How a Defined Contribution (DC) Plan or Hybrid Plan can be equivalent to a Defined Benefit (DB) Plan in Public Sector Pensions

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A major national trend continues in the push to replace traditional DB plans with DC or a combination DB/DC hybrid plan. The push is to 'two-tier' systems where new hires are offered a DC or Hybrid, and the legacy employees continue to receive a DB. This article briefly explores how the plans are different and how they can provide similar financial outcomes.

Pension math. First, let's look at the essentials of pension math. This calculation is fundamentally the same in DB or DC, with the primary differences being the investment return liability and the payout option. Pensions are trying to create a terminal value that provides a stream of income. In the case of a DB, that stream is a monthly benefit based on a calculation like Final Average Compensation (FAC) over 5 years times a multiplier of some percentage like 2.5% times the years of service of the employee. To achieve this, the municipality makes a periodic deposit or contribution that is actuarially computed to fund the terminal value, which is viewed as a liability of the plan. That contribution takes into account the interest rate assumed to be earned by the plan assets, the life expectancy of the employees, and the mortality during the course of funding, among other considerations. A DC plan has a specific contribution as a percentage of payroll, and the employee accumulates a balance and is responsible for investment selection and payout options.

Differences in DB and DC. The primary difference of DB and DC is the responsibility of investment return. In a DB, the employer assumes the achievement of a projected investment return. In a DC, the employee assumes all of the investment risk, but can take the plan wherever they want via rollovers. Also, a DB typically pays out for the life of the participant, or offers an alternate form that pays out for the participant and the participant's spouse. The DB plan takes on the mortality risk. If the employee (and spouse) die early (before the life expectancy), the plan wins. Live long, the employee (and spouse) wins. DB plans typically offer a menu of payment options for the employee and spouse. A DC plan will pay out according to the employee's wishes, conformed by IRS rules. Hybrid plans combine a DB and DC component, usually with a DB component of half and a DC component of half. The municipality fully funds the DB component, unless the DB plan has

a contributory element, which is funded by a mix from employee and employer, and contributes a portion (as does the employee) to the DC component.

	DB	DC	Hybrid
Benefit	Usually FAC x Years of Service (YOS) x multiplier	Based on plan balance	Lower DB benefit and plan balance
Portability	Usually not portable (MERS exception)	Fully portable	Half and half
Investment risk	Employer	Employee	Half and half
Mortality risk	Employer	Employee	Half and half
Employer contributions	Variable based on plan	Fixed	Half and half
Employee contributions	Usually fixed by contract	Fixed by contract	Half and half
Investment Expenses	Plan plays	Employee may pay, or plan may pick up costs	Usually employer paid
Form of benefit payouts	Fixed by plan, usually in form of monthly annuity for employee and designated beneficiary	Completely determined by employee, subject to IRS rules	Half and half
Vesting	Usually 10 years	Usually 5 years	Blended
Retirement age	Usually based on service	Flexible, but subject to IRS rules	Blended
Withdrawal age	At retirement	At distribution	Blended

Benefit Equivalency. DB plans and DC plans can have mathematical equivalence. However, because of the nuances of age, inflation, and mortality, the equivalency will be different. To make an effective comparison on an individual basis, a model is the best tool. To illustrate the moving parts, let's take a 2.75% multiplier plan with a 7% return assumption and a 2% wage increase. The employer contributes 12% (or more in the case of the DB), the employee contributes 6%. For a 25 year old officer with a starting pay of $46,200 ($23.30 an hour) after 25 years of service, the officer would receive, under the DB plan a monthly pension of $4,212 a month. In an equivalent DC plan, assuming the employee earned a 7% return, they would accumulate about $710,000, which would provide a monthly amount, assuming the employee could still earn a 7% return, of about $4,6110 a month for 30.4 years. However, if we change some of the assumptions, we get completely different results:

	DB	DC Equivalent	DC Balance	Difference from Base Case
25 years, 2% raise, 7% return age 50	$4,212	$4,611	$718,000	
Lower return, 6%	$4,212	$3,566	$621,000	-$1,045
Higher return, 8%	$4,212	$5,935	$832,000	+$1,324
Higher wage increase, 3%	$5,274	$5,090	$792,000	+$1,062 DB +$479 DC
Lower wage increase, 1%	$3,357	$4,194	$653,000	-$855 DB -$417 DC

It's obvious that there is a high degree of sensitivity in making a DB/DC comparison. Rate of return has a significant effect on the DC side, while wage inflation has a significant effect on the DB side. Hybrid plans split the difference. In a post-retirement (from the current municipality) work scenario, a DC can continue to grow, where a DB will merely pay out. In addition, DC balances are survivable, which means they pass on to generations beyond the employee and spouse.

Conclusion. A DB plan and a DC plan operate on the same math, but the responsibilities are clearly shifted. The DB plan has the employer taking the investment risk, mortality risk and wage increases. The DC plan shifts that to the employee. A DC can be more flexible, and equivalent to a DB, but the employees need to recognize that they become their own pension fund investment manager. In an analogy, a DB plan is a vending machine that distributes a specific can of pop on a pre-arranged basis, win, lose, or draw. A DC plan is like a backpack full of money that the owner takes with them and uses. If they use it up, tough rocks. If there's some left over, somebody gets it.

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