

THE SEARCH FOR CHEAPER BENEFITS:

Defined Benefit versus Defined Contribution

I am an actuary. Being an actuary is not just a job, it's a way of life. Substitute facts for appearances and demonstrations for impressions, that's the calling of an actuary. Monday morning at 8:05, my phone rings. I let it ring twice before picking it up.

"Good morning," I try to sound as if I already had my two cups of java.

"Morning," she responds in a high soprano. A woman with an idea. She works for the government and she's looking for facts. The idea: get rid of the defined benefit plan that her employees are in and replace it with a defined contribution plan. She thinks that it will save her money and give her employees bigger retirement benefits. "Everyone is doing it," she says, "but I want you to check it out first."

Retirement programs, an actuary's favorite topic. I finish my game of Minesweeper, check the batteries in my calculator and head out of the office. I snap on the seatbelt in my Volvo and pull onto the freeway. In 24 minutes, I'm in her office.

Types of Retirement Plans

She tells me to start from the beginning, and pulls out some paper and a pen to take notes. "I'll start off slowly," I say, as she settles back into her swivel chair. "There are two categories of retirement plans: defined benefit and defined contribution. In both categories of plans, money is contributed to the plan, invested, and paid out to the employee at retirement. The key difference between the two categories of benefits lies in the allocation of risk and reward between the employees and the employer." Risk and reward, topics an actuary can sink his teeth into. "A defined benefit plan is a promise. The employer promises that the employees will receive a specified benefit amount at retirement. Contributions toward that benefit may come from just the employer, or both the employees and the employer. In either case, the employer promises a specific level of benefit, so the employer must ensure that sufficient funds are available to pay for that benefit. The employer takes the risk that the funds may fall short. If they do, the employer must make up the difference through increased contributions."

"That's the downside risk," she pipes in, "but what if things go well?"

"In that case, if the assets are more than sufficient to pay for the benefits that were promised, the employer's contribution is reduced."

"Makes sense," she responds, starting to understand what she had gotten myself into. "The employer is taking the risk, so the employer gets the reward."

"Exactly," I continue. "This is the most common form of retirement plan used in the public sector. According to a 1994 study conducted by the Department of Labor, 91% of public sector employees participate in defined benefit plans."

I had her attention. The facts were hitting her like mosquitoes on a windshield. I went on. "A defined contribution plan is a different kind of program. In a defined contribution plan, the contribution into the program is specified. The contributions may come from either the employer, the employee or both. In any case, the employees individually take the risk that they will be able to accumulate sufficient assets to cover their retirement needs. Likewise, the employees reap the rewards when enough money is contributed and investment returns are good."

Allocation of Benefits

"This is more than just a question of risk and reward," says the client. She goes for her right bottom desk drawer, and reaches in. I move back, getting ready for anything. Turning toward me, she whips out a magazine article. "The money isn't getting to my employees. It says here that 70% of state workers in California lose their retirement benefits because they leave their job before qualifying for them."

Quickly, I go to my bag. In a second, my PC is out, fully loaded. "You want numbers?" I said, "let's talk numbers."

"A second key difference between your traditional defined benefit and defined contribution plans is how benefits are allocated. A defined benefit plan allocates more money to your longer service employees. Even though 70% of your employees leave without receiving a retirement benefit, over 90% of your plan assets go to retirement and disability benefits. Remember, these are retirement plans. They are designed to attract and retain good employees by rewarding long careers."

She looked stunned, but I had to keep going. "In a defined contribution plan, the participants still get the money, they just get different amounts. A defined contribution plan gives more money to employees who work only a short time for your agency."

"So," she responds, "more employees will get some of the employer's money from a defined contribution plan."

"No, that's not completely correct." I tried to sound as diplomatic as an actuary can. "In both traditional defined benefit and defined contribution plans, employees receive employer money only after they are vested. In your particular defined benefit plan, it takes 5 years to get vested. If an employee leaves before

he's worked for 5 years, he only gets back his own contributions with interest. Almost half of your employees leave before they reach five years of service. Any employee who works for five or more years will be able to get some benefit from employer contributions. A traditional defined contribution plan also has a vesting period for employer contributions."

