

Executive Summary: RetireGuide™ - Your Better Retirement Plan

- RetireGuide provides guidance to help you (and your partner) stay on track and achieve your retirement goal.
- We help you figure out how much you can spend in retirement (i.e., after-tax income) and what blend of accounts you are eligible to use.
- We tell you how much you need to save, and even which accounts to save in (e.g., employer plan, traditional vs. Roth IRA, taxable account, etc.)

I. Estimating Retirement Spending

How much you want to spend during retirement is the most important driver of your retirement plan, but it is often the hardest to comprehend or plan for. We focus on how much you'll need to spend (or consume), rather than pre-tax income, because pre-tax income that is subsequently taxed does not maintain your lifestyle.

Forecasting Your Circumstances at Retirement

Several factors affect your expected retirement income needs and help us estimate spending at the time you retire.

Real Growth of Earned Income

How much you spend is strongly related to how much you earn, but your income could change during your life for multiple reasons, including raises and inflation. We model real growth of your annual pre-tax income as the first step to estimating consumption at retirement.

We use the current pre-tax income provided by you, and then by default we estimate that you will have 1% per year *real increase in annual income* (that is, 1% raises in addition to inflation). You can modify this if you'd like.

Cost of Living for Your Location

While it's common to retire where you lived during your working years, your retirement location may be different. By default, we assume you'll continue to live where you do now (using the ZIP code you specified when opening your account), but if you're expecting to move somewhere less or more expensive, you can specify a ZIP code to help you estimate that new cost of living.¹ It can be interesting to learn how much less you need to save if you move somewhere less expensive.

Pre-Retirement Spending

It can be difficult to predict exact expenses in retirement. We assume that, during retirement, you'll want to maintain the standard of living you had just before you retired, which means consuming the same amount (adjusted for locational expenses). Although you may no longer have a mortgage or be supporting children, those expenses are typically replaced by new activities or hobbies, as well as travel and medical expenses. While you are saving, your finances can be described simplistically as:

$$\text{Net Income} = (\text{Gross Income} - \text{Pre-Tax savings}) * (1 - \text{Average Tax Rate})$$

$$\text{Spending} = \text{Net Income} - \text{Post-Tax Savings}$$

However, we need a way to estimate how much of your income you save. It's a general rule (both empirical and theoretical²) that at low income levels you choose to consume a higher proportion (all) of your income, but that as net income rises that proportion falls. Estimates of the wealthy find that they often consume less than half of their net income. That relationship is modeled by our Average Propensity to Consume (APC).

$$\text{Consumption Ratio} = \text{APC}(\text{Net Income})$$

$$\text{Spending} = \text{Net Income} * \text{Consumption Ratio}$$

Our goal is to deliver the same amount of spending in retirement as just before retirement. Critically, once you're retired, you're no longer saving, so you don't need as much net income to support the same level of consumption. Your APC goes to 1.

$$\text{Net Income} = (\text{Gross Income}) * (1 - \text{Average Retirement Tax Rate})$$

$$\text{Consumption} = \text{Net Income} * 1$$

¹ Cost of living sourced from U.S. Census data:

<https://www.census.gov/compendia/statab/2012/tables/12s0728.pdf>

ZIP code data under license from <http://www.unitedstateszipcodes.org>

All U.S. ZIP codes were mapped to the closest ZIP code with data available.

² Johnson DS, Parker JA, Souleles NS. 2006. Household expenditure and the income tax rebates of 2001. Am. Econ. Rev. 96:1589–610

As a result, you enter a positive circle—you need less gross income for the same amount of consumption because:

1. You aren't saving pre-tax.
2. As you take less gross income, your average tax rate falls, as well.

$$\text{Net Income} = (\text{Gross Income}) * (1 - \text{Average Retirement Tax Rate})$$

This model allows us to model how much gross income (pre-tax) you need in retirement to actually experience the same living standards as you had pre-retirement.

If you'd prefer to specify your spending needs based on your own estimates, you can override our calculation.

II. Determining Total Savings Needed

Once you've decided how much you want to spend in retirement, we can figure out the total amount you'll need to have saved on your desired retirement date to meet that income level, after taxes.

Time Horizon

The length of your retirement dramatically affects how much total spending you'll do and, therefore, the total amount of savings you need. We ask your desired retirement age, and we default your life expectancy to 90 years old, which determines how many years you'll be spending for. You can adjust both of these values if you'd like.

The Full Income Picture

Income in retirement can come from multiple sources. We need to understand all sources before we can figure out how large your nest egg needs to be. The main sources for most people are Social Security and investment income or withdrawals. However, some people may have additional sources such as rental property or a pension.

