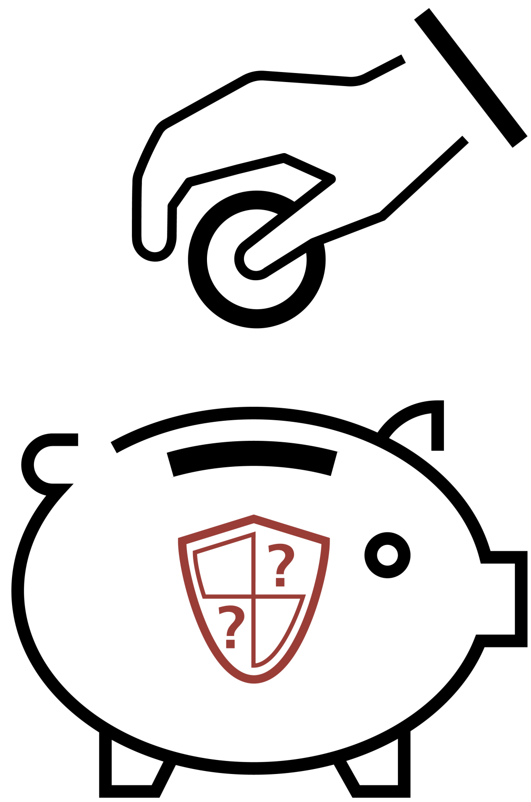
Modern retirement monthly

Life-cycle earnings and "safe-savings rates" | 6 June 2018

Chief Investment Office Americas, Wealth Management
Ronald Sutedja, Quantitative Strategist Americas, ronald.sutedja@ubs.com; Michael Crook, Head Americas UHNW and Institutional Strategy, michael.crook@ubs.com

- Earnings growth is not constant throughout a worker's lifetime.
- Automating savings via automatic enrollment to both defined contribution and defined benefit plans can help increase pre-retirement savings and help investors increase the likelihood of meeting retirement goals.
- Based on a Federal Reserve survey, people save an average 7% of their total lifetime income. Without taking into account social security income, this 7% average savings rate, using constant assumptions, should allow the average worker to replace 50% of the last year of their pre-retirement income (50% replacement ratio).
- College degree holders have much higher earnings growth and absolute earnings than non-degree holders, showing a high return on investment for the average student.



One of the critical steps in planning for retirement is to determine the future savings rate that will help you meet your goals, including expenses, during retirement. This report analyzes earnings growth and investment returns to estimate the needed savings rate to meet a reasonable retirement spending objective.

Over the most recent decade, retirees have come to rely more on defined contribution than benefit plans[1]. Furthermore, in the current low-yield and low-expected return environment, it is increasingly important to plan your future personal savings to make sure you have a sustainable retirement plan.

This study provides guidelines on **"safe-savings rates"** taking into account the **non-constant** earnings dynamics over a lifetime. It also provides insights on the impact of **delaying savings** on the "safe-savings rate" to viably meet retirement goals.

Our research found that starting to save early and earning an academic degree still pay off because they result in higher expected earnings growth, higher potential to save, and higher likelihood to have sufficient retirement assets to meet objectives.

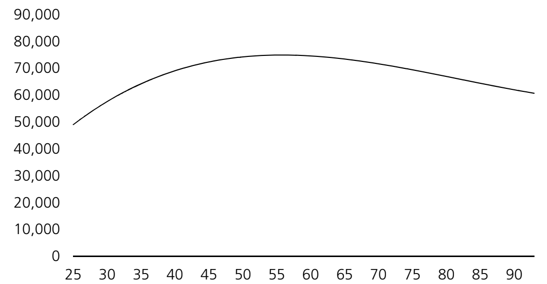
How do earnings grow over your career?

Workers tend to see wage increases over time, but the pace of wage growth tends to taper off later in a career. When looking at income over a career, and adjusting for the purchasing power of those wages, we tend to see the pattern shown in Fig. 1. Wages typically grow faster than inflation early in a career, but then stagnate in real terms about a decade before the average retirement age of 65; after this point real income actually declines for an average worker. This finding appears to contradict the common assumption that income grows consistently at or above inflation and that peak earnings occurs just before retirement[2] .

