**Mini-case 2:  Planning Your Nest Egg**

**This mini-case was written by Dr. Robert C. Duvic**

In your grandparents’ day employees had defined benefit plans—pensions—where the employer was responsible for saving sufficient funds to provide a guaranteed pension to retirees.  Most non-governmental workers now have defined contribution plans where workers make contributions to their individual retirement plan.  These defined contribution plans shift the responsibility—and the risk—of saving for retirement from the employer to the worker.

This hasn’t worked out well for many workers!  “42 percent of Baby boomers have nothing saved up for retirement …Only 28 percent think that they are doing (or did) a good job financially preparing for retirement.” (Insured Retirement Institute).

<http://irionline.org/newsroom/newsroom-detail-view/as-they-near-retirement-baby-boomers-remain-unprepared>

With your knowledge of Finance, you will hopefully not find yourself in this situation!

This project provides an opportunity to estimate your ending retirement nest egg:  the amount of your savings when you begin retirement. While this is a very important, complex and difficult decision, it is at heart it is an exercise in time value analysis:  how much cash you save and the rate of return you earn on those savings.

This project also shows you what uncertainty feels like! In our course, and likely most of the courses you’ll take at UT, you’re given all of the variables. In life, unfortunately, you aren’t.

This project has three parts.

***First, how would you save?***

You have the choice of a 401K plan, a traditional Individual retirement Account (IRA) or a Roth IRA retirement plan. Briefly describe these plans and choose one of them. Note that your career choice may have an impact on which of these will be available to you.

**Second, how much will you have saved up by the time you retire?**

There are five steps to determining your ending nest egg

1. Using your career specified in Project 1 estimate your beginning annual salary. I think you’ll find the following sources interesting.  You are welcome to us other sources to estimate your first year income.

<http://www.studentsreview.com/salary_by_major.php3/>

<https://www.bls.gov/oes/current/oes_nat.htm>

<https://www.aeaweb.org/resources/students/careers/earnings>

2. Assume that with taxes you’ll keep 90% of your income and will save 6% of this take-home salary each year. This likely greatly understates the tax bite, as this article shows, but that’s just how it goes!

<https://taxfoundation.org/how-much-do-people-pay-taxes/>

3. By how much will your contribution increase annually?

You may use any source you desire to estimate your salary’s growth rate—this is a very important rate, but one that is difficult to estimate.  Growth in income does vary with major, as these charts from the Hamilton Project shows.  You can enter several majors and see how they stack up.

<http://www.hamiltonproject.org/charts/career_earnings_by_college_major>

While interesting, the graphs in the Hamilton Project don’t translate into a neat annual rate of growth, so please roughly estimate the growth expected in your field.

4. What average rate of return would you expect to earn on your retirement savings if you invest in US stocks?

These sources will give you some information to base your projection.

<https://www.fool.com/retirement/2017/10/11/what-returns-should-i-expect-from-my-stock-investm.aspx>

<https://trendshare.org/how-to-invest/what-is-a-good-annual-rate-of-return>

5. How many years do you expect to work?  Of course, we’re assuming that you actually live to enjoy retirement, but let’s be optimistic!

While all of this is a lot of data, our course contains a time-value equation that will process all of this to give you the ending value of your nest egg.

***Third, how would changing variables affect your retirement nest egg?***

You know that your estimates above will not likely match reality--life may be better or harsher as you experience it. To see how your retirement would change if life turns out differently please calculate the impact of the following on your ending nest egg balance.

1. The rate of return earned your investments turns out to be 20% lower than what you planned.  
2. You are forced to retire five years earlier than you planned because of ill health.  
3. You’ve spend your life following excellent health advice and love your career and decide to work an additional five years.

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Now, this completes our project; however, I’d like to mention some issues that, while not part of our project, you should consider.

Our project is a good application of time value, but The major driving issue is to ensure that you’ve saved enough to support you and your family once your earning days are over. While this is more complex and is not part of our Project, I would like to point out some factors you should consider.

How long will you live? Of course, you don’t know! But that’s irrelevant. Fortunately there are several life estimators provided by Social Security, banks and insurance companies that you can use. And, be sure to factor in all of the bad habits that you’re picking up!

<https://www.ssa.gov/planners/lifeexpectancy.html>

<http://media.nmfn.com/tnetwork/lifespan/#13>

How much will you need to spend annually to support your retirement? How much will you need to annually spend in retirement, and thus how much will you need to save each year.

<https://www.aarp.org/work/retirement-planning/info-2015/nest-egg-retirement-amount.html>