Social Security Based on Retirement Age

Social Security is the most widespread source of income in retirement. Its benefits vary by both your level of lifetime earnings and when you decide to start taking them.

We estimate Social Security according to the federal government's [SSA benefit rules](#). Inputs are current income (for you and your spouse separately) and assumptions for growth rate, inflation, and the age you (and your spouse, if applicable) choose to retire. Generally, we assume you start benefits in the year you retire.

Additionally, we apply the following rules:

- Because you can't take Social Security before age 62, if you choose a retirement date before this we'll assume you take withdrawals from your portfolio or other sources to meet your income needs until Social Security starts at 62.
- If you retire from age 62 to 70, we assume you start Social Security benefits at the retirement age you choose, unless you specify a different age.
- After 70, Social Security benefits don't increase, but they are adjusted for inflation. Benefits will be used for your income starting on your retirement date, even though you would start them at 70.
- If you specify a retirement age for your spouse that's earlier than your retirement age, we assume you simply spend those benefits rather than investing them, so they don't affect your plan or portfolio growth.

Social Security benefits are subject to an annual cost of living adjustment (COLA) that varies year-to-year. We assume COLAs are constant in retirement at the assumed level of inflation, which you can override.

If you prefer to use your personal benefit estimates from the Social Security Administration (SSA), you can upload your Social Security data file (downloaded from [SSA.gov](https://www.ssa.gov)) into your personal RetireGuide plan using Edit Assumptions in the "About your income" section. You can customize the benefit start age even if using the upload method. Be aware that Social Security's estimates don't account for income growth, so Betterment's own model estimates based on your current income and assumed wage growth may be better if you are younger than age 50.

Finally, given the projected deficits in the [Social Security trust funds](#), some customers prefer to plan for retirement assuming partial or zero Social Security benefits. According to the Social Security Administration, zero benefits are not likely, but it currently predicts that younger workers may only receive three-fourths of benefits because of the deficit. As a result, we default to three-fourths of calculated benefits unless you change this in the assumptions.

Other Income Sources

Often retirees have income from other sources, such as rental properties, pensions, or annuities. You can include these in your plan in "Edit Assumptions." We assume they begin at your retirement age, are inflation adjusted, and end upon your specified date of death (or your spouse's, whichever is later).

Investment Income

If Social Security and other sources of income are not enough to meet your spending needs, the gap is filled by your savings and investments. We assume you will need to make portfolio withdrawals (including investment income) each year to make up this gap, making adjustments for taxes and planning for the variability of markets. This calculation will be discussed later in this document.

Ensuring You'll Be Okay in the Worst-Case Scenario

Not having enough savings in retirement can be pretty dire, and markets are unpredictable. Betterment employs a very conservative market performance expectation in retirement (lowest 1% of expected returns, or a 99% chance of success) to estimate how much you'll need to have saved when you retire.

Accounting for Taxes on Withdrawals

Accounting for future taxes is complex and impossible to do exactly because we cannot predict the outcome of your investment plan, your future personal situation, or tax legislation. However, ignoring taxes completely wouldn't be accurate either, so we attempt to adjust for them as best as possible.

We estimate your future tax rate based on your specified in-retirement spending (income), your state of residence, and standard deductions for your marital status. Your withdrawals will come from a mix of the growth of the accounts you hold as of today (at Betterment or not), and your future investments until your retirement. We handle each part of your savings differently based on what we know.

Current Retirement Balances

Because we know your current retirement account balances and types, we use these balances to make projections and adjust for taxes using your current and in-retirement tax rates.

- For existing traditional IRAs and employer plans, we assume you'll pay no taxes while saving, and you'll pay your average in-retirement rate on the full amount of each withdrawal.
- For existing taxable accounts, taxes are paid in two ways: (1) As you save, you pay tax on dividends, so we reduce your projected returns by 1% to account for that payment. (2) When you withdraw, we assume you pay tax at the long-term capital gains rate that is associated with your tax rate.
- For existing Roth accounts, we assume no taxes are paid while saving or withdrawing, because you have already paid the taxes when contributing.

All projections are done conservatively by assuming a cumulative market return, which is roughly a 4 on a scale from 0 to 10 (where 0 is worst and 10 is best).

Future Retirement Balances

Because we aren't sure in which accounts you'll save going forward, we conservatively assume all withdrawals from those savings are taxed at your average in-retirement tax rate. This may overstate your tax rate (make your tax higher than it is) in certain situations, such as the case of all savings being in a Roth IRA, which is not taxed on withdrawal. Given the choice, we would rather be conservative here.



