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A Needs-Based Approach to Post-Retirement Withdrawals from Savings

How much of my retirement savings should I be spending? This is the question that faces most retirees, and that has been traditionally answered by so-called "systematic withdrawal" plans.

There may, however, be alternative ways of answering this question that deserve serious consideration.

Assuming that a retiree does in fact possess retirement savings, and assuming as well that s/he needs to tap into those savings to cover living expenses, there are three main factors that determine whether the savings will prove sufficient:

1. **How much needs to be withdrawn, and how will that change over time?**
2. **How long will withdrawals need to go on?**
3. **How much money – both initial principal and future earnings – will be available for withdrawal?**

Both traditional and more recent approaches have tended to focus mainly on the third question. Typically, the idea is: given the way the funds are (or could be) invested, at a given level of withdrawal, how long will the funds last – and will they last long enough? The more sophisticated, recent models use Monte Carlo analysis and other clever mathematics to answer this question in terms of probabilities: allowing for uncertainties concerning investment performance, there is a reduced level of confidence that the funds will last, the longer one lives. This makes sense, and it is good as far as it goes.

But what would happen if we focused on the other two questions, instead?
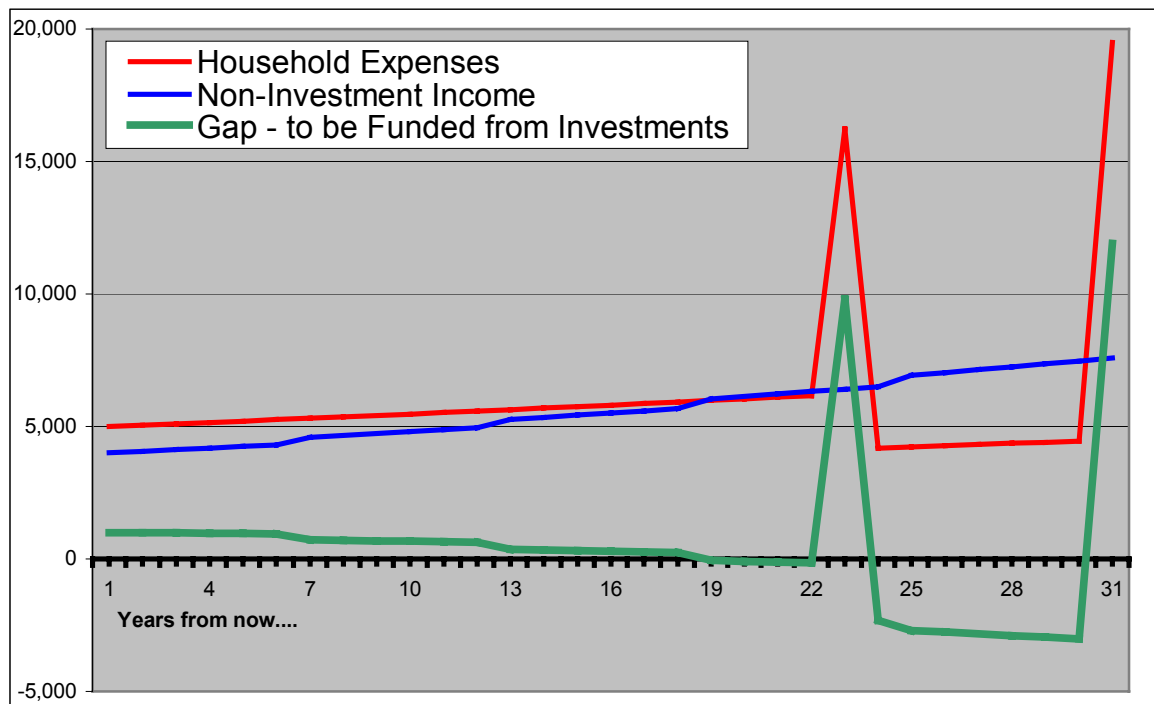
Focus on Needs

People's financial needs change over time. What's more, these needs change in somewhat predictable patterns over their lifetimes.

For retired people, income (from sources *other* than investments) usually remains fairly steady. Yet it is generally not "fixed income" in any literal sense of the term. Social Security is inflation-indexed at a rate that exceeds the inflation rate on items that older people generally spend their money on. Pension plans also often have cost-of-living adjustments, either built-in, or as occa-

sional adjustments to benefits. A family receiving both types of income might experience an income pattern similar to that illustrated by the **blue line** in the chart below.

