Pension Task Force

Defined Benefit, Defined Contribution, and Hybrid Pension Plans

May 11, 2012

DB and DC plans: Brief Overview

Defined Benefit Plans:

- workers accrue a promise of a regular monthly payment from the date of their retirement until their death, or, in some cases, until the death of their spouse.
- The promised life annuity (deferred) is commonly based on a formula linked to an employee's wages or salary and years of tenure at the sponsoring firm.
- Members earn a unit of pension, usually expressed as a percentage of nominal earnings, for each year of credited service/participation.

Defined Contribution Plans:

- Workers accrue funds in individual accounts administered by the plan sponsor.
- Contributions of employees are typically deducted directly from their pay and frequently some portion of these contributions is matched by the employer.

DB and DC plans: Defining Characteristics

	Defined Benefit Plan (Traditional Pension)	Defined Contribution Plan (such as 401(k), 403(b), 457)
Contributions	In the public and private sectors, contributions are made on behalf of each employee by the employer. In the public sector, many pensions are "contributory," meaning that employees also contribute to the plan out of their own paychecks.	Employees make their own contributions to their savings account at whatever rate they choose. In the private sector, employers will often make a certain match—for example, 50 cents on the dollar up to 6% of pay—but they are not required to contribute at all. In the public sector, employers that offer a choice between DB and DC often contribute the same amount to the DC accounts as to DB accruals.
Investments	Contributions for all employees are pooled, and invested by professional asset managers in a diversified portfolio of assets—stocks, bonds, real estate, etc.	Investment portfolios consist of individual accounts for each employee. Employees make all investment decisions themselves, and can choose from a range of investment options offered.
Amount of Money in Retirement	The monthly benefit is determined by a set calculation, usually based on years of service and pay at the end of one's career.	The money available in retirement is simply the amount that one has accumulated in the savings plan, through contributions and investment earnings.
Lifetime Income	Payouts are provided as a monthly income stream that is guaranteed for the remainder of the retiree's life.	Plans are not required to offer a lifetime income option, and typically pay out benefits as a one-time lump sum.
Supplemental Benefits	Spousal protections, disability benefits, and cost of living adjustments are common.	Supplemental benefits are not applicable, and generally not available. If provided, they require extra contributions to some structure outside the DC plan.

DB and DC plans: Risks

	Typical DB Plan (Traditional Pension)	Typical DC Plan (401(k), 403(b), 457)
Funding Risk	Employer assumes most of the funding risk. Although the employer is responsible for fully funding the plan, employees can share this risk through increased employee contributions or reduced benefits, should an unfunded liability develop.	Employees assume all funding risk.
Investment Risk	Employer assumes most of the investment risk. The employer is responsible for making all investment decisions, however, should unfunded liabilities develop as a result of low investment returns, employees can share this risk through increased employee contributions or reduced benefits.	Employees assume all investment risk.
Inflation Risk	If the plan offers a cost of living adjustment (COLA), depending on the COLAs structure, employers may assume all inflation risk, or may share the inflation risk with employees. If the plan offers no COLA, employees assume all inflation risk.	Employees assume all inflation risk.
Longevity Risk	Employers assume all longevity risk.	Employees assume all longevity risk.
Portability/ Leakage Risk	Employees bear portability risk, in that they are likely to receive lower benefits should they terminate before retirement. Career employees bear no leakage risk, as withdrawals cannot be taken prior to retirement. Employees who terminate before retirement may withdraw their contributions and forfeit their benefit.	Employees bear no portability risk, as assets accumulated in the account can be taken without penalty when terminating employment. Employees bear leakage risk, in that accounts are not always rolled over when changing jobs, and loans and pre-retirement withdrawals are often allowed, which can reduce account balances available at retirement.

