

Defined Benefit Plans: A Better Bang for the Buck

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The advantages of defined benefit plans for employees are well-recognized, but less well-understood are the economic benefits these plans can provide employers and taxpayers. This article reviews the findings of a

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recent study on the economic efficiencies of defined benefit plans and concludes that defined benefit plans can do more with less, as compared with typical defined contribution approaches. Our findings suggest that a re-examination of the economics of defined benefit plans may lead to a renewed appreciation for traditional pensions.

Introduction

The financial turmoil of recent months has left no one unscathed. Employees and retirees are in shock over shriveled nest eggs and deferred retirement dreams. Employers and taxpayers are feeling squeezed and becoming ever more cost-conscious in their spending on retirement benefits. The economic crisis has catapulted retirement security onto the front pages and to the top of the national public policy agenda. In these tough economic times, designing retirement benefits in a fiscally responsible fashion is an especially important public policy goal.

The features that make defined benefit (DB) plans highly attractive to employees—a predictable monthly retirement benefit, low fees, and professional management of retirement assets—are well recognized. Less well-known is that these same features drive significant savings for employers and taxpayers. DB plans have built-in economic efficiencies that are part and parcel of the group nature of these plans. As a result, DB plans can do more with less. In other words, DB plans provide a better “bang for the buck” for employers, taxpayers, and employees. In a recent study, we found that to deliver the same level of retirement benefits, a DB plan can do the job at almost half the cost of a defined contribution (DC) plan. [Beth Almeida & William Forna, *A Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Pension Plans*, August 2008, Washington, DC: National Institute on Retirement Security.]

In this article, we review the findings of our recent study and discuss their implications for the future of retirement income security. Our findings suggest a re-examination of the advantages of DB plans, not just for employees, but also for employers and taxpayers, may lead to a renewed appreciation for traditional pensions.

The Economic Efficiencies of DB Plans

The cost of either a DB or DC plan depends primarily, but not only, on the level of the benefits that

it provides. Economists have found that DB plans are typically more generous than DC plans, and obviously, more generous benefits are more expensive. [Teresa Ghilarducci & Wei Sun, “How defined contribution plans and 401(k)s affect employer pension costs,” *Journal of Pension Economics and Finance*, 5(2), 2006, 175-96. David Blake, “Does it matter what type of pension scheme you have?” *The Economic Journal*, 110(461), 2000, F46-F81.] However, for any given level of retirement benefits, a DB plan will typically cost less than a DC plan. [Donald Fuerst & Anna Rappaport, “Defined Benefit Plans: Still a Good Idea?” *AARP Global Report on Aging*, 2004, Washington DC: AARP International.] This makes DB plans, in the language of economists, *more efficient* because they stretch taxpayer, employer, or employee dollars further in achieving any given level of retirement income.

We found three primary drivers of DB plans’ economic efficiencies:

- First, because DB plans pool the longevity risks of large numbers of individuals, they require fewer assets to be accumulated than DC plans. DB plans need only accumulate enough funds to pay benefits for the average life expectancy of a group of employees. In contrast, individuals saving for retirement in a DC plan will need to set aside enough funds to last for the “maximum” life expectancy if they want to avoid the risk of running out of money in retirement. Because the maximum life expectancy is substantially greater than the average life expectancy, a DC plan will have to set aside a lot more money than a DB plan to achieve the same level of monthly retirement income. This means that contributions to a DB plan can be significantly lower.
- Second, because DB plans do not age, unlike the individuals in them, they are able to take advantage of the enhanced investment returns that come from a balanced portfolio over long time periods. Ongoing DB plans include individuals with a range of ages. In an ongoing plan, as older workers retire, younger workers enter the plan. As a result, the average age of the group in an ongoing DB plan does not increase, provided the workforce it covers is relatively stable. This means DB plans can ride out bear markets and take advantage of the buying opportunities that they present without having to worry about converting all of their money into cash for benefits in the near future—a
- Third, in addition to the lifecycle-based shifts in portfolio allocation discussed previously, DB plans systematically achieve greater investment returns as compared with DC plans based on individual accounts. Researchers have consistently found that because of professional management of assets, DB plans achieve superior investment performance as compared to individual investors in DC plans. [Watson Wyatt, “Defined benefit vs. 401(k) plans: Investment returns for 2003-2006.” *Watson Wyatt Insider*, 18(5), 2008. Chris Flynn & Hubert Lum, “DC Plans Underperformed DB Funds,” 2007, Toronto, ON: CEM Benchmarking, Inc. Alicia H. Munnell & Annika Sundén, *Coming Up Short: The Challenge of 401(k) Plans*, 2004, Washington, DC: Brookings Institution Press.] Superior returns can also be attributed in part to lower fees. Again, better investment returns means fewer dollars need to be contributed to the plan over the course of a career, because investment earnings are doing more of the “work” of financing benefits.