Using this tax rate, we estimate the total tax you will pay on your withdrawals of these balances and add that to the amount you need to have saved when you retire. This is to make sure you have enough saved for all your taxes in retirement, too. We accomplish this with a simple formula:

(Total Balance Needed, Including Taxes) = (Total Balance Without Tax) / (1 - Average Tax Rate)

III. Calculating Required Savings

Once we know your target balance, we need to decide how much you should save every month or year to reach that total balance. Savings required depends on time until your retirement age, the level of risk you're willing to bear, and how much certainty you need to hit that balance.

We'll give you advice about the appropriate risk level, which is based on the time until retirement, but allow you to modify it as you see fit.

You can also specify how certain you want to be to hit your goal. We start you with a 60% probability of hitting your goal. This is more conservative than most calculators, which typically assume an expected average return (or, effectively, a 50% chance). You can also choose 80% (more certain) or 40% (less certain), which will affect how much you need to save.

Shorter-time horizons, less risk, and greater certainty will all lead to higher savings amounts.

IV. Prioritizing Retirement Account Savings

Prioritizing which accounts you save into depends on your specific tax situation. Betterment is not a tax advisor and does not cover all potential accounts, nor do we have your tax return and all details about your situation. Betterment's recommendation only incorporates the external accounts that you have synced. The recommendation is a guideline only and should not be considered personal tax advice. Contact a qualified tax advisor to understand your personal situation.

Our "How To Save" retirement account suggestions are based on your eligibility according to IRS rules, which incorporates your income, your marital status, and your eligibility for employer plans based on what you sync or manually add as External Accounts. If you do not add existing plans, we assume you do not have them available. By default, we assume that your Modified Adjusted Gross Income (MAGI) for IRA limit calculations is equal to the pre-tax income you provide in RetireGuide. You can adjust your Adjusted Gross Income (AGI) and add "above-the-line" deductions you take on page one of Form 1040, such as IRA deductions, student loan interest, and others. See IRS Pub 590a for details on what makes up MAGI for IRA qualification limits. You can enter these values under "Edit Assumptions > About your taxes" in

RetireGuide. You should keep these values up to date each year to get the most accurate advice. If these values change during the year but you do not update them, the advice may not be applicable to your changed circumstances. Contact a qualified tax advisor if you have questions.

Our retirement account advice is limited to nine types that are typically available to most people: traditional IRA (deductible and non-deductible contributions), Roth IRA, spousal traditional IRA, spousal Roth IRA, employer plans (401(k), 403(b) etc), and taxable investment accounts. We do not consider the possibility of after-tax contributions to employer plans, since relatively few plans offer them.

Important note for self-employed individuals: At this time, we do not include SEP IRAs which some self-employed people use. If you'd like to use a SEP IRA, this results from this tool will not apply to you.

Important notes on how we prioritize our recommendations:

- Employer plan match contributions are prioritized first. We use the parameters for match percentage and maximum contribution percentage from the employer plan account you add in External Accounts. If you indicate you have a match but do not provide those details, we assume your employer matches 50% of your contributions up to 6% of your compensation, since this is the most common matching scheme.³
- If you specify “Discretionary Match” meaning your employer *may* match, we also prioritize the employer plan up to the amount needed to maximize the potential match, since there is some chance of match. Again we default to the most common matching scheme above (50% of 6% of compensation), unless otherwise specified by you.
- After maximizing any match, we recommend either employer plan or IRAs that you qualify for depending on which has the best projected after-tax outcome.
- For these projections, we assume a time horizon in years from your current age to your retirement age. We assume the same average expected returns for all accounts (based on the Betterment portfolio allocated at our recommended current retirement allocation), with the following adjustments
 - adjusted for the Betterment fees or employer plan fees you provide for External Accounts. If you don't provide actual fees for your plan, we assume the same fees as the standard Betterment 401(k) plan, which is 0.6% plus fund expenses for the allocation. Generally, lower fee accounts are more favorable.
 - taxable accounts assume an 1.36% lower return to account for taxes paid on the account through the savings period.⁴

³ Exhibit 4.7 on Page 25:

<http://www2.deloitte.com/content/dam/Deloitte/us/Documents/human-capital/us-hc-annual-defined-benchmarking-survey-2015.pdf>

⁴ See backtest for tax drag:

<https://www.betterment.com/resources/retirement/401ks-and-iras/why-you-should-dip-into-your-taxable-account-to-max-out-your-ira>

We use the following assumptions and logic for account type eligibility and recommendations:

- IRS guidelines for the most current tax year (2015 as of this writing, but updated each year) for contribution limits and income phaseouts. Contributions made in the calendar year following the tax year are not considered.
- We estimate your current marginal federal income tax rate based on your gross income, marital status, standard deduction, age, and age of spouse. If you itemize deductions or have dependents, you can provide these values in “Edit Assumptions > About your taxes” in RetireGuide. We include state income tax for the state on your account profile, but we do not include local tax. We assume you are not blind.
- We estimate your in-retirement tax rate from the desired income you specify, leaving out wage deductions for Social Security and Medicare. This conservatively assumes you’ll be paying full taxes on all income sources, but may not be true if your Social Security is not taxable, or if your income is met from tax-free sources like Roth IRA withdrawals.
- If your in-retirement tax rate is estimated to be the same as it is now, we recommend a Roth IRA over Traditional IRA, since this will typically result in more retirement savings.