DB and DC Plans: Pros and Cons

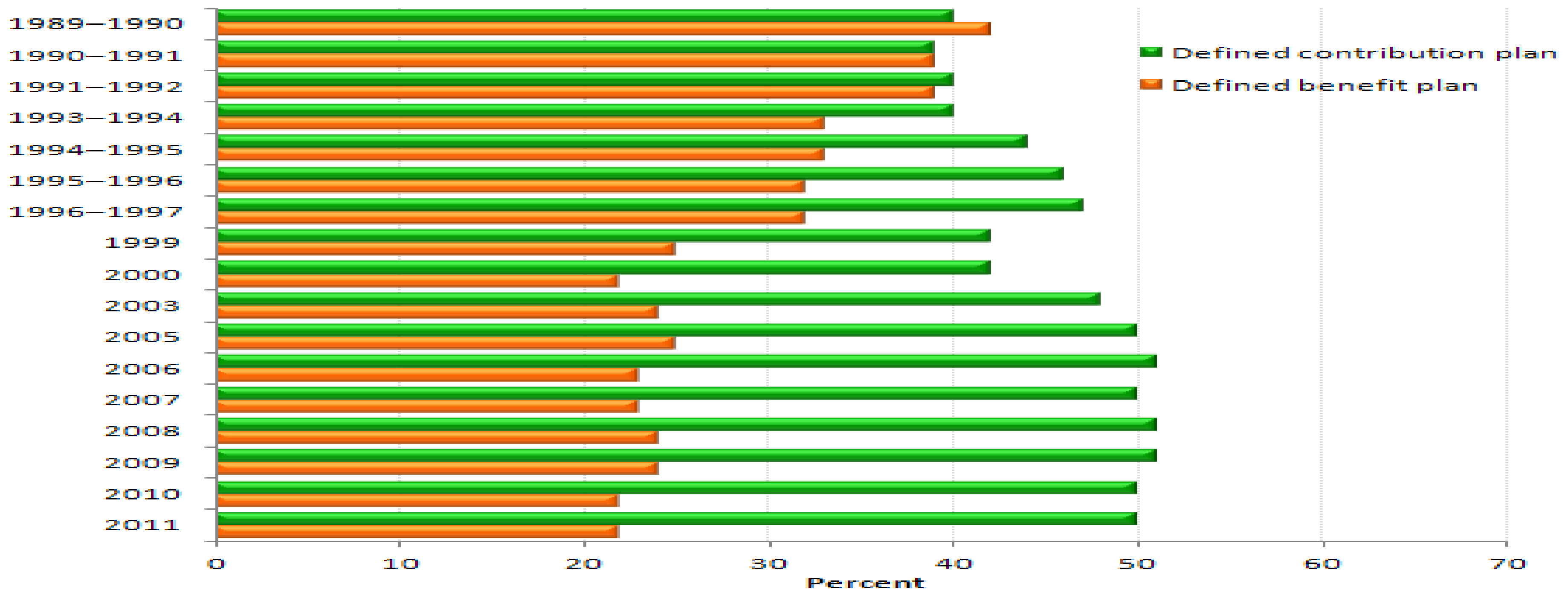
	DB	DC
Investment returns	Investment returns generally are higher because professional money managers invest fund assets for the long term, spreading market risks over all participants and taking advantage of buying opportunities.	Investment returns are generally lower because employees tend to pick low-risk, low-return investments.
Investment costs	Investment costs (e.g., fees paid to investment managers) tend to be lower for large public plans due to economies of scale.	Costs are typically higher because individual accounts must be managed and do not benefit from economies of scale.
Mortality	In a DB plan, the employer bears the mortality risk, meaning that if retirees live longer than expected, benefits continue to be paid.	In a DC plan it is common for a retiree to purchase an annuity that will be payable for a specific number of years, in which case the benefit simply stops if the retiree lives beyond the specified period.
Administrative costs	Administrative costs vary, depending on the complexity of plan. Benefit levels of individual employees must be tracked over time, and regular actuarial valuations must be conducted to determine appropriate contribution rates.	Administrative costs vary, depending on complexity of plan. Individual investment accounts must be maintained, and some plans, including Florida’s Investment Plan, provide investment education services to members.
Investment risks	The plan assumes investment risks.	Participants assume investment risk. Poor investment performance may reduce their retirement benefits.
Portability	Accruals are not portable outside the retirement plan, cannot be transferred to another employer’s plan, and employees forfeit pension benefits if they leave prior to the vesting period.	After a short vesting period, the participant is entitled to transfer accruals to another employer’s qualified plan or to a qualified plan approved by the Internal Revenue Service.
Types of employees attracted to plan	Defined benefit plans are attractive to long-term career employees who desire retirement security.	Defined contribution plans are attractive to short-term employees who wish to participate in a plan that is portable and do not plan to have a career with employers within the same retirement plan.

