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**THE STATE OF U.S. RETIREMENT SECURITY:
CAN THE MIDDLE CLASS AFFORD TO RETIRE?**

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THE STATE OF U.S. RETIREMENT SECURITY: CAN THE MIDDLE CLASS AFFORD TO RETIRE?

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1 Introduction

Measuring retirement savings and retirement income adequacy for low-income workers is an extremely important and complex topic, and EBRI started to provide this type of measurement in the late 1990s with the development of the EBRI Retirement Security Projection Model[®] (RSPM).¹ When we most recently modeled the projected outcomes for Baby Boomers and Gen Xers in 2014, we found that between 57 percent and 59 percent were expected to have adequate retirement income to fund 100 percent of simulated basic retirement expenses (housing, food, etc.—plus uninsured health care costs, using EBRI's Retirement Readiness Ratings[™] (RRRs) as the gauge). Some retirement planners suggest that many households are able to successfully cut expenditures below the average expenses when financially constrained. Therefore, we also computed thresholds of 80 and 90 percent of simulated expenses and on that basis found that the RRRs for Baby Boomers and GenXers at a 90 percent threshold was between 67 and 70 percent. When the threshold was further relaxed to an 80 percent threshold, the RRRs increased to 81–84 percent.²

Who is most at risk of not having adequate retirement income? Not surprisingly, lower-income households have much lower RRRs: The 2014 baseline RRRs range from 17 percent for the lowest-income³ households to 86 percent for the highest-income households with a 100 percent of simulated expenses threshold. The middle class (defined as those in the second and third income quartile for purposes of this statement) had an RRR of 62 percent. At a 90 percent threshold, the RRR for middle class households increases to 74 percent (indicating that nearly 3 in 4 of those households would have sufficient financial resources to cover 90 percent of simulated basic retirement expenses, as detailed above). At an 80 percent threshold, 88 percent of the middle class households are predicted to have sufficient retirement income.

However, it should be noted that these probabilities will depend to a large extent on whether future years of employment take place with employers sponsoring defined contribution retirement plans or not. Previous EBRI analysis⁴ shows the positive impact of future years of eligibility for a defined contribution plan. For GenXers⁵ in the middle class with no future years of eligibility in a defined contribution plan, the RRR value when measured with a 100 percent of simulated expense threshold is 51 percent—indicating that almost ½ of this cohort are projected to run short of money in retirement. This value increases to 56 percent for those in the middle class with one to nine future years of eligibility in a defined contribution plan. The RRR value increases further to 71 percent for those in this category who have 10–19 future years of eligibility in a defined contribution plan, and reaches a maximum value of 80 percent for those with 20 or more future years of eligibility in a defined contribution plan. When the threshold for a successful retirement is measured at a 90 percent of simulated expense threshold, the RRRs range from 62 percent for those with no future years of eligibility to 88 percent for those with 20 or more years. At an 80 percent of simulated expense threshold, the RRRs range from 79 for those with no future years of eligibility to 96 percent for those with 20 or more years.

2 The Potential of 401(k) Plans to Produce Adequate Income Replacement for Middle Class Workers

The EBRI/ICI 401(k) database has been used to provide annual reports based on actual account balances of large cross sections of 401(k) plan participants since 1996.⁶ Looking at consistent participants in the EBRI/ICI 401(k) database in the wake of the financial crisis (over the four-year period from year-end

2007 to year-end 2011), a joint EBRI/Investment Company Institute (ICI) analysis found that the average 401(k) account balance fell 34.8 percent in 2008, then rose from 2009 to 2011.⁷ Overall, the average account balance in this consistent sample increased at a compound, annual, average growth rate of 5.4 percent over the 2007–2011 period.

