

Morningstar Model of U.S. Retirement Outcomes Frequently Asked Questions

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What is the Morningstar Model of U.S. Retirement Outcomes?

The Morningstar Model of U.S. Retirement Outcomes is a complex simulation model, developed by Spencer Look, FSA and Jack VanDerhei, PhD, that enables the researchers at the Morningstar Center for Retirement & Policy Studies to study retirement readiness across the United States. The model allows the researchers to predict the effects of policy, product design, behavioral changes, and other variables on retirement readiness. The results can be broken down by age, wage, family status, race and ethnicity, industry, and more.

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What is a simulation model?

A simulation model estimates real life outcomes by using mathematics and logic to calculate the impact of a variable or a set of variables on a particular outcome. In this case, the Morningstar Model of U.S. Retirement Outcomes considers the uncertainties in an individual's life, and career path, and investments to provide an assessment of their prospects for an adequate retirement.

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What kinds of uncertainties does the model consider?

There are many uncertainties this model may consider. These can include whether an individual could live past their projected life expectancy, having unforeseen 'catastrophic expenses' (e.g., paying for a long-term care facility), lower-than-expected rates of return, changes to household (e.g., divorce or death), and more. Essentially, this model takes a view that the uncertainties present in human life have the potential to impact any household, allowing the model to create a more realistic output when assessing their prospects for an adequate retirement.

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How do you define "adequate retirement"?

We define "adequate retirement" as having enough financial resources to cover expenses that may occur during retirement. The model predicts household retirement expenses, including potentially catastrophic long-term care expenses. If the household is projected to run short of money, we assume that any net housing equity is liquidated and used to cover expenses. If the household cannot pay their expenses, then we determine that their retirement wealth is not adequate. The model incorporates bequests in some of the metrics, but they are not included in the definition of retirement adequacy.

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How does the model work?

The model takes input data from the Survey of Consumer Finances and runs it through a series of calculations depending on the scenarios being analyzed. Input data may include variables such as age, salary, race/ethnicity, gender, marital status, job-related information, and more. It has the ability to answer many retirement-related questions posed on either a public policy or plan design front.

The model takes a stochastic (or "random") approach to the simulations, generating 1,000 alternative life paths. This is done in recognition that a multitude of random life events may affect household members during their working years and in retirement. The model consists of two parts: an accumulation module and a decumulation, or "retirement," module. The accumulation module simulates retirement income/wealth that may be amassed from sources such as defined-contribution or defined-benefit plans, IRAs, Social Security, etc. The decumulation module simulates household members spending down their assets to fund retirement expenses. Retirement expenses, including those from long-term supports and services, are projected for each household for each life path.

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What makes this model different from others?

We found that many other models tend to ignore individuals once they reach retirement age. Instead, they estimate a replacement rate, which refers to the percentage of pre-retirement income that can be replaced in retirement. The Morningstar Model of U.S. Retirement Outcomes does not do this. Our model calculates retirement funding ratios for each life path. The numerator is the sum of real (inflation-adjusted) income throughout retirement and any real bequest. The denominator is the sum of real expenses throughout retirement. The model also simulates the probability that an individual will run short of money in retirement. The model can calculate many other metrics, such as solving for the number of years that retirement must be deferred to achieve a specified retirement goal.

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How can the model be used? / How can interested parties leverage the model?

The model will be used by the Center's researchers to simulate retirement outcomes under various scenarios. We are interested in using the model to help other organizations and entities determine retirement adequacy for U.S. households and inform our own research, which also serves that goal. Interested parties may use findings from the model's calculations to inform their own practices.

The model is operated by the research team at the Morningstar Center for Retirement & Policy Studies. We do not have any plans to make it open and available for public use. We are interested in engaging with interested parties, but discretion for how the model will be used is solely determined by our team.

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Who has access to the model?

Given the sensitivity around the data used by the model, it's currently housed in an access-restricted location within Morningstar Retirement. Only our researchers at the Morningstar Center for Retirement & Policy Studies have access to it, and it will not be open and accessible for public use.

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Can you provide an example of what the model can do?

In June 2022, the bipartisan Advancing Auto Portability Act of 2022 was introduced to the U.S. Senate.¹ The proposed legislation aims to encourage auto portability and reduce premature cash-out of participants' 401(k) accounts when they change jobs. In part, Jack VanDerhei's research findings from a similar model at the Employee Benefit Research Institute (EBRI) motivated the introduction of this legislation as his analysis indicated that \$92 billion in savings was leaving the retirement system every year from participants' premature cash-outs. This research prompted the proposed legislation, which would hopefully positively impact individuals' retirement readiness.

The Morningstar Model of U.S. Retirement Outcomes, is specifically designed to provide similar analyses for public policy research as well as a set of outcome metrics that will be of value to plan sponsors and service providers.

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How can I access information related to the model's findings?

Research that includes the model's findings will be published on the [Morningstar Center for Retirement & Policy Studies website](#). For more information, please email retirement@morningstar.com.

¹ Bipartisan Legislation Introduced to Preserve Retirement Savings by Expanding Auto Portability," PR Newswire, 2022, <https://www.prnewswire.com/news-releases/bipartisan-legislation-introduced-to-preserve-retirement-savings-by-expanding-auto-portability-301569056.html>

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Who are the researchers behind the model?

The Morningstar Model of U.S. Retirement Outcomes was developed by Spencer Look, FSA and Jack VanDerhei, PhD from the Morningstar Center for Retirement and Policy Studies.

Spencer Look joined the Morningstar Center for Retirement and Policy Studies in 2022 and has since released multiple publications with the Center. His research focuses on annuity and life insurance products and retirement adequacy in the United States, including the impact of legislative and regulatory proposals and plan design initiatives. Before joining Morningstar, Spencer held roles as a life actuarial manager and a life-cycle advice senior analyst, specializing in goals-based financial planning, lifetime asset allocation, and retirement income. He holds a bachelor's degree in actuarial science and finance from Drake University in Des Moines. Spencer is also a Fellow of the Society of Actuaries.

Jack VanDerhei has more than 200 publications devoted to employee benefits and insurance, but his major areas of research focus on the financial aspects of private defined benefit and defined contribution retirement plans. From 1996 until 2022, he was the research director at the Employee Benefit Research Institute, co-authoring annual updates of the 401(k) universe from a database of more than 27 million 401(k) participants from 110,000 plans. While he was at EBRI he was the co-creator of both the EBRI Retirement Security Projection Model[®] and the EBRI/ICI 401(k) Accumulation Projection Model. Previously, he was on the faculty of the Wharton School of the University of Pennsylvania where he served as research director of the Pension Research Council. He has testified extensively for Senate, House and federal agency hearings in the last 35 years. He received his BBA and MBA from the University of Wisconsin-Madison and his M.A. and Ph.D. from the Wharton School of the University of Pennsylvania.

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What is the Morningstar Center for Retirement & Policy Studies?

The Morningstar Center for Retirement & Policy Studies has the mission to help improve the U.S. retirement system by arming decision- and policy-makers with unbiased and actionable data and analysis. The Center draws on the capabilities of Morningstar Retirement and Morningstar Investment Management LLC to fuel its commitment to helping people reach better retirement outcomes.

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