The Decline in DB Plans in the Private Sector

Between 1980 and 2008, the proportion of private wage and salary workers participating in only DC pension plans increased from 8 to 31 percent (U.S. Bureau of Labor Statistics 2008; U.S. Department of Labor 2002).

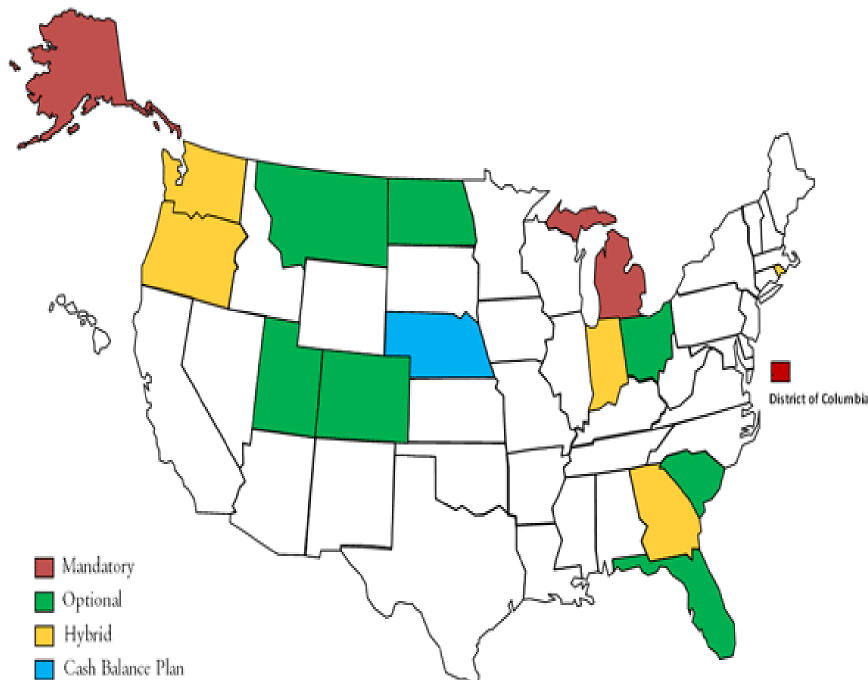
Several factors have been implicated in this shift including:

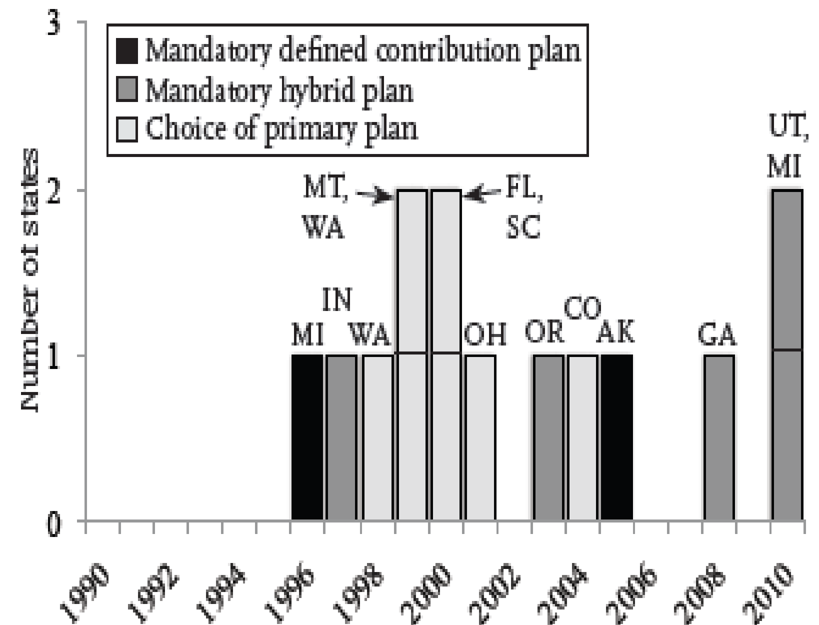
- Increased regulatory costs for DB providers as a result of the Employee Retirement Income Security Act (ERISA)
- Pension Protection Act (PPA) provisions have contributed to substantial volatility of employer contributions
- Post 2000 bear market has revealed the “under pricing” of DB benefits & the vulnerability of plans to market downturn
- Decline in the financial strength of major DB sponsors in industries such as textiles, airlines, steel, and autos
- The creation of an attractive alternative via the 401(k) which was well-suited to the 1982-2000 bull market
- Workers‘ interest in portable pension benefits as the labor force has become more mobile