While this information is certainly useful to evaluate assertions (and anecdotal claims) with respect to 401(k) plans, it needs to be supplemented with simulation modeling for a proper assessment of the potential of 401(k) plans to produce “adequate” income replacement for several reasons:

- The EBRI/ICI 401(k) database does not contain information on individual retirement account (IRA) rollovers, many of which may have originated as a 401(k) balance at an individual’s prior employer(s), and therefore may only provide information on a fraction of the participant’s retirement accumulations if there have been one or more job changes in their careers.
- Even if one looks only at 401(k) participants who are on the verge of retirement and have had significant tenure with the current employer, there is a significant likelihood that they would not have been eligible to participate in a 401(k) plan during their entire career with the current employer.⁸
- Since the passage of the Pension Protection Act of 2006, many of the 401(k) plans that had previously allowed eligible employees to voluntarily enroll have been modified to automatically enroll eligible employees. Although these employees will have the ability to opt out of such participation, it is clear that these plans have had a substantial impact on participation rates, especially for lower-income employees.⁹
- An analysis based solely on current balances will, of necessity, not be able to assess the impact of future employee activity (such as potential cash-out behavior at job change) nor the impact of future financial market returns.

In an attempt to assist the Senate Finance Subcommittee on Social Security, Pensions, and Family Policy in its evaluation of the role of 401(k) plans, in December of 2013, EBRI’s RSPM was used to analyze the potential of 401(k) plans to produce “adequate” income replacement for retirement.¹⁰ That undertaking found that, assuming current Social Security benefits are not reduced, 84 percent of middle class workers with more than 30 years of eligibility in a voluntary enrollment 401(k) plan are simulated to have sufficient 401(k) accumulations that, when combined with Social Security retirement benefits, would be able to replace at least 60 percent of their age 64 wages and salary on an inflation-adjusted basis. When the threshold for a successful retirement financing is increased to 70 percent replacement, 75 percent of these workers will still meet the threshold, based solely on the combination of projected 401(k) savings and Social Security combined. At an 80 percent replacement rate, 62 percent of the middle class will still meet the threshold.

When the same analysis is conducted for automatic enrollment 401(k) plans (with an annual 1 percent automatic escalation provision and empirically derived opt-outs), the probability of success for middle class workers with more than 30 years of eligibility increases substantially: 92 percent at a 60 percent threshold; 87 percent at a 70 percent replacement and 81 percent at an 80 percent threshold are assumed to have sufficient resources at those levels.

Note, however, that the analysis of automatic enrollment plans mentioned above used the actual plan-specific default contribution rates (typically 3 percent of compensation). Many have questioned the wisdom of continuing to set the rates at this relatively low level in view of recent empirical evidence suggesting that higher default contribution rates may not result in a substantial increase in opt-out rates. A 2012 EBRI publication¹¹ simulated the impact of increasing the current plan-specific default rates to 6 percent. Under a set of specified behavioral assumptions, more than a quarter of those in the lowest-

income quartile who had previously NOT been projected to have a financially successful retirement under actual default contribution rates were found to be successful as a result of the increase in default deferral percentage. When employees in the highest-income quartile were analyzed under the same set of assumptions, the percentage of those who had NOT previously been successful (under the actual default contribution rates) that now ARE successful as a result of the change in deferral rate was 18.4 percent.¹²

3 What are the Primary Risks for Middle Class Workers After Retirement?

While the probabilities of not running short of money in retirement for middle class Baby Boomer or Gen Xer is 62 percent when a threshold of 100 percent of simulated expenses is used, 74 percent with a 90 percent threshold, and 88 percent with an 80 percent threshold, it should be noted that these are averages for households in these cohorts, and the actual results may differ markedly, depending on how various risk contingencies play out after retirement. In 2006, EBRI provided a detailed analysis of the replacement-rate levels required to provide retirees with various probabilities of having “sufficient” retirement income.¹³ As part of the analysis, a “building block” approach was adopted where the risks of investment, longevity and long-term health care costs were added in incremental layers. The impact of two of these risks are analyzed below.¹⁴

3.1 Longevity Risk

In an attempt to assess the impact of longevity on retirement income adequacy, relative longevity quartiles were established based on family status, gender, and age cohort. It should be noted that the impact would not be as severe if all retirement income was taken in the form of an annuity (either as a real annuity such as Social Security, or a nominal annuity such as that offered by private-sector defined benefit plans); however, given that only a very small percentage of defined contribution and IRA balances are currently annuitized (and that an increasing percentage of defined benefit accruals are taken as lump-sum distributions when the option is available), the prospect of “out-living” their retirement wealth is a very real risk for many middle class Baby Boomers and Gen Xers.

