Votaire Assumptions and Methodology

Annuities

When applicable, annuity annual benefits are based on Votaire's proprietary algorithms. Annuity costs are based on data supplied by CANNEX Financial Exchanges.

Chance of Running Out of Money

Chance of running out of money is based on 1,000 stochastic simulations with varying market returns and death ages and calculated as the number of scenarios where assets are depleted prior to death assuming withdrawals in each year are the greater of:

- The savings withdrawal provided under Votaire's deterministic projections
- The sum of all expenses for the year

College Savings

College cost estimates are projected using historical college costs from the College Board. Recommended monthly contributions are calculated using the Market Return assumptions for a medium- or short-term portfolio, depending on a child's college start year. Projections will update over time as new data, including savings account balance, becomes available.

Current Tax Rate

Current tax rate for budgeting is based on combined federal and state taxes applied to user and spouse (if applicable) latest salary. Federal taxable income is reduced by the standard deduction, personal exemptions, and salary deferrals into tax-deferred retirement accounts.

Data

Data for actuarial projection is based on user input and linked accounts. Where relevant data may be missing, we have made assumptions we feel are reasonable or representative of the general population.

While Votaire has attempted to prevent unreasonable data inputs, individual data has not been reviewed for completeness or reasonableness, and therefore Votaire does not accept responsibility for the accuracy or completeness of the data on which its proprietary algorithms are applied. Actuarial measurements will improve in reasonableness as more data is provided.

This actuarial disclaimer was last updated on February 13, 2020

Debt

Votaire's debt repayment projections make the assumption of a constant monthly debt payment. As each debt is paid off, those payments are redirected to the highest-priority debt that remains. Typically, this is the debt with the highest interest rate.

Deferred Annuity Payments

Deferred annuity payments are calculated to smooth total lifetime income. The annuity's premium is generally between 7-10% of projected wealth at retirement.

Emergency Fund

The aggregate emergency fund needed is based on six months of general expenses. The monthly contribution to the fund to build up fund value is based on the difference between current income and expenses.

Expenses

Expenses are assumed to grow with inflation and fluctuate according to national spending habits. They are also assumed to revert to a percentage of income based on the Bureau of Labor Statistics' Consumer Expenditure Survey over a long-term horizon.

Federal Taxes

Federal tax data for retirement is based on 2016 Form 1040 and accompanying instructions. Tax brackets and limits are based on those specified under the Tax Cuts and Jobs Act and are assumed to increase with inflation. Taxes on withdrawals follow the methodology in *Taxes on Account Withdrawals*; all other income except Social Security income is assumed to be fully taxable. Special considerations are taken into account for:

- Taxable Social Security benefits when income exceeds certain amounts
- Tax deductions and exemptions, as well as limitations when income exceeds certain amounts
- Whether itemized or standard deductions provide for a lower tax liability

Votaire's tax calculations have not been reviewed by a Certified Public Accountant. Projections are meant as an illustration and are not intended as actual advice.

Health Savings Accounts

Contributions to Health Savings Accounts (HSAs) are treated as tax-deductible for income tax purposes and free from payroll taxes. They are assumed to continue annually and grow with the *Salary Growth* assumption, limited to the IRS limit projected forward under the *Inflation* assumption. Annual returns on invested HSAs are assumed to follow the *Market Return* assumption.

Healthcare

Pre-Medicare premium costs are based on the second lowest cost silver plan premium from ACA Exchange data and are specific to user zip code. Premiums are net of any applicable ACA subsidies. If no zip code is provided or no data is available, premiums are based on first state averages and then national averages. Out-of-Pocket (OOP) spending is based on *Bureau of Labor Statistics CE Survey* and adjusted for gender cost factors. Premiums are projected forward using the *Healthcare Cost Trend* assumption; OOP spending is projected forward using inflation.

Post-Medicare spending assumes free Medicare Part A coverage and actual Medicare Part B costs plus income-related surcharges and is projected forward using the *Healthcare Cost Trend* assumption. Medicare Part D coverage is based on data from Q1Medicare.com and includes income-related surcharges; it is projected forward using the *Healthcare Cost Trend* assumption. User is assumed to elect Medicare Supplement Plan F. Plan F premiums are based on data from eHealthMedicarePlans.com and are assumed to follow healthcare cost trend minus 3%, with a floor at 2.5%.

Healthcare Cost Trend

Healthcare cost trend follows the SOA Getzen model with an initial trend of 6.0% and an ultimate trend of 3.5%.