DC Plans in the Public Sector: State Level Analysis

- Several public sector retirement systems have explored DC plans as a way to shift the risks discussed above away from the employer. A 2008 study of statewide retirement systems by the Center for Retirement Research at Boston College found that from 1990 to 2005, three states introduced mandatory DC plans (although West Virginia has since switched back to a DB plan), two states introduced mandatory combined plans, while nine states have given employees the choice of electing a DC plan as their primary plan. A combined plan has both a DB plan and a DC plan. In that same time period, two states (including West Virginia) have switched from a DC plan to a DB plan.





Why DB Plans Remain the Norm in the Public Sector

1. They are the more cost effective of the two types
2. Employee investment management often leaves employees without enough retirement savings
3. Public sector DB plans are not exposed to the PPA regulatory environment
4. DB plans have a higher rate of return over time than DC plans
5. DB plans have higher income retirement replacement rates than DC plans
6. DB plans are well-suited to employees who tend to be “career service”

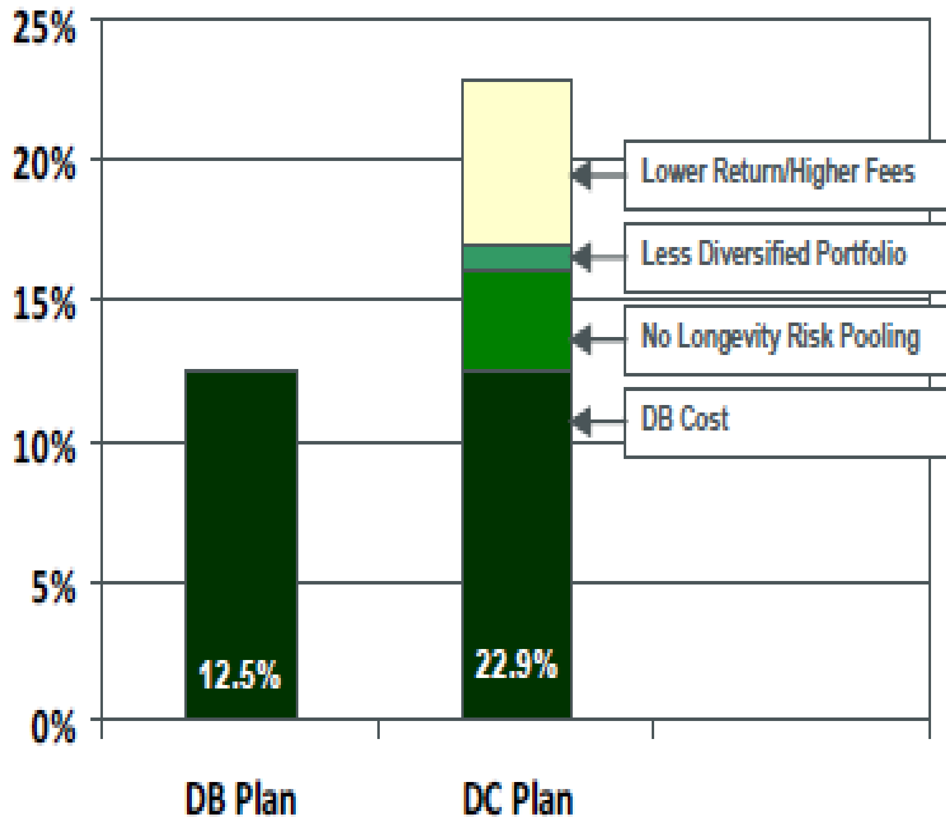
DB Plans: Two Reasons for Cost Effectiveness

