The Problem with Living Too Long

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People are living longer. Undoubtedly, most of us would consider this a good thing, but from one perspective, it's not . . . it makes it much harder to save enough money to generate sufficient income in retirement. Under the defined benefit pension plans that benefitted our parents, longevity wasn't an issue for retirees; they had a monthly income for life. But in the current 401(k) environment, most employees retire, receive lump sum distributions, roll them over to IRAs, and then have to stretch the money out over the rest of their lives. To do that, retirees need to know the time over which the money must stretch; that is, how long will they live after they retire? But, of course, no one knows the answer to that question.

One behavioral finance expert explained the problem this way:

> "To illustrate the unique financial complexities facing retirees, consider 10 high school friends who decide to retire at age 65. Now, guess when the first of those 10 friends will die. As it turns out, the first death is likely to occur only four years into retirement, at age 69. Next, try guessing when the last person will die. The answer is 34 years into retirement, at age 99!"[1]

The first retiree to die probably had accumulated enough savings to last for his lifetime – four years; but the last to die probably had not . . . after all, it is difficult in a 40- or 45-year working career to accumulate the money needed for a 34-year, pre-paid retirement. And, it is impossible to tell which retiree will be first to die and which will be last.

Longevity is one of the most serious issues facing workers today. When a person retires, his monthly paychecks stop, but most of his monthly expenses continue. As a practical matter, this effectively forces a retiree to turn his or her 401(k) account balance into a stream of monthly payments, taking into account life expectancy, withdrawal rates, investment returns and volatility, and inflation. The focus of this bulletin is on the first factor, life expectancy.

The challenge is that most people do not know the probabilities for how long they will live and, in our experience, most people under-estimate the time. This means that they are under-estimating how long their funds will need to last and, thus, the lump sum amount they need and the withdrawal rate they can safely use.

As explained by Craig Israelsen in an interview appearing in the July/August 2010 issue of the *Journal of Indexes*:

> "In 1930, it was anticipated based on mortality tables that a retiree might live three to seven years in retirement. Now, for women, it could be 30 to 35 years, maybe 25 to 30 years for men….That's a lot of money to have saved up to create an annuity stream to cover that many years of income."[2]

So workers today need to understand that, in setting aside funds for retirement, they should expect to live a long time after retirement. And that fact affects how much they should save. But how long is a long time, and what are the chances of that happening?

[1] *Behavioral Finance and the Post-Retirement Crisis,* prepared by Shlomo Benartzi, UCLA, and filed by Allianz as a response to the Department of the Treasury/Department of Labor Request for Information Regarding Lifetime Income Options for Participants and Beneficiaries in Retirement Plans (April 29, 2010).

[2] "The Summertime Survey," Journal of Indexes, July/August 2010, pg. 42.

Longevity at 65

To better understand this point, let's look at life expectancies and probabilities. The following table shows the probabilities of how long men, women and couples will live in retirement beginning at age 65. The percentages show the ages at which it can be expected that a specified percentage of people will survive to at least the stated age. For example, the 50% column shows the age that half of the population will live to, and 25% refers to the age that 25% will reach or pass. For joint life expectancies, the reference is to the age that at least one spouse will survive.

	Percentage of Population Expected to Live to the Indicated Age		
Retirement Age[3]	**50%**	**25%**	**10%**
65-year-old male	85.99	90.78	94.74
65-year-old female	87.97	93.17	97.64
65-year-old joint life expectancy	91.07	95.07	98.80

In other words, if a man retires at age 65, the probability is that his retirement savings will need to last about 21 years, to age 86, with a small possibility (about 10%) that his money will need to last 30 years or more, to age 95. Correspondingly, if a woman retires at age 65, the median (*i.e.*, 50% probability) life expectancy is 88, or 23 years. About 25% will live to 93 or older and almost 10% will survive until 98 or beyond.[4]

Put another way, retirees who assume they will not outlive the median life expectancy will be taking a significant risk (50%) that they will run out of money in retirement. Consider a woman who assumes she will live until the 25% probability. This means she "only" needs to fund a 28-year retirement. But under this assumption, she is effectively taking a 25% risk (which is a significant risk) that she will not live longer. (While we will not be discussing inflation in this article, it is important to note that it can have a devastating effect over a period that long; for example, over 24 years, a 3% inflation rate would cut the purchasing power of a level monthly income in half. As a result, any calculation of retirement income over long periods should consider the impact of inflation.)

Joint Life Probabilities

If the probable expectancies for single lives aren't dramatic enough, the probabilities for the joint lives of a 65-year-old couple are stunning. At 50%, at least one of the spouses will be alive at age 91 . . . 26 years after retirement. There is a 25% probability that one of the spouses will still be alive at 95 and a 10% probability at 99.

If a 25% risk is acceptable, a 65-year-old couple should plan on funding a 30-year retirement. But it is difficult to accumulate enough money to accomplish that goal, and it is equally difficult to properly invest and withdraw money during retirement in a manner such that the accumulated sums are not exhausted.