Methodology: Measuring the Economic Efficiencies of DB Plans

In our recent study, we sought to quantify the magnitude of the cost savings that derive from these built-in economic efficiencies of DB plans. [Almeida & Forna, op. cit.] To do this, we performed an “apples-to-apples” comparison, calculating the relative cost of providing a given level of retirement income through a DB plan and a DC plan.

We started by constructing a stylized employee population of 1,000 employees. For simplicity’s sake, we gave all individuals a common set of features. All were female teachers hired at age 30. We had them work for three years, take a two-year break from their

careers to have and raise children, then return to work at age 35 and continue working until age 62—a 30-year career. For simplicity, we assume no turnover, nor any pre-retirement deaths. By their final year of work, their salary reached \$50,000, having grown 4 percent each year.

Next, we defined a target retirement benefit that, combined with Social Security benefits, would allow the teachers to achieve generally accepted standards of retirement income adequacy. The target benefit in retirement equaled \$26,684 per year or \$2,224 per month, adjusted for increases in the cost of living. Thus, in our model, each teacher would receive a benefit equal to 53 percent of her final year's salary that adjusts with inflation, which we estimate at 2.8 percent per year. With this benefit and Social Security benefits, each teacher could expect to receive roughly 83 percent of her pre-retirement income—a level of retirement income that can be considered adequate, but not extravagant. [Bruce Palmer, Ron DeStefano, Michael Schachet, Jeff Paciero, & Chris Bone, *2008 Replacement Ratio Study*, 2008, Chicago, IL: Aon Consulting]

We also defined certain parameters for life expectancy and investment returns. For simplicity, we modeled benefit payouts in the DB plan on a single-life basis, using the RP-2000 Healthy Female Annuitants mortality table. (This simplifying assumption could be relaxed without a material effect on our results, because the method of providing for benefits to a surviving spouse would be similar under either the DB or DC approach.) For the DC plan, we determined the size of the lump sum amount that an individual would need to accumulate at retirement in order to fund a retirement benefit equivalent to that provided by the DB plan, including inflation adjustments, for a period of 35 years, or to age 97. This represents our estimate of the “maximum life expectancy.” It corresponds to the age beyond which only 10 percent of individuals survive, and therefore is not a “true” measure of maximum life expectancy. Using a 90th percentile life expectancy of 97, rather than the true maximum life expectancy reduces the cost of providing the target benefit under the DC plan. But it also means that individuals with exceptionally long lives will experience a reduced standard of living, compared to what they would experience under a DB plan, because the DC plan would be depleted, leaving the retiree with only Social Security benefits. This simplifying assumption was made for realism's sake (that most individuals will be satisfied with a 90 percent chance of not outliving their money, rather than a 100 percent chance).