There are other potential features of 401(k) accounts that are not incorporated into Betterment’s recommendations. For example, 401(k) accounts may offer greater protection from creditors and the ability to take penalty-free distributions at an earlier age or to defer minimum required distributions. Some 401(k) accounts may also allow for loans or distributions in a broader set of circumstances. Some 401(k) plans may also offer specific educational and advisory services to participants. You should contact a qualified legal advisor and/or your plan administrator for more detailed information about whether such features are relevant to your personal situation. The desirability of contributing to a 401(k) may also depend on the range of investment options offered within the 401(k). These recommendations incorporate information about 401(k) fees that you provide, but not the actual investment options available in non-Betterment 401(k)s.

Betterment’s account recommendations relate to the advantages of funding specific types of retirement savings accounts at particular fee schedules and not where those accounts should be held—that is, at Betterment or elsewhere, although the recommendations assume IRA fees of 0.27 percent, which is based on Betterment’s portfolio and lowest fee tier. The savings recommendations could be different if different fees applied.

GENERAL ASSUMPTIONS

Graph / Projections Assumptions

- The projection graph shows pretax investment growth, in real dollars (adjusted by the rate of inflation of 3% or the rate you specify).
- We assume a management fee of 0.15% annually. While Betterment’s fees may be higher in some cases, we expect that over the course of a lifetime of saving, most of the time will be spent at the lowest fee tier. Institutional advised accounts also include the advisory fee.

- All current and recommended investments from present day forward assume Betterment expected returns according to our recommended allocation advice until retirement and in retirement. Our allocation advice glides more conservatively over time. [Read more](#).
- In-retirement withdrawals follow our [safe withdrawal advice](#) and assume a COLA in line with inflation.
- Spending starts at the retirement age chosen. Spouse retirement age is only used for Social Security calculations.
- We do not specifically calculate or handle Required Minimum Distributions (RMDs) in this retirement planning advice. We assume that your portfolio withdrawals meet your RMD requirements, if you have traditional IRAs. If you have funded traditional IRAs with Betterment and are age 70.5 or older, we do calculate your RMD on an annual basis and provide this in your tax form.

Other Income Source Assumptions

- Other income sources are assumed to be pre-tax, with full in-retirement tax rates applied.
- The other income sources amount you specify is assumed to start at your retirement age and continue until your life expectancy.
- We assume entered value is in nominal terms, and is inflation adjusted through accumulation and retirement.

Social Security Calculation Assumptions:

- We use full retirement age as defined by the SSA rules and your date of birth.
- Salary growth is assumed as you specify, with a default of 1%. Note that the SSA.gov benefits calculator does not assume any income growth. Earnings history is also estimated using this growth rate in the opposite direction.
- COLAs are assumed to be equal to our assumed rate of inflation (3% by default).
- If you don't override your benefit start age, we assume Social Security benefits start at retirement age, unless that age is under 62, in which case we assume benefits start at age 62, and income prior to that is met by portfolio withdrawals or other income sources (if specified). If retirement age is over 70, Social Security benefits will start at the retirement age, and any benefits claimed start at 70 are assumed to be spent or saved, but they do not affect your plan. Benefit calculations after age 70 still assume an inflation adjustment, per the SSA rules.
- You can override the start age and benefit amount in "Edit Assumptions > About your income" for you and your spouse.
- If you upload your own Social Security benefit file or type in a benefit value, we use this value and not our model estimate. Click the reset button to again use our estimate.
- Social Security continues until life expectancy for each person. No survivor or disability benefits are assumed.
- Social Security benefits are taxed according to the calculation in Worksheet 1 of Form 915.

Tax Rate Calculation Limitations

- Our tax rate calculations are estimates used to approximate impact of state and federal taxes.
- We generally assume that tax rates as of the current calendar year are the same as they will be in the future. Since the income tax brackets are indexed with inflation, we believe this is generally a good assumption. However, it does not account for potential changes in law that more significantly affect how tax is assessed. If this happens, we will update our methodology in a reasonable timeframe.
- Our tax rate calculations do not currently support Alternative Minimum Tax (AMT) or “PEP and Pease” phaseouts which may affect high income taxpayers.