Figure 1 shows the impact of relative longevity quartiles on 2014 RRRs for the middle class. For middle class households simulated to die in the earliest relative longevity quartile, the RRR with a 100 percent expenditure threshold is 90.3 percent. This value decreases to 72.6 percent in the second relative longevity quartile and 45.3 percent in the third relative longevity quartile. For the middle class households with the longest relative longevity, the RRR falls all the way to 32.6 percent. Similar influences are found when less rigorous thresholds are used. With a 90 percent of simulated expense threshold, the RRR for the earliest relative longevity quartile is 94.5 percent decreasing to only 51.3 percent for those with the longest relative longevity. At the 80 percent threshold, 97.4 percent of those in the earliest quartile having sufficient retirement income decreasing to only 78.3 percent of those in the latest (longest-living) quartile.

3.2 Long-Term Care Risk

One of the primary findings of a 2012 EBRI publication on retirement income adequacy¹⁵ was the significant impact of stochastic health care costs on overall retirement income adequacy. These include health care costs in retirement that are not likely to occur every year (in fact they may never occur for many households), but when they do they may have a catastrophic financial impact, due to their relatively high daily cost and/or potentially long duration. Unlike many other retirement projection models, RSPM has explicitly included the costs of nursing home and home health care costs in its decumulation model since its initial release in 2003 to account for these contingencies.

Figure 2 filters out those simulated life-paths with no stochastic health care costs in retirement and categorizes those costs into quartiles (based on the present value at age 65 of the per capita stochastic health care costs in 2014 dollars). Assuming a threshold of 100 percent coverage of simulated expenses, the results for the middle class show that for this group of families unfortunate enough to experience the highest quartile of stochastic health care costs, the probability of not running short of money in retirement

is 17.1 percent. Not surprisingly, those in the middle class who experience the lowest quartile of stochastic health care costs have a much higher probability of having enough money, with an RRR value of 89.1 percent. At a 90 percent expense threshold, 96.6 percent of the households in the bottom quartile of stochastic health care costs have adequate retirement income, but those in the top quartile have approximately a 1 in 3 chance of running short of money (an RRR of 33.6 percent). At an 80 percent expense threshold, the RRR for households in the bottom quartile of stochastic health care costs jumps to 99.6 percent while those in the top quartile increase only to 64.2 percent.

4 Results for Length of Time Until the Household Runs Short of Money

In addition to information with respect to the percentage of the population that will run short of money in retirement, the distribution of the likely number of years before this takes place has been a major topic of concern. Figures 3 through 5 provide this type of information for the Early Boomer and Gen Xer generations for the middle class. This analysis is more complicated than a simple computation of when individuals or families run short of *retirement income* (which in most cases will be never, due to lifetime Social Security benefits). Instead, an individual or family is considered to “run short of money” in this version of the model if their aggregate resources in retirement are not sufficient to meet aggregate average retirement expenditures—defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function of income) and some health insurance and out-of-pocket health-related expenses, plus stochastic expenses from nursing home and home health care expenses (at least until the point they are picked up by Medicaid).

Figure 3 shows the distribution of how long retirement money will last for Early Boomers and Gen Xers in the middle class (assuming retirement at age 65). For example:

- After 10 years of retirement, 13 percent of those in the middle class are assumed to have run short of money
- After 20 years of retirement, 29 percent of those in the middle class are assumed to have run short of money
- A total of 38 percent of Early Boomers and Gen Xers in the middle class who retire at age 65 would eventually run short of money while they were still alive.

Figure 4 shows the distribution of how long retirement money will last for Early Boomers and Gen Xers in the middle class (assuming retirement at age 65) by relative longevity quartile. For example:

- After 10 years of retirement, 10 percent of those in the earliest longevity quartile class are assumed to have run short of money compared to 14 percent of those in the latest longevity quartile.
- After 20 years of retirement, 11 percent of those in the earliest longevity quartile class are assumed to have run short of money compared to 42 percent of those in the latest longevity quartile.