HSA Tax Savings

Tax savings from HSAs are based on

1. Pre-retirement savings from decreases in income and payroll tax
2. Post-retirement savings from tax-free withdrawals to cover healthcare expenses

Inflation

2.01% annually; based on J.P. Morgan 2020 Long-Term Capital Market Assumptions[1]

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[1] J.P. Morgan. (2019). *2020 Long-Term Capital Market Assumptions.* Retrieved from https://am.jpmorgan.com/gi/getdoc/1383647197004

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Life Insurance Needs

The amount of life insurance coverage needed is calculated as follows:

Marital Status	Life Insurance Need
Married	Life insurance need for each spouse is set at the level required to maintain 75% of projected combined income until retirement
Single	Life insurance need is calculated to cover the cost of raising the user's children.[2]

Coverage needed is increased by the present value of any debts, end-of-life costs, and the amount of any desired college savings fund.

Policy term is the minimum of:

- Years to retirement, rounded up to the nearest 5 years (1 year if retiring this year)
- 30 years

Long-Term Care

Long-term care premiums are based on Genworth data and are assumed to be paid for life beginning the age at which coverage begins. Coverage is assumed to have a maximum daily benefit of $150 per day with a benefit multiplier of four years. Couples are assumed to have a maximum daily benefit of $150 per day per person for four years each.

Longevity

Life expectancy before adjustments is based on SOA RP-2014 mortality table adjusted backward to 2006 and projected with generational improvements using SOA Scale MP-2015. Adjustments are made for hereditary and lifestyle factors.

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[2] Cost of raising a child is based on a USDA estimate (https://www.usda.gov/media/blog/2017/01/13/cost-raising-child) and adjusted to 2018 using historic inflation.

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Market Return	Market returns are based on J.P. Morgan 2020 Long-Term Capital Market Assumptions[3] and developed using Monte Carlo simulations less approximate investment fees.
Retirement Assets	Assets are projected forward based on the market return assumptions specified below. There are assumed to be no contributions to assets unless specified otherwise by the user.
Salary Growth	Salary growth assumption is based on historical experience across a large set of defined benefit pension plans supplied by Nyhart and generally decreases as age increases.
Savings Contributions	Contributions to any employer retirement plans are assumed to be tax-deferred, while Roth savings contributions are assumed to be post-tax. Contributions to employer DC plans are assumed to continue annually as a percentage of salary but are limited to the IRS limit projected forward under the *Inflation* assumption. Other contributions to accounts outside of employer retirement plans are assumed to be tax-deferred.
Social Security Income	Social Security retirement income calculation is based on calculation details from the Social Security Administration[4]. Historical salaries are estimated based on latest salary and projected forward to retirement age and backward to age 22[5] using the *Salary Growth* assumption.
State Taxes	State income tax calculations for retirement are based on state tax brackets and rates with special consideration taken into account for states that have no income tax or do not tax Social Security benefits. Tax brackets and limits are assumed to increase with inflation.

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[3] J.P. Morgan. (2019). *2020 Long-Term Capital Market Assumptions.* Retrieved from https://am.jpmorgan.com/gi/getdoc/1383647197004

[4] Social Security Administration. (2016). *Your Retirement Benefit: How It's Figured.* Retrieved from https://www.ssa.gov/pubs/EN-05-10070.pdf
[5] If original hire age is not available

Taxes on Account Withdrawals

Withdrawals from retirement accounts are assumed to be withdrawn proportionally to each account's balance with respect to overall wealth. For example, at a withdrawal rate of 4%, a breakdown of taxable income from account withdrawals is as follows:

IRA	Account Balance	Withdrawal	Withdrawal Taxable as Income
Traditional	$ 750,000	$ 30,000	$ 30,000
Roth	$ 250,000	$ 10,000	$ 0
Total	**$ 1,000,000**	**$ 40,000**	**$ 30,000**

Weather Forecast

Weather forecast is based on a scoring mechanism that utilizes traditional actuarial funding methods.

Withdrawal Rates

Withdrawals from savings are designed to smooth total income throughout lifetime based on the longevity assumption. Withdrawals are increased annually with inflation and situationally to cover extra projected costs, *e.g.*, a large one-year vacation, and are assumed to decrease for married couples upon the first death.

The actuarial assumptions used in Votaire's proprietary algorithms represent a reasonable long-term expectation of future economic and demographic experience. The assumptions will be updated on a regular basis.

The actuarial assumptions and methodologies used in Votaire's proprietary algorithms are based on techniques from pension funding methods with built-in smoothing mechanisms. The actuarial findings shown on Votaire.com are only to illustrate retirement income and expenses and may not be appropriate for other purposes.

Votaire has no knowledge of a relationship with users that may cause a conflict of interest. Votaire's actuaries meet the Qualification Standards of the American Academy of Actuaries to render statements of actuarial opinion in the United States.

Future actuarial measurements may differ significantly from the current measurements presented on Votaire.com due to such factors as the following:

- Changes in the actuarial assumptions
- Market fluctuations and other deviations from the economic assumptions
- Life events and other deviations from the demographic assumptions