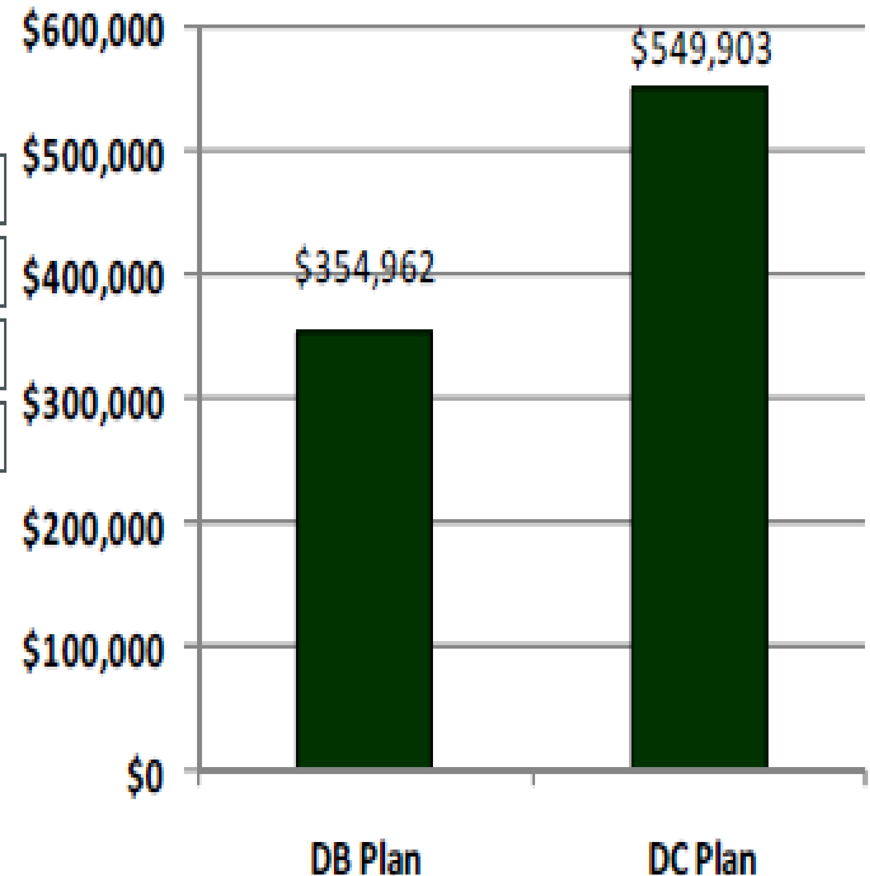
1. DB Plans Avoid "Over-Saving." We won't all live to be ninety-five or one hundred. But in an individual plan, many of us will want to save enough to last until very old age to avoid the risk of running out of money. However, a DB plan only has to save for the AVERAGE life expectancy, which is much lower and which actuaries can calculate with a high degree of accuracy. By saving for a realistic average life expectancy, the DB plan realizes a 15% cost savings over the DC plan. In technical terms, this is called "longevity risk pooling."

2. DB Plans Stay Forever Young. Individuals age. Therefore, those in individual retirement plans must adjust their asset allocation to ensure sufficient cash is on hand to last throughout retirement. Most financial advisors counsel downshifting from higher risk/higher return investments to lower risk/lower return investments as they get older. This protects individuals from the risk of a stock market crash, but progressively reduces the investment returns that can be earned in retirement piggybanks. However, a DB plan exists across generations and therefore can always maintain the most optimal asset allocation. There isn't a need to be overly weighted in lower return/risk bonds or cash. This results in a 5% cost savings over the DC plan.