Figure 5 shows the distribution of how long retirement money will last for Early Boomers and Gen Xers in the middle class (assuming retirement at age 65) by quartile of stochastic health care cost after filtering out those simulated life-paths with no stochastic health care costs in retirement. For example:

- After 10 years of retirement, 8 percent of those in the lowest stochastic health care cost quartile are assumed to have run short of money compared to 21 percent of those in the highest stochastic health care cost quartile.
- After 20 years of retirement, 11 percent of those in the lowest stochastic health care cost quartile are assumed to have run short of money compared to 59 percent of those in the highest stochastic health care cost quartile.

5 Summary

Since 2003, EBRI research has analyzed the retirement savings and retirement income adequacy of middle class Baby Boomers and Gen Xers in the United States. This statement highlights those previous results and provides new evidence on the importance of proper risk management techniques as a growing number of middle class workers approach retirement age. It would appear that while RRR values depend to a large degree on a household's future years of eligibility in a defined contribution plan (as well as whether future Social Security retirement benefits are reduced)¹⁶, a great deal of the variability in these values could be mitigated by appropriate risk-management techniques at or near retirement age.

For example, the annuitization of a portion of the defined contribution and IRA balances may substantially increase the probability of not running short of money throughout retirement (VanDerhei, September 2006 and Park, 2011). Moreover, a well-functioning market in long-term care insurance would appear to provide an extremely useful technique to help limit the financial volatility from the stochastic, long-term health care risk, especially for those in the middle class.

EBRI looks forward to assisting the members of the Subcommittee as they continue their investigations into this extremely important public policy topic.

Appendix A: Brief Chronology of the EBRI Retirement Security Projection Model[®]

- The Retirement Security Projection Model[®] (RSPM) grew out of a multi-year project to analyze the future economic well-being of the retired population at the state level. The Employee Benefit Research Institute (EBRI) and the Milbank Memorial Fund, working with the office of the governor of Oregon, set out in the late 1990s to see if this situation could be evaluated for the state. The resulting analysis (VanDerhei and Copeland, September 2001) focused primarily on simulated retirement wealth with a comparison to ad hoc thresholds for retirement expenditures.
- The April 2001 *EBRI Issue Brief* (VanDerhei and Copeland, April 2001) highlighted the changes in private pension plan participation for defined benefit (DB) and defined contribution (DC) plans and used the model to quantify how much the importance of individual-account plans was expected to increase because of these changes.
- With the assistance of the Kansas Insurance Department, EBRI was able to create the EBRI Retirement Readiness Rating[™] (RRR) based on a full stochastic decumulation model that took into account the household's longevity risk, post-retirement investment risk, and exposure to long-term nursing-home and home-health-care risks. The first state-level RSPM results were presented to the Kansas' Long-Term Care Services Task Force on July 11, 2002 (VanDerhei and Copeland, July 2002), and the results of the Massachusetts study were presented on Dec. 1, 2002 (VanDerhei and Copeland, December 2002).
- RSPM was expanded to a national model—the first national, micro-simulation, retirement-income-adequacy model, built in part from administrative 401(k) data. The initial results were presented at the EBRI December 2003 policy forum (VanDerhei and Copeland, 2003).
- The basic model was subsequently modified for testimony for the Senate Special Committee on Aging to quantify the beneficial impact of a mandatory contribution of 5 percent of compensation. (VanDerhei, January 2004).
- The model was enhanced to allow an analysis of the impact of annuitizing defined contribution and individual retirement account (IRA) balances at retirement age (VanDerhei and Copeland, 2004).
- Additional refinements were introduced to evaluate the impact of purchasing long-term care insurance on retirement income adequacy (VanDerhei, 2005).
- The model was used to evaluate the impact of defined benefit freezes on participants by simulating the minimum employer-contribution rate that would be needed to financially indemnify the

employees for the reduction in their expected retirement income under various rate-of-return assumptions (VanDerhei, March 2006).