Expenses also tend to rise over time. But they do not rise as fast as inflation, and very often do not rise as fast as income. As people age, they spend less (in real dollar terms). By the time they are in their eighties, they have most of the "stuff" that they need, their energy level tends to decline, and they usually are becoming more infirm. So they travel less, they spend less on entertainment, and they buy less. These changes usually more than offset the increased cost of medical care (which is often largely covered by Medicare or other insurance) and drugs. Furthermore, if we are talking about a two-adult household, expenses usually decline significantly after the first death. On the other hand, expenses usually spike at each death, due to medical expenses related to final illness, funeral and burial costs. The **red line** on the following chart illustrates these effects.

The chart is not intended to reflect a statistical average, but rather a common pattern. What does this pattern tell us?

1. The gap between normal expenses and income (**green line**) tends to lessen over time. Furthermore, since it is the difference between two fairly large and changing sets of numbers, the gap can be quite volatile, and can change in percentage terms at a much faster rate than either income or expenses change separately.

2. The gap can close entirely. In a favorable case (e.g., where a pension does not reduce at the first death), an income shortfall that started out fairly large can even reverse into a significant surplus.

3. Allowance needs to be made for extra expenses at death, even though these cannot be predicted with any great precision. Even if the income shortfall has disappeared, it can return with a vengeance during these occasions.

Perhaps more significantly, this pattern tells us that an analysis of retirement income that assumes a flat level of future withdrawals is probably missing the boat by quite a bit. And ironically, those who try to be more sophisticated by projecting an inflating need for withdrawals are probably missing the boat by an even greater margin.

Focus on Lifespan

One lesson those of us in the retirement planning game seem to have finally figured out is that it makes no sense to create a plan that lasts through someone's projected life expectancy. To do so means that, even if the financial analysis is accurate, 50% of the people will run out of money before they die.

The easiest alternative is to assume a longer life for everyone – at least for everyone who is not already terminally ill. It would probably be foolish to plan for the longest possible human life-span (the current record is 122 years). For most people, it is probably sufficient if we provide a 90-99% certainty that they won't outlive their money. In terms of mortality risk alone, this is a relatively consistent value, although there are some important variables.

The longer you live, the longer your normal life expectancy extends, because, at a 50% probability of dying by a certain age, you have already survived that many more years in which some of your age-mates have died. At a 90% probability of dying by a certain age, there is still some life expectancy increase the longer you live, but the increase is more modest. According to a chart prepared in the 1990s by a major insurance company, an average female aged 65 has a 90% chance of death by her 95th year, while an 85-year-old woman has a 90% chance of death by her 98th year – only a three-year increase. At the 95% probability level, the comparable ages are 99 and 101; at 99% probability, the ages are 103 and 105.

So you can achieve a pretty high comfort level in planning for people's retirement, without performing sophisticated analysis of life expectancies, if you can assure them of adequate income into their late nineties.

However, there are enough exceptions that a more sophisticated approach to life expectancy is probably justified. While the range of ages for women in general, as indicated above, is 95 to 105, for men who do not smoke the range is 91 to 103, and for men who do smoke it is 88 to 102. This means that the total range is 88 to 105, which is quite large. It would be even larger if we started looking at people who are unhealthy.

Mortality therefore makes a big difference. A $100,000 fund earning 5% could be amortized from age 65 to age 88 at $7,414 a year, but to make it last until age 98 the annual withdrawals would have to be about 16% lower. The effect is more severe at higher rates of return.

It is very helpful, therefore, to understand the mortality characteristics of the retirees if we are helping them plan their retirement income.

Focus on Investment Return

W e all know that rates of return significantly affect a fund's ability to support income. But some of our instincts can mislead us.

The "miracle of compound interest" – in reverse

Most of us are familiar with "the miracle of compound interest" as it affects savings. Over long periods of time, even a modest change in rate of return can have a huge impact on the final total.

In the accumulation phase, the balance builds up, so that the rate of return has an accelerating impact. In the withdrawal phase, though, the balance is declining, so that the rate of return has a decelerating impact. What really matters most is the rate of return a retiree gets in the early years. As withdrawals occur and the account dwindles, rate of return, unless it is truly extreme, becomes almost irrelevant.

