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Gordon Pye was a finance professor at UC Berkeley in the 1970s. Then he became Chief Economist at a bank in New York City. After ten years or so, the bank was acquired by another bank that already had a Chief Economist. So Professor Pye took early retirement and began to contemplate the appropriate rule for retirement spending. The state of the art in financial planning is the “4% Rule” that says you can 4% of your portfolio in the first year of retirement and then maintain that real level of spending throughout retirement. The author of this rule, William Bengen, calculated that it was highly likely, based on historical experience, that this rule would be sustainable over a 30 year retirement period (that is, it was highly likely that the portfolio would not be completely dissipated).

Of course, Pye’s problem was a little different in that he was retiring early. Also, like Mr. Bengen, Professor Pye had significant analytical skills and he applied them to this problem. What he discovered is what he calls the Retrenchment Rule¹. The basic idea is to identify the optimal level of spending in retirement, avoiding as much as possible painful reductions in spending either at retirement or thereafter. Pye refers to such reductions in spending as “retrenchment.”

The Rule

The first step is to estimate portfolio withdrawal amounts that preserve pre-retirement living standards. Call this the “Desired Withdrawal Amount” (DWA). The second step is to select a discount rate, called the “Retrenchment Discount Rate” (RDR) that provides the “optimal retrenchment.” Pye’s working assumption is that most people will be faced with retrenchment in retirement. The key to optimal retrenchment is to avoid a sharp and painful drop in living standards, particularly at the retirement date. Pye’s recommendation is to select an RDR in the range 6-8%.

The second step is to determine annual spending as the minimum of the DWA and a fixed annuity calculation based on your current wealth, your remaining lifetime and the RDR. That is, the annuity calculation is to find the constant annual payment that can be made over your remaining lifetime given the discount rate and current portfolio (using your financial calculator, N is your remaining lifetime (110 minus current age), I is the RDR, PV is your current portfolio, then push PMT).

Finally, at the start of each year as you proceed through retirement, you re-compute the fixed annuity given the RDR, the remaining number of years until age 110, and the current portfolio amount, which will be dissipated by the prior year withdrawal but expanded by investment returns over the course of the year. Your spending for the year is the minimum of last year’s spending and the fixed annuity calculation.

Whew!

After exhaustive simulations, using an assumed probability model for investment returns, Pye concludes that the Retrenchment rule, using an RDR of 6% or 8%, offers the optimum retirement spending plan. It is much more generous in the early years than the Bengen plan. For example, using an RDR of 8% implies a portfolio withdrawal rate of 7.5% in the first year, nearly double the Bengen 4% rule. However, the cost of this is that down the road the probability is high that there will be further retrenchment. This might be prevented by positive investment returns but even if not, Pye believes retrenchment is much more easily accommodated if it takes place gradually over many years rather than immediately upon retirement.

Assessment of the Retrenchment Rule

This is good advice for those people who have not saved enough to avoid the strong likelihood of significant retrenchment in spending during the retirement years. But I think a better strategy is to not get yourself into a situation where you face serious retrenchment. That means saving more and spending less in the working years, and careful management of your investment portfolio.

A simple way to accomplish this is to keep spending as a share of wealth (where wealth includes the value of human capital) no greater than the after-tax real rate of return. How do you do this? I'm glad you asked. The answer is the Sustainable Spending Rule. It applies to equally well to people in retirement and to people that are currently working.

The Sustainable Spending Rule (SSR)

Step 1: Estimate the after-tax real rate of return, δ

Step 2: Measure total wealth, W , including financial capital and human capital

Step 3: Set consumption spending = $\delta * W$

The key to the SSR is the choice of the rate of return δ . Unlike Pye's RDR which is selected in order to obtain a desirable retrenchment path, the SSR δ is a projected rate of return. To really be sustainable, this projection should be conservative or at least realistic, not optimistic. In my view, in today's environment 3% is the highest after-tax real return that is reasonable (actually, my preferred implementation of the rule, the Speakes Sustainable Spending Rule (SSSR), uses an assumed rate of return equal to 1%).

By following the SSR (with a reasonable return assumption) you will have no need to reduce your consumption spending in retirement, you will have a cushion to handle unexpected events, and you will probably be able leave a bequest for your heirs to put to some productive use.

Example

Take the median household, with \$50,000 in after-tax income, 40 year-old breadwinner, and \$150,000 of financial net worth including home equity. Assuming an after-tax real return of 3%, total wealth is approximately \$1.25 million and the SSR calls for consumption spending of \$37,500. This is 75% of disposable income leaving a savings rate of 25%.

Naturally, not all households will follow the SSR (and even fewer would follow the SSSR). But suppose they did, what would be the macro consequences? First, the overall savings rate would rise a lot, by approximately five times (that is, personal consumption spending as a fraction of disposable income would increase from the current 5% level to something closer to 25%). Consumption (and imports) would decline and investment would increase. Capital goods industries would boom and consumer goods industries would slow down, at least for a while. Over time, the capital stock would rise rapidly and the rate of productivity growth would increase.

Why won't most people follow this advice? I think there are several answers, but the key ones are impatience and over-confidence. People are impatient and this leads them to consume almost all of their disposable income. Also, people are inherently optimistic and prone to over-estimate the likely return on investment. For example, if our median household had assumed a 5% after-tax real return, then total wealth would have been estimated at

\$980,000 and 5% of wealth means consumption of \$49,000 and a savings rate of 2%. This is pretty close to the norm. In effect, everyone is following an SSR-like rule, but most people are over-estimating the rate of return.

¹Gordon Pye, "The Retrenchment Rule," GPB Press, 2012.