[3] Prepared by Actuarial Consultants, Inc. Calculations assume 2013 Male Non-Annuitant Mortality Rates and 2013 Female Non-Annuitant Mortality Rates, which are both a projection of the RP2000 rates. The tables in this article are carried to the second decimal place, but the text of the article rounds to the nearest whole number.

[4] To the extent that these probabilities differ from others that you have seen, it is likely attributable to the use of different mortality tables.

While these problems can be "solved" – at least partially – by more saving and better investing, they can also be managed by a lower standard of living in retirement, part-time work in retirement, or a delayed retirement.

Impact of Delaying Retirement

Since this article focuses on life expectancies, let's examine the impact of the last alternative – delayed retirement. For example:

	Percentage of Male Population Expected to Live to Indicated Age		
Retirement Age	**50%**	**25%**	**10%**
65-year-old male	85.99	90.78	94.74
67-year-old male	86.09	90.83	94.78
70-year-old male	86.26	90.93	94.84

As the table shows, as the retirement ages progress from 65 to 67 to 70, the male retiree who accepts a 25% risk factor needs to fund for 26 years, then 24 years, and then 21 years, respectively. Delaying retirement and extending his working years means that the period over which a man needs retirement income grows smaller, and there are additional years of contributions and investment earnings to increase the retirement nest egg.

Similarly, for a female retiree, the statistics are:

	Percentage of Female Population Expected to Live to Indicated Age		
Retirement Age	**50%**	**25%**	**10%**
65-year-old female	87.97	93.17	97.64
67-year-old female	88.07	93.23	97.68
70-year-old female	88.26	93.33	97.76

So, at a 25% risk level, the 65-year-old female retiree must fund a 28-year retirement, while the 70-year-old female retiree needs enough money for a 23-year retirement. By delaying her retirement to age 70, the female has five more years to fund for approximately five fewer years of needed savings.

Finally, for married couples, the statistics are:

	Percentage of Joint Population Expected to Live to Indicated Age		
Retirement Age	**50%**	**25%**	**10%**
65-year-old joint life expectancy	91.07	95.07	99.80
67-year-old joint life expectancy	91.14	95.11	98.83
70-year-old joint life expectancy	91.25	95.20	98.89

Accepting the 25% probability that one of the spouses will live beyond the stated age, the 65-year-old couple will need to fund a 30-year retirement; the 67-year-old couple a 28-year retirement; and the 70-year-old couple a 25-year retirement. It seems much more likely that saving over 45 years (that is, 25 to 70) for a 25-year retirement will be achieved, than saving over 40 years (*i.e.*, 25 to 65) for a 30-year retirement. In fact, the latter seems very difficult, absent a significant reduction in standard of living during retirement.

Addressing the Longevity Conundrum

Of course, Social Security retirement benefits will be part of the retirement income solution. Social Security is designed to address two of the key factors, life expectancy and inflation. Under Social Security, a worker receives an annuity for life – no matter how long he lives – that is inflation adjusted.

However, for 401(k) retirement savings, a retiree has to make choices. If a worker wants certainty, one alternative is to use his account balance to purchase an annuity. (For example, if a 65-year-old male retiree purchases a single life annuity of $40,000 per year for life, based on a 5% interest rate, the purchase price is about $625,000. This addresses the longevity factor, but leaves the retiree facing a diminished lifestyle if there is inflation. A similar annuity with a 2.5% cost-of-living adjustment factor would cost approximately $833,000.

On the other hand, if the retiree holds the assets in an IRA, he may invest the funds in an appropriate manner and may use a withdrawal rate intended to sustain the money for his lifetime. One commonly accepted approach is that, if the retiree uses a 4% initial withdrawal rate adjusted for inflation, there is a 90% probability that the money will last 30 years. For example, a $1,000,000 rollover IRA would pay out 4%, or $40,000, in the first year, and then the $40,000 would be increased annually for inflation. If the retiree dies sooner, he could have taken the money out faster (*i.e.,* spent more of his retirement savings each year); thus, by using the lower withdrawal rate, he will have foregone a higher standard of living. Conversely, if he lives longer and runs out of funds, his standard of living towards the end of his life will be less than desired.

Another alternative is a guaranteed minimum withdrawal benefit, or GMWB. The typical GMWB for a 65-year old will guarantee a lifetime withdrawal rate of 5% per year of the benefit base, which is the "high water mark," or highest value, of his account balance, in exchange for a small annual fee. The retiree continues to own the investments in his IRA, and withdraws at the 5% rate from those investments. (For example, an $800,000 rollover IRA would pay $40,000 in the first year.) If the investments are exhausted, the insurance company that issued the GMWB will continue the payments for life. (In some GMWB products, the benefit base increases in retirement as the investments reach new "high water" marks, which could provide some protection against inflation.)

Conclusion

The purpose of this article is to focus the benefits community, including plan sponsors and participants, on longevity and the impact of longevity on the accumulation and withdrawal of retirement savings. We believe that one likely outcome is that many workers will be retiring at later ages, which presents practical issues for employers and policy issues for the government. Finally, we believe that the insurance and investment communities need to create retirement income products for 401(k) participants and retirees that guarantee, or at least virtually assure, that the income will last for a lifetime.

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