- Later that year, an updated version of the model was developed to enhance the EBRI interactive Ballpark E\$timate[®] by providing Monte Carlo simulations of the replacement rates needed for specific probabilities of retirement income adequacy under alternative-risk-management treatments (VanDerhei, September 2006).
- RSPM was significantly enhanced for the May 2008 EBRI policy forum by allowing automatic enrollment of 401(k) participants with the potential for automatic escalation of contributions to be included (VanDerhei and Copeland, 2008).
- Additional modifications were added for a Pension Research Council presentation that involved a “winners/losers” analysis of defined benefit freezes and the enhanced employer contributions provided to defined contribution plans at the time the defined benefit plans were frozen (Copeland and VanDerhei, 2010).
- Also in 2009, a new subroutine was added to allow simulations of various styles of target-date funds for a comparison with participant-directed investments (VanDerhei, June 2009).
- In April 2010, the model was completely re-parameterized with 401(k)-plan design parameters for sponsors that had adopted automatic-enrollment provisions (VanDerhei, April 2010).
- A completely updated version of the national model was produced for the May 2010 EBRI Policy Forum and used in the July 2010 *EBRI Issue Brief* (VanDerhei and Copeland, 2010).
- The new model was used to analyze how eligibility for participation in a defined contribution plan impacts retirement income adequacy in September 2010 (VanDerhei, September 2010), and was later used to compute Retirement Savings Shortfalls (RSS) for Baby Boomers and Generation Xers in October 2010 (VanDerhei, October 2010a).
- In October testimony before the Senate Health, Education, Labor and Pensions Committee on “The Wobbly Stool: Retirement (In)security in America,” the model was used to analyze the relative importance of employer-provided retirement benefits and Social Security (VanDerhei, October 2010b).
- The November 2010 *EBRI Issue Brief* expanded upon earlier work by EBRI to provide the first results of a new simulation model that estimated the impact of changing 401(k) plan design variables and assumptions on retirement income adequacy. Until recently however, there was extremely limited evidence on the impact of automatic contribution escalation (VanDerhei and Lucas, 2010).
- In February 2011, the model was used to analyze the impact of the 2008–2009 crisis in the financial and real estate markets on retirement income adequacy (VanDerhei, February 2011).
- An April 2011 article introduced a new method of analyzing the results from RSPM (VanDerhei, April 2011). Rather than simply computing an overall percentage of the simulated life-paths in a particular cohort that would not have sufficient retirement income to pay for the simulated expenses, the new method computed the percentage of households that would meet that requirement more than a specified percentage of times in the simulation.
- As explored in the June 2011 *EBRI Issue Brief*, RSPM allowed retirement income adequacy to be assessed at retirement ages later than 65 (VanDerhei and Copeland, June 2011).
- In a July 2011 *EBRI Notes* article (VanDerhei, July 2011), RSPM was used to provide preliminary evidence of the impact of the “20/20 caps” on projected retirement accumulations proposed by the National Commission on Fiscal Responsibility and Reform.
- The August 2011 *EBRI Notes* article (VanDerhei, August 2011) used RSPM to analyze the impact of defined benefit plans in achieving retirement income adequacy for Baby Boomers and Gen Xers.
- In September, it was used to support testimony before the Senate Finance Committee (VanDerhei, September 2011) in analyzing the potential impact of various types of tax-reform options on

retirement income. This was expanded in the November 2011 *EBRI Issue Brief* (VanDerhei, November 2011).

