



EBRI News

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New Research from EBRI:

More Accurate Projection of Retirement Income Needs Produced by New Model Incorporating Expanded Risk Analysis

WASHINGTON—A key weakness of many retirement income models is that they use *average* estimates for life expectancy, and, consequently, provide workers with only a 50 percent chance of having adequate income in retirement. But a new study being released today by the nonpartisan Employee Benefit Research Institute (EBRI) uses expanded risk analysis and provides a range of probabilities of success. The EBRI model finds that the amount of money Americans will need for an adequate retirement varies widely based on individual factors and often is substantially higher than previously estimated.

In projecting retirement income needs, the new EBRI model incorporates three of the most critically important but difficult-to-model retirement risks:

- *Investment risk*, or how individuals' assets will perform during retirement.
- *Longevity risk*, or how long an individual expects to live.
- *Catastrophic health care costs*, which have the potential to wipe out retirement savings.

Including these variables allows the EBRI model to project with various probabilities the amount of wealth a retiree will need for an adequate retirement. Although many models provide a rule of thumb for retirement income needs, they are often based on methodologies limited to replacement rates of pre-retirement cash flow after adjusting for taxes, savings, age, and/or work-related expenses, the EBRI study says.

For an example of one stylized individual: A high-income male retiring at age 65, content with a 50–50 chance of having “adequate” retirement income, would need to replace only 52 percent of his final salary; but if he wants a 90 percent chance of “adequacy,” he would need 119 percent of his final salary. Not surprisingly, those with lower incomes face a far bigger hurdle: A low-income male (making less than \$15,000 a year in retirement) retiring at age 65 would need to replace 124 percent of his final salary if he wanted a 50–50 chance of “adequacy,” and 394 percent of his final salary if he wanted a 90 percent chance (see tables below).

Written by Jack VanDerhei, Temple University and research director of the EBRI fellows program, the EBRI study introduces a three-part “building block” approach to estimating retirement income needs. VanDerhei seeks to overcome the deficiencies of other models by accurately accounting for longevity and investment risks and catastrophic health care costs. The full study is available at www.ebri.org

VanDerhei's first “building block” focuses exclusively on investment risk. The second building block adds longevity risk to the planning process, in addition to investment risk. Building Block 3 adds health care costs on top of investment and longevity risk. The model shows the prospects of achieving retirement income adequacy at three levels of probability: 50 percent, 75 percent, and 90 percent.

The study makes the point that no single number can capture the amount of annual pre-retirement income that a retiree will need, and that an appropriate replacement rate depends on an individual's spending, retirement age, gender, asset allocation, percentage of annuitization of wealth, and other variables.

In addition, the study notes that many Americans will need considerably more retirement income than estimated by many previous models. Many “rule-of-thumb” models recommend that workers try to replace 75 percent to 85 percent of their pre-retirement income in retirement. But VanDerhei writes that, depending on their circumstances,

some workers may actually need several times that amount to have a high (90 percent) probability of achieving their desired standard of retirement living.

“The results of this model reveal, in many cases, the sobering (if not staggering) amounts of money needed to provide a reasonably high chance of being able to afford retirement,” VanDerhei writes in his study. “However, they also show the positive results that can be obtained by annuitizing assets in retirement to protect against the risk of longevity. In this regard, the model points not only to a more realistic size of the retirement income problem, but also ways that individuals can begin to deal with it.”

To help workers obtain more realistic projections, EBRI will release a free online tool next year called the Ballpark E\$timate Monte Carlo,[®] a major update of the widely used Ballpark E\$timate[®] retirement planning worksheet. The new tool will show the probabilities of achieving sufficient retirement income at the 50 percent, 75 percent, and 90 percent levels.

The following table shows the variation in target retirement income replacement rates using VanDerhei’s model. The column at the far left is the probability of achieving retirement income adequacy. The other four columns show replacement rates for men and women at different levels of probability. These examples assume no equity allocation of assets and no annuitization of an individual’s initial retirement wealth.

Variation in Target Replacement Rates, by Income, Gender, and Retirement Age

High-Income Individuals (single retirees making more than \$40,450 per year)

Probability of Retirement “Adequacy”	Male Retiring at 65	Female Retiring at 65	Male Retiring at 62	Male Retiring at 68
50%	52%	59%	64%	43%
75	78	98	97	66
90	119	128	149	97

Low-Income Individuals (single retirees making less than \$15,000 per year)

Probability of Retirement “Adequacy”	Male Retiring at 65	Female Retiring at 65	Male Retiring at 62	Male Retiring at 68
50%	124%	147%	153%	95%
75	229	292	285	206
90	394	453	476	332

The following table shows the variation in target multiples of final yearly earnings, using VanDerhei’s model. The column at the far left is the probability of achieving retirement income adequacy. The other four columns show target final earnings multiples for men and women at different levels of probability. These examples assume no equity allocation of assets and no annuitization of an individual’s initial retirement wealth.

Target Final Earnings Multiples, by Gender and Retirement Age

High-Income Individuals (single retirees making more than \$40,450 per year)

Probability of Retirement “Adequacy”	Male Retiring at 65	Female Retiring at 65	Male Retiring at 62	Male Retiring at 68
50%	4.13	5.29	6.29	2.83
75%	7.14	10.13	10.5	5.44
90%	11.9	13.86	17.14	8.97

Low-Income Individuals (single retirees making less than \$15,000 per year)

Probability of Retirement “Adequacy”	Male, Retiring at 65	Female, Retiring at 65	Male, Retiring at 62	Male, Retiring at 68
50%	10.67	16.22	15.87	6.78
75%	22.85	34.23	32.73	19.42
90%	41.99	54.22	57.12	33.75

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