Tallying DB Plan Cost Savings	
1. Longevity risk pooling saves	15%
2. Maintenance of portfolio diversification saves	5%
3. Superior investment returns save	26%
All-in costs savings in DB plan	**46%**

DB and DC Plans: Cost Comparison





DC Plans: Concerns With Employee Investment Management

Many employees do not understand important features of their retirement plan, including whether the plan is a DB or a DC plan, the age at which they qualify for full benefits, and the relationship between continued work and future benefits.

There can be substantial procrastination in 401(k) savings plan enrollment in a large private sector savings plan, even though the costs of delay can be substantial

Employees often pay too much attention to irrelevant information and too little attention to relevant information. For example, individuals chase past returns in both their asset allocation choices and contribution rate choices (while paying too little attention to mutual fund fees)

Employees do a poor job of integrating various aspects of their financial lives;
rather, they appear to engage in mental accounting, making decisions in each subset of their portfolio without considering their choices in other subsets

DB Plans: Historically Higher Rate of Returns

DB Plans Achieve Higher Investment Returns. The higher returns of DB plans as compared to individual accounts can be attributed a combination of professional asset management and lower fees. A retirement plan that earns greater investment returns will require less money in contributions. Even seemingly small differences in annual returns compound over time. In our model, a 1% difference in annual investment returns results in a 26% cost savings over a career, as compared to the DC plan.

Year	n	DB plans	401(k) plans	Difference
2007	2246	7.71	6.78	0.93
2006	2331	13.28	11.89	1.39
2005	2584	7.74	6.69	1.05
2004	2583	11.81	9.80	2.01
2003	2514	21.35	19.68	1.67
2002	2085	–8.56	–10.93	2.37
2001	2239	–3.78	–6.07	2.29
2000	2058	–0.01	–2.76	2.75
1999	1472	13.46	14.41	–0.95
1998	2958	14.25	15.29	–1.04
1997	2931	18.82	19.73	–0.91
1996	3034	14.53	14.10	0.43
1995	3063	21.10	19.20	1.90
Average		10.13	9.06	1.07