In our earlier example of a $100,000 fund earning 5%, in which the annual withdrawal dropped 16% when the *lifespan* assumption was increased by 10 years, the annual withdrawal drops a little over 9% if the *rate of return* is reduced by one-fifth (i.e., from 5% to 4%). This is still significant, but it is not overwhelming, and it suggests that mortality is at least as important as rate of return, and quite likely more so.

Controlling risk vs. controlling rate of return

There is a more subtle reason why rate of return is not the most important variable: while exercising a lot of control over the amount of investment risk they take, retirees have very modest control over rate of return. Here's why:

The typical retiree invests pretty conservatively. Certificates of deposit and AAA-rated bonds are popular with this demographic group. Let's say that such investments are going to yield a fairly steady and safe return of about 3% above inflation (on average).

Now let's suppose that Mrs. B, a retiree, wants to make more than that, so she puts some (not all) of her money into a moderately aggressive equity fund. On average, the extra risk will result in some extra return, and once in a while such a gamble will pay off nicely. On the other hand, sometimes there will be a lower rate of return, or even a significant loss of capital. Mrs. B has given herself the opportunity to get a higher rate of return, but she has actually reduced her control over the rate of return.

So her choices are to stick with a relatively certain and relatively modest return that is set by the marketplace, not by her, and that remains relatively constant over time when measured in real dollars, or she can yield some portion of this certainty and roll the dice. In neither scenario does she control the rate of return. In the first one she may know what she will get but that is whatever the market offers; in the second, she takes what the Goddess of Fortune gives her.

Still, experience teaches us that if Mrs. B goes with the Goddess, she is likely to do somewhat better. That's one piece of good news for her. The other is that it *might* not matter if she does badly, because if she dies in the next five or ten years (of which there is a reasonable chance), any adverse investment results will probably not have time to impoverish her. However, if she lives longer than that, which is the more likely case, and the preferable one, she simply cannot afford adverse results in the next few years. If she invests in a volatile and potentially high-return investment that takes a big dip in the first couple of years, the fund she invested in might recover,

but she won't. She will be withdrawing funds during those first, bad years, and those withdrawn funds will never bounce back. Furthermore, she will have to liquidate many extra shares during the dip, because the value of each share has declined. This is a reverse "dollar cost averaging" effect, and for retired people even a subsequent bull market may not enable them to recover from it.

Mrs. B. cannot afford to take as much risk as the non-retired investor. The normal risk/return relationship is biased against her, relative to other investors.

To the extent that her options are bounded by considerations of prudence, therefore, she has considerably less control over her rate of return than younger investors have. Unless she takes unwise risks, she is just not going to do a whole lot better than that 3% real rate of return.

Three Kinds of Models

T he three factors we have examined have different levels of significance:

1. Changes in the level of withdrawals needed over time appear to be most significant. Although the hypothetical sample situation we looked at showed the need for withdrawals actually disappearing over time (except during times of extraordinary high expenses), this would not occur if the initial gap between income and expense were larger. It makes a big difference whether withdrawals need to occur for a limited period of time, or for an indefinitely long period of time. In either case, changes in the gap between income and expense, changes that can be very dramatic, must be taken into account.

2. Mortality considerations appear to be the next highest in importance. Healthy non-smoking couples need a long time horizon for withdrawals. Unhealthy, chain-smoking, single males need a far shorter withdrawal period.

3. Rate of return on investments is significant, but is probably the least important of the three variables, because in reality retirees who must rely on their savings to supplement their income have little control, within the limits of normal prudence, over the rate of return their investments will earn.

The relative significance of these three factors might seem counterintuitive to those of us accustomed to dealing with people in the accumulation (pre-retirement) phase. Pre-retirement, investment return is the most important variable, while mortality and withdrawals are often not even on the radar screen. But as many of us are learning as we deal more with the retiree group, we need to play by different, and sometimes reverse, rules after people retire.

Investment-based models

Among existing models for evaluating retirement withdrawals, the better ones ask this question: given the volatility of investment returns, how long can a given level of retirement withdrawal last? The clever models show that because of investment uncertainties, the answer is not a single span of time, but a range of time periods, with different levels of probability. This is useful information.