The DB plan was expected to achieve nominal investment returns of about 8% per year, net of fees. Our study provides complete details on how we arrived at this assumption. [Almeida & Fornia, *op. cit.*] Returns in the DC plan were lower for the reasons identified above. To model the impact of the shift to a more conservative portfolio allocation in the DC plan, starting at age 62, we assumed individuals began to gradually shift out of equities toward more conservative holdings. This drove the nominal expected return on the baseline portfolio down from eight percent per year at age 62 to six percent per year by age 97. To capture the effect of lower DC plan returns over a lifetime, due to fee differentials and superior investment decisions, we modeled a one percent difference in return as compared with DB plan returns—an estimate at the lower end of the range found by other researchers. This 100 basis point differential persisted into the retirement years, and was compounded on top of the disadvantage that arose from the shift in portfolio allocation. We calculated the impact of each effect separately to avoid double counting. As a result, the expected return on the DC portfolio is modeled at seven percent per year during the working years and gradually declines to five percent per year by age 97.

On the basis of all these inputs, we calculated the contribution that would be required to fund our target retirement benefit—first, through a typical DB plan and then through a typical DC plan. In each case, we expressed this cost as a level percent of payroll over a career.

Results: DB Plan Cost 46 Percent Lower than DC Plan Cost

We found that the cost to fund the target retirement benefit under the DB plan was 12.5 percent of payroll each year. By comparison, we found that the cost to provide the same target retirement benefit under the DC plan was 22.9 percent of payroll. In other words, the DB plan could provide the same benefit at a 46 percent lower cost than the DC plan, as shown in Figure 1.

We also calculated how much of the 46 percent total cost savings could be attributed to each of the three factors identified earlier. The longevity risk pooling that occurs in the DB plan accounts for 15 percent of the incremental cost savings. DB plans' ability to maintain a more diversified portfolio drives another five percent cost savings. Finally, the superior investment returns that derive from professional investment

management and reduced fees generate an additional 26 percent reduction in cost.

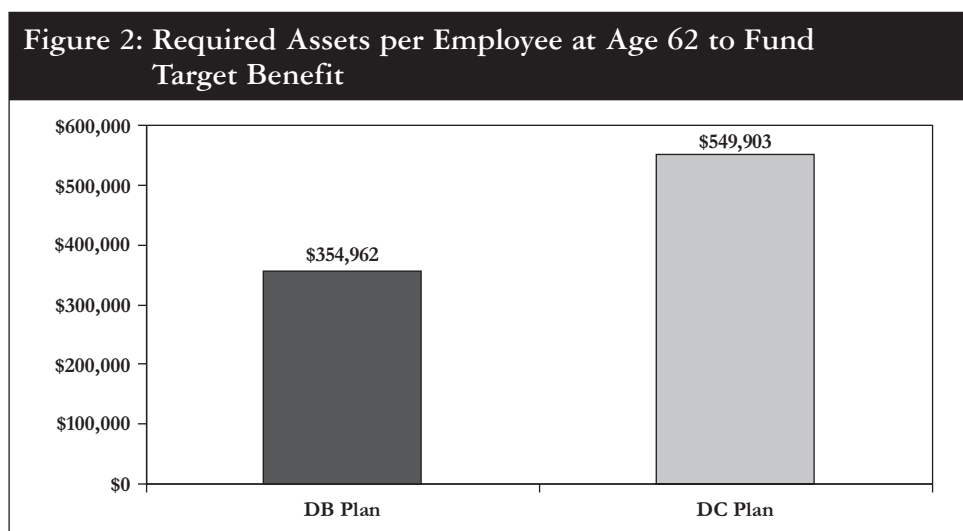
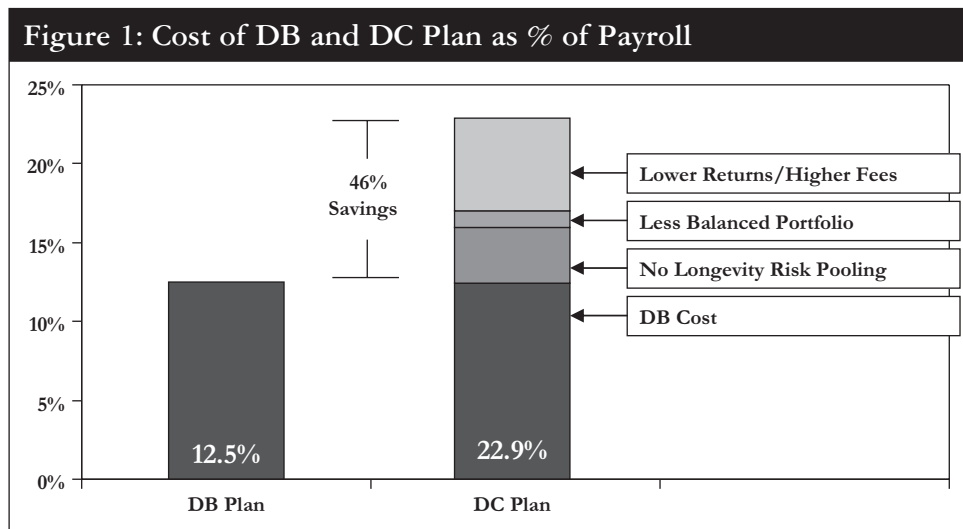
Our results also indicated that DB plans can do more with less. That is, they can ensure that all individuals in the plan (even those with very long lives) are able to enjoy an adequate retirement benefit that lasts a lifetime, at the same time that they require lower contributions and fewer assets to accumulate in the plan.