"So, in a defined contribution plan, an employee will get her money back if she leaves before working for five years." She was starting to understand. "And she will get some of our money if she stays five years or more. I understand now that the same people get the money. I don't understand how they get different amounts."

Benefit Analysis - Same Cost, Same Investment Return

"Let's look at an example," I said, pulling up a spreadsheet on my PC. "Your defined benefit plan is a typical government plan: 2% of final pay for each year of service beginning at age 60. Benefits increase with inflation after retirement at 2% each year. Your employees are not covered by Social Security. For a new employee, the combination of employer and employee contributions costs about 10% of pay."

"We'll look at a typical employee: hired at age 30, paid \$25,000 at hire. We'll start by assuming that the employee gets 5% pay increases each year, and that the rate of return on investment for both the defined benefit and the defined contribution plans is 8%. Let's look at the benefit value accumulated by your defined benefit plan, compared with a 10% contribution into a defined contribution plan." My fingers fly across the keyboard. In a few seconds, I show her the following table:

Age	Defined Contribution Balance	Present Value of Monthly Defined Benefit
30	0	0
35	16,731	8,031
40	45,936	27,396
45	94,748	70,242
50	173,997	160,849
55	300,050	348,289
60	497,529	732,100

"Let me see if I have this right," she says. "Under the defined contribution plan, for the same contribution, my employees get a smaller retirement benefit."

"That's right," I responded. "Or you could say that if you want to give your employees the same retirement benefits, it's going to cost you more."

She nodded her head. "This is what you mean when you say these plans allocate benefits differently."

I started to relax. We were getting somewhere. "That's right, if you give more money to 35-year-olds who walk out the door, you won't have as much money to spend on the people who work for you for 30 years." As always, I needed my disclaimer. "Remember, this assumes that contributions to the defined contribution plan continue at the same rate for the employee's entire career. We've also assumed that the return on investment will be the same for employee investments in the defined contribution plan as it is for the defined benefit plan."

Benefit Analysis - Same Cost, Lower Investment Return

"That shouldn't be a problem," she pitched in. "I know if employees can choose their investments, the returns will be better than we get from a conservative pension plan." The smile dropped from my face faster than you can say Actuarial Present Value of Projected Plan Benefits.

I tried to be calm. "Actually, investment returns in employee-directed defined contribution plans are not traditionally as good as returns achieved by defined benefit plans. This happens for a couple of reasons. First, individual employees do not get the investment education that retirement board trustees go through. Second, individuals traditionally have a shorter investment time horizon. This leads to more conservative investing than you get from public sector retirement boards."

"So, tell me what happens to retirement benefits if my employees get a lower return." She was looking like a basset hound with insomnia. "If we lower the assumed rate of return on the defined contribution plan to 7%, and assume that the defined benefit plan is still able to get a return of 8% per year, our table changes to this:"

Age	Defined Contribution Balance	Present Value of Monthly Defined Benefit
30	0	0
35	16,336	8,031
40	43,762	27,396
45	87,988	70,242
50	157,370	160,849
55	264,064	348,289
60	425,684	732,100

"It looks even worse," she said. "So you're telling me that a defined benefit plan is better than a defined contribution plan."

"No, actuaries don't use terms like better." Just the facts, I thought to myself.

"There are good reasons to have a defined contribution plan, and there are good reasons to have a defined benefit plan. Sometimes, there are even good reasons to have both plans. What I am saying is that, for the same dollar contribution, an employee usually gets bigger retirement benefits from a defined benefit plan. If your sole objective is to save money, don't switch to a defined contribution plan. If you have other reasons, a defined contribution plan might be the answer."

Just then, the phone rings. "That was my secretary," my client says as she gets up. "My boss just died. We'll have to get into a discussion of reasons for each type of plan later."

"Sorry about the news," I say as I walk out the door. "At least its an actuarial gain to the retirement plan." Being an actuary is not just a job...

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