The median income for a 25-year-old's household in the United States is USD 48,997. The data shows that income peaks at an average household age of 56. Most earnings growth is seen between the ages of 25 and 55, as illustrated in Fig. 2. The red dotted line in Fig. 2 corresponds to our current cost of living adjustment (COLA) of 2%, as of January 2018. The bubble callout states that after age 44, earnings growth falls below the current COLA. According to the AARP, older workers (55 and above) experience a 20% wage decrease due to lower employment opportunities[3] . An AARP report found that older workers are likely to change jobs. In fact, only 14% of workers stay with the same employer after the age of 55[3].

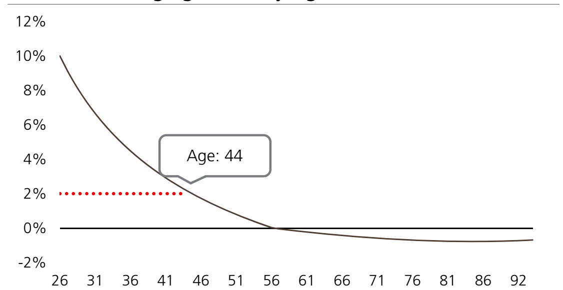
Degree holders on average earn about USD 20,000 more annually than those without (see Fig. 3). They also experience higher earnings growth pre-retirement age relative to non-college graduates. This means the value of earning a college degree compared to someone with high-school diploma is almost 2 million dollars over a lifetime.

Fig 1. Most income growth occurs early in a career
Earnings curve of a median worker in today's dollars



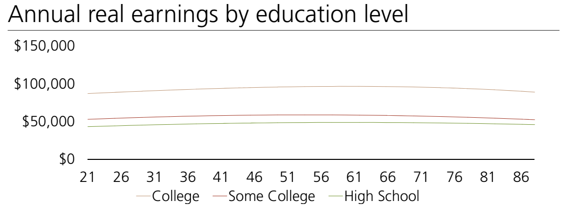
Source: 2016 Federal Reserve Survey of Consumer Finances, UBS

Fig 2. Adjusting for inflation, average income falls after the age of 55
Annual earnings growth by age cohort



Source: 2016 Federal Reserve Survey of Consumer Finances, UBS

Fig 3. College graduates have much higher earnings potential
Annual real earnings by education level



Source: 2016 Federal Reserve Survey of Consumer Finances, UBS

The problem with a constant earnings growth assumption

First – as illustrated in Fig. 2 – income growth doesn't typically follow a straight path. For most people, income growth will exceed inflation for much of their career, but then peak about 5-10 years before retirement. Using a straight-path earnings growth assumption could over- or under- estimate a safe-savings rate for retirement expenses.

How much do we need to save?

We calculated a "safe-savings rate" employing multiple steps:

• First, we first assume retirement at age 65.

• Second, we assume the hypothetical household will save a certain percentage of their income that will grow proportionately (at the same percentage rate) with the earning-growth rates outlined in Fig. 2. Doing so can potentially increase household dollar-savings by 50% per annum compared to constant earnings growth, on average.

• Third, we look to determine the needed savings-rate for a 80% replacement ratio with 80% probability of success to create a well-funded plan [4].

• Fourth, we assume that the savings are invested in a 60% equity and 40% bond portfolio each period with expected average return of 5.2%, based on UBS Capital Market Assumptions in the House View.

