less than that of the DB plan it replaces depends on the structure of the plan and employer contribution amounts.

Investment risk would be managed by the trustees of the collective retirement plan based on a contingent reserve and other measures. The trustees would establish a "probable" benefit schedule for retirees based on the amounts of employee and employer contributions and conservative assumptions about investment returns.

How would the collective retirement plan mitigate the risk that it could not deliver the "probable" benefit schedule? The main mechanism is the creation of a reserve fund to make up shortfalls for particular cohorts of retirees that experience unusually low investment returns over their working lives. The reserve can be created because the assumed investment return needed to deliver the probable benefit schedule is lower than historical returns on the investment portfolio.

To take a simple example, suppose the probable benefit schedule was based on an investment return after expenses of 5% per year. By contrast, the actual portfolio was a balanced fund with

an average return after expenses of 6.2% per year. In many years, the portfolio's actual return would exceed the assumed 5%, so the excess could be placed in the reserve fund. Yet one unlucky cohort of participants might retire at 65 in 2009 at the market's bottom, so the long term return of their portfolio might be only 4%. Then the plan trustees could use part of the reserve fund to replace the shortfall in the portfolio of this cohort of retirees so they could still receive the probable benefit schedule.

In sum, the collective retirement plan would mitigate the investment risk in the accumulation period by using low investment assumptions for a probable benefit schedule and creating a reserve fund with any excess. That reserve fund could be utilized to meet the probable benefit schedule if there were a shortfall in the returns of the balanced portfolio for a few cohorts of retirees.

However, if the returns of the balanced portfolio fell below 5% for many years, then the reserve might prove insufficient. In that event, there would have to be a decrease in the probable benefit schedule, which could be spread across multiple generations of participants. In the happy event that actual returns consistently exceeded 6.2% after expenses, the trustees could be allowed to make a special distribution to retired participants, or use it to enhance inflation protection.

Beside investment risk during the accumulation period, the trustees of a collective retirement plan could also reduce the longevity risk of retired participants outliving their savings. This longevity risk is covered by the typical defined benefit plan, which pays monthly benefits for the life of retired participants. But longevity risk is not covered by the typical defined contribution plan, where the total assets attributed to a worker on their retirement date may not be enough to last until he or she dies.

How could a collective retirement plan help retirees cope with longevity risk? One strategy is for the total assets attributed to the retiree at the end of the accumulation period to be divided into two parts. A fraction of the assets would be used to buy immediate and/or deferred annuities, and the remainder would continue to be managed collectively and available to be used by the retiree as desired.

For example, it could be required that 15% of the accumulated balance be used to purchase a longevity annuity, which makes monthly payments from a fixed age, e.g., age 80, until the purchaser dies. If the purchaser died before 80, his or her family would get back the purchase price. The remaining 85% of the retiree's assets could be put into a second collective pool, dedicated to an appropriate cohort of retirees by age, invested solely in high-quality bonds of an appropriate maturity. That conservative portfolio should produce a predictable set of monthly payments (without a reserve) to retirees until they reach age 80 when the longevity annuity starts to pay out.

In conclusion, most DB plans in the public sector are on an unsustainable path. However, public sector unions are unlikely to accept the investment risks and high costs of the typical DC plan. A

promising alternative lies in a new type of pension plan, which can be gradually implemented with due regard for grandfathered benefits.[3] Although a collective retirement plan is not perfect, it is much less risky and much less costly than the typical defined contribution pension. While a collective retirement plan cannot provide "guaranteed" benefits at retirement, it can offer reasonable assurances that the benefit schedule would be met in most instances. And the promised benefits of many public sector plans are not in practice "guaranteed."

[3] Several governments, including the Canadian province of New Brunswick and The Netherlands, have implemented such schemes.

Further Reading

Davis, Rowland and David Madland (2013), "American Retirement Savings Could Be Much Better," Center for American Progress

Gollier, Christian (2007), "Intergenerational risk-sharing and risk-taking of a pension fund," *Journal of Public Economics*

Pozen, Robert (2016), "Developing a third type of retirement plan," Brookings Institution