Longevity risk aversion and optimal safe withdrawal rates

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"Spending Retirement on Planet Vulcan: The Impact of Longevity Risk Aversion on Optimal Withdrawal Rates", by Moshe A. Milevsky and Huaxiong Huang, Risk Management Issue 21, December 2011

As we have previously alluded to, there are a huge variety of different ways to think about retirement income strategy. Many of these have been discussed in a number of different journals over the past 30 years or so. With time, we hope to cover all of the valuable ones for you.

Milevsky & Huang's paper is very much founded in economic theory, so it may not be as readable as some of the others we've reviewed. However, there are still some important concepts in this paper, even for those who are not really into the idea of utility. The authors think about the funding of retirement income as a "utility maximisation" issue. This means they'd like to maximise the client's enjoyment over their retirement – even if the approach they come up with is difficult to use in practice!

Hence, this paper takes a different look at optimal spending rates in retirement, based not on asset class returns but rather on people's attitudes towards their life expectancy. The authors have created the concept of "longevity risk aversion" (LRA).

For example, clients with a high LRA will tend to be very conservative in their spending patterns in retirement. They want their money to last and therefore may spend less than their adviser tells them they can spend. This could be because they think they will live longer than average – they may be very healthy or longevity may run in their family – or they may just want to minimise their risk of running out of money. Those with a lower LRA may be happier to spend more initially and let the cards fall where they may later in life. Often, clients with lower LRAs will be those who have higher investment risk tolerances and are able to cope with more volatile portfolios.

One of the important differences with this paper compared to many others in the field that we have reviewed to date is that this one is dynamic. That is, it is forward looking and therefore adjusts optimal withdrawal rates in order to maximise utility for the client over their lifetime. It also uses a stochastic approach to longevity itself (ie. it applies the mortality tables rather than just assuming a 30-year time frame).

In order to look only at the effect of LRA and not portfolio returns on withdrawal rates, the authors assumed everyone had portfolios that were 100% invested in inflation-linked bonds, so returns varied from 1.5% per annum to 4% per annum after inflation. The study also assumed that they were stable at some level between these two points.

Interestingly, for a 65-year old client with an average LRA, a 4.6% withdrawal rate is optimal. This falls over time, to be about 4.5% at age 70, 3.6% at age 90 and 2.2% at age 100. For those with low LRA, an initial withdrawal rate of 6.3% will work to maximise utility. This, too, then falls with time.

The study then goes on to show that optimal withdrawal rates can be raised even further, regardless of age, if a pension or an annuity is available. Effectively, this works like a stop-loss position, so that investors can feel comfortable spending more of their nest egg.

While a little more esoteric than most safe withdrawal rate papers we've reviewed, it raises some some interesting and valuable points:

- Most importantly, because investors will have different attitudes about spending all of their allocated retirement income (this is effectively the LRA), optimal withdrawal rates for individuals with exactly the same nest egg and longevity can differ, quite markedly. The withdrawal rate that works for one investor may be a step too far for another.
- Further, the optimal withdrawal rate will fall with age, but can be increased by using annuities or having pensions available.

However, there is one comment that I think is necessary to make. The authors assume that it is logical for individuals to spend less as they grow older, so maximising utility means that consumption should be maximised in the early years of retirement. This might seem logical but, as pointed out by a number of commentators such as David Williams of My Longevity, it just may not be correct. End of life care is now a significant expense and can mean that the years after age (say) 85 can be the most expensive. Although overseas trips are probably fewer, nursing homes well and truly make up for this! So, although I understand that a superficial consideration of utility might lead people to think that consumption should fall with age, I'd argue it's just not correct.

Nonetheless, I do agree that there is logic in the LRA concept and the idea of increasing withdrawal rates if there is a pension or annuity available. Some people will be more cautious with spending in retirement than others and this should definitely be taken into account when planning for retirement.

Read "Spending Retirement on Planet Vulcan"