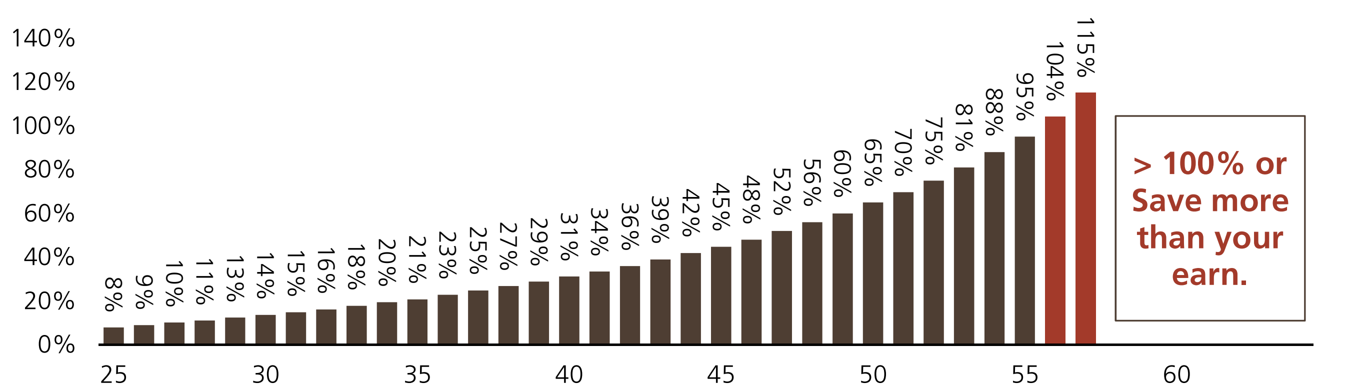
• Five, we also assume that the household starts with no capital on their balance sheet.

• Lastly, we then solve for the "safe-savings rates" under different scenarios with the household starting to save at different ages.

For example, let's look at an average US household with a maximum household age of 25. Their objective is to retire in 40 years with level retirement spending, that reflects 80% of their final pre-retirement salary. In this example, the length of retirement is 30 years. Targeting an 80% probability of success (a well-funded plan), would require a "safe-savings rate" of about 8% (see Fig. 4). If instead, the household delays saving for 10 years (age 35), then the required "safe-savings rate" more than doubles to about 21%. If they delay further, for 20 years (age 45), then the required "safe-savings rate" quintuples to 45%. The benefit of saving and investing early, and remaining invested are clear.

Fig 4. The "safe-savings rates" vary based on when you start saving

Safe savings rate with no past savings with the objective of 80% replacement ratio, 80% probability of success, (40-start saving rate) years of accumulation periods (pre-retirement) and 30 years of decumulations (retirement), not taking into account social security income, no taxes, and investment in 60% large-cap equity and 40% fixed income.



Source: UBS

Conclusion and takeaways

According to the Federal Reserve's survey, the median US household average savings rate declines from 12% to 8% between the ages of 25 and 40. Proactively planning for a "safe-savings rate" that takes into account a family's true earnings growth path can improve the retirement outcome and result in a more optimal balance between sustainable spending and savings goals.

Important takeaways include:

- Assuming a constant pace of earnings growth could potentially force you to cut spending too much or delay retirement.
- Work with your UBS Financial Advisor to determine your family's "safe-savings rate", based on your personal salary, risk tolerance, life-cycle earnings growth, and retirement spending goals.
- The longer you delay, the required rate that you need to save as percentage of your salary increases exponentially. A higher required future "safe-savings rate" is the result of lower-late career earnings growth and shorter time to meet a sustainable retirement plan. Furthermore, the likelihood that you will need to decrease your retirement expenses significantly can be very high.
- Create an "intentional spending" plan to avoid unexpected spending that could lead to a savings short-fall that forces you to change your retirement plan.
- Even if you are targeting a fixed savings rate, it is still important that you put these savings to work by investing them.
- Stay invested in a diversified portfolio and rebalance your portfolio systematically[5].

Thanks to Patrick O'Reilly, a member of the UBS Graduate Training Program for reformatting the charts for this publication.

Endnotes

1. Dr. Ibbotson R., Dr. Xiong J., Kreiter R., Kreitler C., Chen P., April 2007, "National Savings Rate Guidelines for Individuals"
2. Crook Michael, January 2018, Modern Retirement Monthly, "Social Security Cost of Living Adjustment"
3. AARP Public Policy Institute, "Older workers are on the move: Recareering in Later Life", https://assets.aarp.org/rgcenter/econ/2009_08_recareering.pdf
4. Sutedja, Ronald, March 2018, Modern Retirement Monthly, "Understanding Probability of Success"
5. Crook Michael [et. Al], December 2015, "Rebalancing an alpha generating strategy"

Appendix

Disclaimer