Retirement Replacement Rates

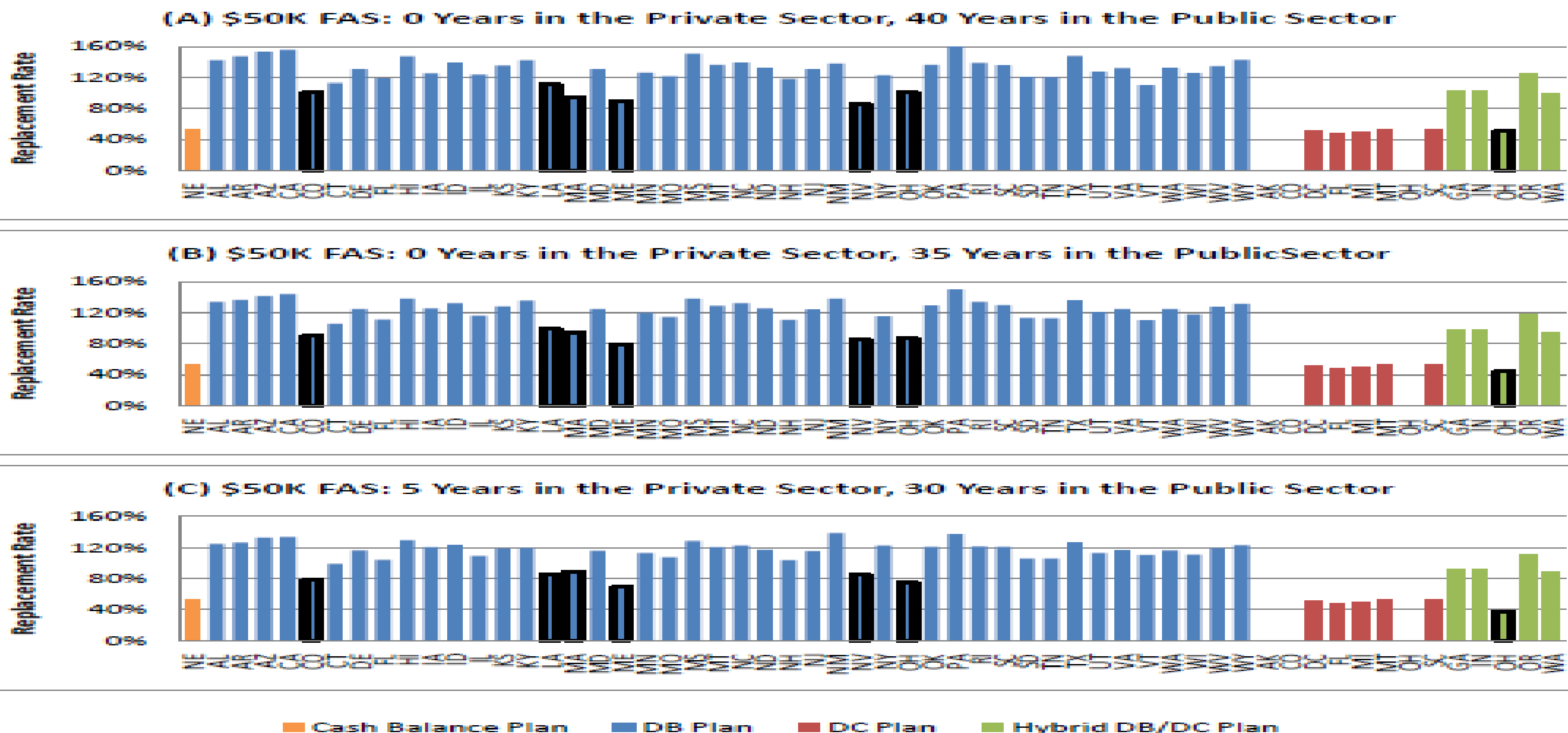
The replacement rate of a pension benefit is defined as the proportion of post-retirement income over income in the final year worked. An adequate replacement rate is usually considered one in which a retiree receives a post-retirement benefit that supports the same standard of living the retiree had preretirement. The table below shows the necessary replacement rates for various annual salaries and adjusts for four factors that affect post-retirement income needs: 1) changes in tax payments, 2) changes in retirement savings, 3) changes in consumption expenditures, and 4) average health care spending.

Replacement Rate Baseline Model -- 65-year old retiree, single

Annual Income	Social Security	Pension	Total Required (Aon Calculation)
20,000	50.2%	38.8%	89.00%
30,000	42.7%	43.3%	86.00%
40,000	39.0%	43.0%	82.00%
50,000	36.7%	42.3%	79.00%
60,000	33.7%	42.3%	76.00%
70,000	30.7%	45.3%	76.00%
80,000	28.5%	47.5%	76.00%
90,000	26.8%	50.2%	77.00%

Retirement Replacement Rates Under DC and DB Plans for an Employee With a 50(k) Annual Salary

The chart below shows pension replacement rates under various employment history scenarios. It illustrates that states with only a DC plan cannot meet the necessary replacement rate of 80% for an employee retiring with a 50(k) annual salary. In fact, a DC plan alone has a replacement rate under 60%.



Note: States whose general public employees do not participate in Social Security have a black border.

Costs of Switching from DB to DC Plan

There are three primary reasons a switch is costly:

1. There is the simple fact that maintaining two plans is more costly than operating just one.
2. Second, employers that switch to DC plans will forgo the built-in economic efficiencies inherent in DB plans, and freezing a DB plan will actually undermine the economics of a frozen plan over time.
3. Freezing a DB plan can drive up costs because of accounting rules that govern public pension plans. These rules can cause an acceleration of required pension contributions in the wake of a freeze.

