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## Retirement Income Budgets: An Actuarial Approach

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By No Author     *Fri, Jul 24, 2020*

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*How much annual or monthly income will your clients have in retirement? The American Academy of Actuaries offers three methods for estimating that amount.*

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A retirement income budget can be defined as the amount of money that one can generate on a gross (pre-tax) basis from all potential sources. A *spending* budget in retirement is important, but an *income* budget should come first. It sets the limits of the spending budget.

Retirees can generate income, for instance, from Social Security, a company pension, an insured annuity, investments (including earnings and principal), home equity, as well as other sources. Individual sources of income could be constant, increasing, or decreasing. The combined income should ideally be designed to last for the lifetime needs and to meet the goals of the individual or couple.

The challenge stems from the complexity of addressing individual uncertainties regarding life expectancy, financial markets, and events that may require an unknown financial expenditure such as home repair, a real estate assessment, or long-term care. (To help predict life expectancies, the American Academy of Actuaries offers an Actuaries [Longevity Illustrator](#).)

Among the actuarial principles that apply to retirement income budgeting are periodic reevaluation and risk pooling (specifically longevity pooling). Without longevity pooling, an individual might need to plan to spend a fixed amount of assets over the longest plausible lifetime, resulting in less income each year.

Longevity pooling can provide more each year by allowing the individual to plan around the average longevity of many similarly aged retirees. It shares a pool of assets that provides lifetime income to all participants regardless of how long they live. Social Security, defined benefit pension plans, and lifetime annuities sold by insurance companies are examples of this practice.

### Overview

This report describes three general approaches for drawing down personal savings and assets that are not part of a longevity risk pool. All three approaches could include either or both tax-qualified and non-tax-qualified funds, thereby adding tax consequences as a

consideration.

### **Required Minimum Distribution Approach**

The required minimum distribution (RMD) approach entails an annual redetermination of the amount to withdraw, based on an approximation of life expectancy and the account balances at the end of the prior year.

The approach is simply to draw down assets (from qualified and non-qualified sources) at the rate specified for RMD, either starting at age 72 or before. (That is, the RMD approach works even if the individual has not reached the IRS' "required beginning date.")

This approach improves on other simple approaches such as the "X% Rule" (e.g., 4% rule), which do not adjust for remaining life expectancy. With other simple approaches, a market decline could mean that the income doesn't last for the individual's entire lifetime, doesn't generate enough income to maintain the retiree's standard of living, or results in a larger-than-desired bequest.

**Pros.** The calculation is relatively simple and can be done by the retiree with the published values in the [IRS tables](#). The annual drawdowns are based on the life expectancy tables, so the income will continue throughout a lifetime while automatically adjusting for a reducing life expectancy. This method doesn't require investment return assumptions because actual returns are reflected in the assets supporting the next year's spending level.

**Cons.** The life expectancy used is "one size fits all." It is not tailored to an individual's situation. It is based on the lives of the retiree and a beneficiary (with a 10-year-younger age for the beneficiary), and thus will understate the amount of income that can be withdrawn for only a single life expectancy.

It neglects to recognize health status, so a person in poor health might want to withdraw funds more rapidly. Income will vary from year to year. The greater the investment allocation to equities, the larger the annual swings in income could be. There is no formal inflation adjustment, although, absent investment volatility, income often will rise in earlier years and fall much later in retirement. In addition, this approach does not coordinate income from other sources with the income generated by the investments.

### **Deterministic Scenario Approach**

The deterministic scenario approach requires assumptions such as life expectancy, the

overall investment return, and possibly inflation. The life expectancy is calculated from a mortality table and is based on current age and gender. This is then often adjusted to reflect health status, conservatism (addition of several years to life expectancy), and the availability of other reliable sources of income.

The investment-return assumption can range from a conservative rate to an actual expected return based on the portfolio's asset allocation and capital market expectations. The calculations can be done with either set of investment return assumptions to provide a range of outcomes.

Then, based on the assumed life expectancy, expected investment return, and the amount of retirement savings, an expected income level is determined. The model can also be adjusted for annual increases in income, modifications to desired income at later stages of retirement, and market volatility. It can also encompass other sources of income.

There is the option to consider the impact of longevity pooling by measuring the results of alternative approaches that take into account the purchase of fixed income immediate annuities or delayed Social Security.

This approach should be revisited annually to adjust for past investment income experience, actual expenditures, changes in the planned income pattern, or modified mortality, investment, and inflation assumptions.

**Pros.** Calculators for this approach can be found on the Internet, provided by investment managers, brokers, and financial bloggers. Performing calculations with several sets of assumptions, particularly those relating to investment income, life expectancy, and inflation, can reveal the range of affordable lifetime income possibilities.

The method provides a specific amount that can be available for spending, which makes it easy to put into action; however, the calculations must be periodically updated to reflect actual investment returns.

**Cons.** Care must be taken in the choice of assumptions. Use of unrealistic assumptions can lead to either overstating or understating an affordable lifetime income level. Modeling can be more complex when considering non-investment-portfolio sources of income.

#### **Probabilistic Scenario Approach**

Like the deterministic scenario approach, the probabilistic scenario approach is based on a

model with certain assumptions. Instead of relying on a single life expectancy or investment return assumptions, it uses stochastic modeling to generate thousands of simulations based on a range of possible experience.

A planning strategy generally comprises an annual income goal, which can be flat or varying, and includes all sources of income. Within the simulations, rates of return are generated for each year based on Monte Carlo techniques. Rates of return generated are based upon both an expected return and volatility. Simulations recognize age-based mortality rates, or incorporate a randomly generated age at death that is based on mortality tables that reflect sex, health, and possibly other factors.

The thousands of results from the simulations can then be categorized in various ways to determine the probability of certain outcomes, such as the expected range of the level of income or the range of bequests. Alternative planning strategies can be considered. This approach should be revisited periodically. Longevity pooling is considered if annuities or the timing of Social Security are taken into account.

**Pros.** This method produces thousands of potential outcomes for each planning strategy that's analyzed. Those outcomes can be categorized to assign probability of occurrence. For example, a given strategy might show that it would satisfy the retiree's lifetime income goal 95% of the time. Competing strategies can be analyzed to determine their relative attractiveness. The model must be kept up to date with periodic updates.

**Cons.** The results require the ability to interpret a percentile range or a chance of failure. The results are only as good as the assumptions. Selection of assumptions regarding expected returns, expected variances in those returns, and covariances in returns among asset classes can be complex. The required effort may discourage periodic reevaluation and readjustment.

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