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# Simple Retirement Calculator

Sorry that I have not been posting much of late. April is always rough for me. Taxes play some role in April, because I get a certain amount of my tax data late, but the main reason stems from some charitable boards on which I serve, which meet in/near April.

One of the questions that came to me was how we could educate some of the workers to put away more of their income for retirement, because we don't have a Defined Benefit plan. After a little discussion, I said that I could give them good friendly advice. As most committees go, when someone volunteers to solve a problem, discussion ends.

Now, what I have done is pretty simple, and violates one of my rules -- I don't believe in constant compound interest. Markets don't work that way, but for some perverse simplifying reason, retirement planning models do.

What I have done is create a model for retirement income, attempting to express it in terms that someone non-knowledgeable could understand. You can download the Simple Retirement Calculator (free to download) that I created.

My base case assumes 3% inflation, pay keeps pace with inflation, and the real return on investing is 2% over inflation. Other assumptions: one works for 45 years from age 25 to 70, and that the options for payout are limited to those that respect spouses and heirs.

So what can one 25 years old expect from saving over a 45 year period of time?

Savings Rate

Salary Replacement
5%
6%
7%
8%
9%
10%
11%
12%
13%
14%
15%

J&S 100% Cash Refund
22.9%
27.5%
32.0%
36.6%

41.2%
45.8%
50.4%
54.9%
59.5%
64.1%
68.7%

J&S 100% CR Indexed
15.1%
18.1%
21.1%
24.1%
27.1%
30.1%
33.1%
36.1%
39.1%
42.1%
45.2%

4% year
14.6%
17.6%
20.5%
23.4%
26.4%
29.3%
32.2%
35.2%
38.1%
41.0%
43.9%

Accum Years Ending Pay
3.66
4.39
5.13
5.86
6.59
7.32
8.06
8.79
9.52
10.25
10.99

This table expresses what is needed in order to have effective income during retirement. The average investor can't control asset returns.

J&S 100% Cash Refund -> Spouse gets 100% after death of annuitant, heirs get a payment annuitants got less than the lump sum value at retirement. Indexed benefits increase at the rate of the CPI.

With a 2%% real return, it takes a lot of saving to replace current income in retirement, even over 45 years. Note that the real return assumption has the largest impact on the results.

Much as I think DB plans are superior to DC plans for the average person, most companies in the present environment will not subsidize a DB plan to the degree that will allow a person to retire at the same level of purchasing power that they had while employed.

There are many ways that I could improve the results of this model, but the improvements would only be incremental. The main point of this model indicates that most people do not save enough, if all of their retirement outcomes rely on a defined contributions plan.

Let me know what you think in the comments below. Thanks.