Potential Role of DC as a Supplement to City's ERS DB Plan

1. ERS income replacement ratios are relatively generous
2. Currently ERS plan sponsor assumes almost all relevant risks
3. The current plan design is not sustainable from a budgetary perspective.
4. Current legal opinions offer little plan sponsor flexibility for most current members.
5. Integrating DC with a revised DB plan design for new entrants can provide for a solid income replacement ratio while making the plan more stable.
   - What elements of risk may be most appropriate to share in a revised approach?

DB and DC Plans: Summary

- An unmistakable feature of DC plans is that many risks are shifted from the plan sponsor to the employee.

- While many employers find the stable cost structure of a DC plan attractive, the closure of the DB plan to new members would make the cost of the DB plan increase significantly as a percent of DB member payroll.

- A DC plan may seem ideal for a sponsor that desires a retirement plan with a stable cost, however, the retirement benefits for a DC member are subject to uncertainty. As a result, a DC plan may not provide employees with adequate retirement benefits.

- Defined contribution plans may well have a role in the public sector, but in combination with, not as a replacement to, defined benefit plans.

Hybrid Plans: A Third Option

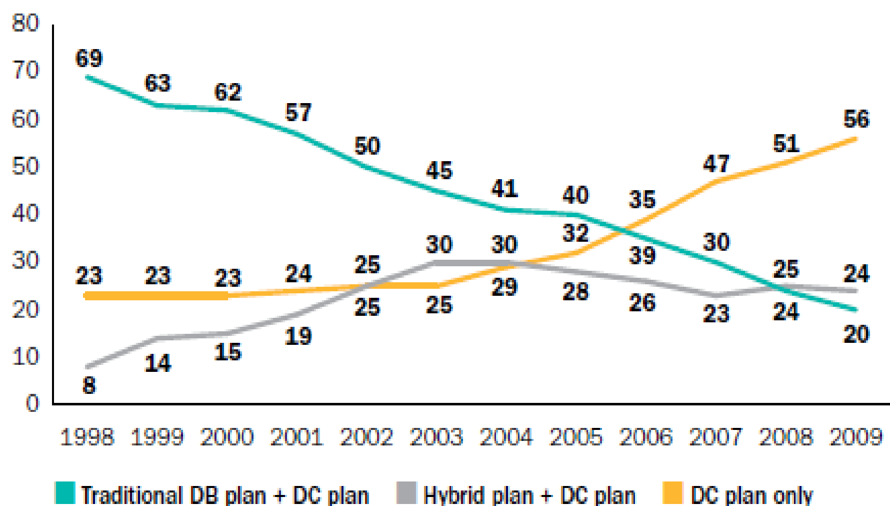
Hybrid plan designs combine the features of defined benefit and defined contribution plan designs. In general, they are treated as defined benefit plans for tax, accounting, and regulatory purposes. As with defined benefit plans, investment risk is largely borne by the plan sponsor. As with defined contribution designs, plan benefits are expressed in the terms of a notional *account balance*, and are usually paid as cash balances upon termination of employment.

Figure 1. Number and incidence of hybrid plans with at least 1,000 participants, 1999–2007

Plan year	Total number of hybrid plans	Hybrid plans as percentage of all DB plans
1999	317	11%
2000	459	11%
2001	514	12%
2002	537	14%
2003	655	16%
2004	639	15%
2005	671	16%
2006	646	17%
2007	658	18%

Source: Towers Watson, based on Form 5500.

Figure 6. Retirement plan sponsorship for 2009 *Fortune* 100 companies, 1998–2009



Hybrid Plans: Possible Advantages

The portable benefits in hybrid plans make the plans more attractive to employees who are less likely to work for a company until they retire.

Hybrid plan participants also avoid the risk and responsibility of investing their retirement funds themselves.

Many hybrid plans offer interest credits at levels not available to employees otherwise — namely a return on long-term bonds, with the return reset each year to current levels, but with no risk of principal.

Hybrid plan participants need not fear a huge investment loss just before retiring.

Plan costs and liabilities tend to be less volatile in hybrid plans than in traditional DB plans

Hybrid Plans: Options

Hybrid Plans: Stacked and Parallel Plans