The sophisticated models also address mortality, at least indirectly. Although they generally do not specify the likelihood of someone's living to a certain age, they do show how results change the longer one lives. An astute consumer can make the translation.

The downfall of these models is that they assume a level (or perhaps inflation-adjusted) pattern of withdrawals. Such an assumption is completely inaccurate for most retired people. While great computer power and technical virtuosity is expended in trying to deal with the least important variable, the most important factor is neglected.

A simple needs-based model

We at Still River devised a simple needs-based model that starts by asking people what their current income and expenses are. By formula (or by using additional information input by the user), we project changes to a fixed age (in the 97-100 range). Then we test what annual rate of return would be needed in order to fill the projected income gap. If the real (after inflation) rate of return is 3% or below, we consider the current withdrawal amount to be sustainable; if the required return is higher than 3%, it may not be sustainable. We also show the number of years the fund would last under a range of real rates of return, from 0% to 7%, so the retiree can quickly see how much impact the rate of return would have.

This model has the virtue of great simplicity. It is easy to use and easy to understand. But it still gives an answer in terms of rate of return, and as we have seen, this is a factor over which the retiree has little control. So we kept working.

A more sophisticated needs-based model

We have now come up with what we think is a better approach, though it is more complex and requires a little more input. This model recognizes that mortality is a variable factor that has a significant impact. So it holds steady the least important variable (investment return) and analyzes different mortality assumptions. It performs the same kind of withdrawal needs analysis as the simpler model, but it takes into account that deaths may occur at different times. This mortality modeling is based on actuarial calculations using age, sex, smoking status, and health information.

With this approach, we ask the question a different way: at any given standard of living (as defined by the amount of money initially being withdrawn), what are the odds that the money will last for the lifetime of the retiree(s)? They may die sooner, or they may die later, and the pattern of expenses over time will vary depending on when the deaths occur.

What the retiree sees is a chart showing how the probability of success, defined as not outliving one's savings, goes up as the standard of living (initial withdrawal level) goes down. If the desired withdrawal level shows a low likelihood of success, it is immediately apparent what alternative level would suffice.

One big advantage of this approach is that it gives a direct answer to the question the retiree really is asking: how much should I be withdrawing from my account this year?

The other big advantage of this model is that it does not encourage the retiree to deal with inadequate savings by going after more aggressive investment returns – a practice that has a high percentage of individual failure. Instead, it encourages retirees to resolve their problems by closing the gap between what they can afford and what they spend – and there are lots of ways they can do this.

Is this the ultimate model?

Of course not….

A model that looks at all factors (changing withdrawal needs, mortality risks, and investment risks) simultaneously would be better, in theory. It is certainly possible to build such a model. However, the extra variables probably do no more than add complexities that make the model harder to use and to understand – without having much impact on the results!

We invite you to play with our current models, and to let us know what you like and don't like about them. (You can download them for free from our website www.stillriverretire.com; select the RetirementWorks® download, plus the associated PDF file that documents the "Retirement Income Amount" calculator.)

Meanwhile, we are continuing to focus on this problem. In coming months, we intend to address two related questions: (1) how much (if any) of a retiree's assets should be annuitized to increase the cash payout and to guarantee lifetime withdrawals? and (2) assuming that withdrawals from investments and savings need to be taken, from which specific assets should these come?

Wise decisions for retirees can be difficult to make. Their resources are limited, and their options with regard to their assets (including opportunities to add to those assets) are quite limited as well. Furthermore, decisions inter-relate. A decision that increases taxable income can trigger taxation of Social Security benefits. A decision to annuitize funds reduces options to use those funds later for extraordinary nursing or medical care expenses. Moving to a smaller home in the state where a son or daughter lives may result in lower expenses but also in extra taxation of pension plan benefits.

Those of us in the financial field need to help older people make the decisions that will allow them to live the kind of life they want, while also preparing them financially for the medical and lifespan uncertainties that they face. We believe the key to doing this successfully lies in better understanding how retiree income and expenses, and the many decisions that influence them, affect the need for retirement withdrawals.

Still River Retirement Planning Software, Inc., provides both web-based and desktop software offering specialized calculations related to retirement plans and retirement planning.

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