We also calculated the amount of money that would be required to be set aside for each retiree in each type of plan to provide the target retirement benefit (about \$2,200 per month). As shown in Figure 2, at retirement age, the DB plan requires about \$355,000 to be set aside for each individual, whereas the DC plan requires almost \$550,000. The difference—nearly \$200,000 for each and every employee—illustrates that

the efficiencies embedded in DB plans can yield large dollar savings for employers, employees and taxpayers.

Conclusions

Our results suggest that the same features that make DB plans highly attractive to employees—a predictable monthly retirement benefit, low fees and professional management of retirement assets—also provide significant savings for employers and taxpayers. While, in theory, DC plans *could* incorporate some of these same features, in practice, very few DC plans offer annuity distribution options and studies consistently find that investment performance net of fees in DC plans lags DB plans. Thus, DB plans should remain an integral part of retirement income security in an increasingly uncertain world because they offer employers and employees a better bang for the buck.



We do not conclude, however, that DC plans have no role in retirement planning. To the contrary, because individuals do not have perfect knowledge as to whether they will remain in a given job or DB plan until retirement, taking advantage of the opportunity to save in a supplemental DC plan can provide employees with useful diversification of retirement income sources. DC plans also are flexible vehicles that can accommodate individual retirement income needs. For example, two otherwise identical workers might have different family situations, health needs, or simply different preferences and expectations about their retirement income needs. DC plans give workers the opportunity to save for retirement in a manner that reflects their individual situations.

The current financial turmoil is teaching us many lessons, but primary among these is the need to get back to basics, especially in the area of retirement planning. And a growing body of research indicates

that the familiar “three-legged stool,” consisting of Social Security, a DB plan, and a supplemental DC savings plan really is the best path to achieving a secure retirement. [For a summary of these findings, see Beth Almeida, “Retirement Readiness: What Difference Does a Pension Make?” *NIRS Issue Brief*, May 2008, Washington DC: National Institute on Retirement Security.]

DB plans represent a rare “win-win” approach to achieving economic security in retirement that should be recognized and replicated. The challenge for policymakers will be to identify practical proposals that can strengthen existing DB plans and promote the adoption of new ones. When viewed against the backdrop of workers’ increasing insecurities about their retirement prospects and the economic and fiscal challenges facing employers and taxpayers, now more than ever, policy makers ought to focus their attention and energy on this important goal. ■