- A March 2012 *EBRI Notes* article (VanDerhei, March 2012) used new survey results to update the analysis of the potential impact of various types of tax-reform options on retirement income.
- The May 2012 *EBRI Notes* article (VanDerhei, May 2012) provided 2012 updates for the previously published RRRs as well as the RSS.
- The June 2012 *EBRI Notes* article (VanDerhei, June 2012) introduced severity categories in the RSS projections for Gen Xers.
- The August 2012 *EBRI Notes* article (VanDerhei, August 2012) provided additional evidence on whether deferring retirement to age 70 would provide retirement income adequacy for the vast majority of Baby Boomers and Gen Xers.
- The September 2012 *EBRI Notes* article (VanDerhei, September 2012) analyzed the impact of increasing the default-contribution rate for automatic enrollment 401(k) plans with automatic escalation of contributions.
- The November 2012 *EBRI Notes* article (VanDerhei, November 2012) reclassified the RRRs to provide additional information on those substantially above the threshold; close to the threshold; and substantially below the threshold.
- The March 2013 *EBRI Notes* article (VanDerhei and Adams, March 2013) used a modified version of RSPM to assess the probability that respondent households would not run short of money in retirement if they did, in fact, accumulate the amount they said would be required in the 2013 Retirement Confidence Survey.
- The June 2013 *EBRI Issue Brief* (VanDerhei, June 2013a) used RSPM to provide a direct comparison of the likely benefits under specific types of DC and DB retirement plans.
- The June 2013 *EBRI Notes* article (VanDerhei, June 2013b) used RSPM to show that 25–27 percent of Baby Boomers and Gen Xers who would have had adequate retirement income under return assumptions based on historical averages were simulated to end up running short of money in retirement if today’s historically low interest rates were assumed to be a permanent condition.
- The August 2013 *EBRI Issue Brief* (VanDerhei, August 2013) used RSPM to analyze the Obama administration’s fiscal year (FY) 2014 budget proposal to include a cap on tax-deferred retirement savings that would limit the amounts accumulated in specified retirement accounts to that necessary to provide the maximum annuity permitted for a tax-qualified defined benefit plan under current law.
- The December 2013 *EBRI Notes* article (VanDerhei, December 2013) used RSPM to expand the analysis in the June 2013 *Issue Brief*. Rather than trying to reflect the real-world variation in DB accruals, the baseline analysis in the previous analysis used the median accrual rate in the sample (1.5 percent of final compensation per year of participation) as the stylized value for the baseline counterfactual simulations. The new research computed the actual final-average DB accrual that would be required to provide an equal amount of retirement income at age 65 as would be produced by the annuitized value of the projected sum of the 401(k) and IRA rollover balances.
- The January 2014 *EBRI Notes* article (VanDerhei, January 2014) used RSPM to model the likelihood that 401(k) participants currently ages 25–29 would have sufficient 401(k) accumulations that, when combined with Social Security benefits, could replace 60, 70 or 80 percent of their preretirement income on an inflation-adjusted basis.

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Endnotes

¹ See Appendix A for a brief chronology of the model.

² VanDerhei (February 2014).

³ Preretirement income in RSPM is determined in a manner similar to the average-indexed-monthly-earnings computation for Social Security with the following modifications:

- All earned income is included up to the age of retirement (i.e., there is no maximum taxable wage base constraint, and the calculation terminates at retirement age).
- Instead of indexing for changes in average national wages, the model indexes based on assumed, after-tax rate of return based on asset allocations that are a function of the individual’s age in each year.

Percentile distributions are then established based on population statistics for each five-year age cohort.

⁴ Figure 3 of VanDerhei (February 2014).

⁵ Only Gen Xers are shown in this portion of the analysis given their longer future working careers until age 65.

⁶ See VanDerhei, Holden, Alonso and Bass (December 2013) for the most recent results.

⁷ VanDerhei, Holden, Alonso and Bass (October 2013).

⁸ The proposed regulations for 401(k) plans were first introduced in November of 1981 and it took several years for many sponsors to introduce the plans. Moreover, many plans that were originally introduced as supplemental plans to existing defined benefit plans have been modified to provide more generous employer contributions at the time the defined benefit plans were frozen (VanDerhei, April 2010).

⁹ See Figure 23 of Utkus and Young (2013) for recent evidence.

¹⁰ Additional details on RSPM and the assumptions used in 2013 can be found in VanDerhei (June 2013). The financial market results are generated from stochastic annual returns with a log-normal distribution and an arithmetic mean of 8.6-percent real return for stocks and 2.6 percent real return for bonds.

¹¹ VanDerhei (September 2012).

¹² Although separate analysis was not performed on the middle class in the September 2012 EBRI publication, it is very likely that approximately 20 percent of those who had NOT previously been successful (under the actual default contribution rates) would be successful if the deferral rate was increased to 6 percent.

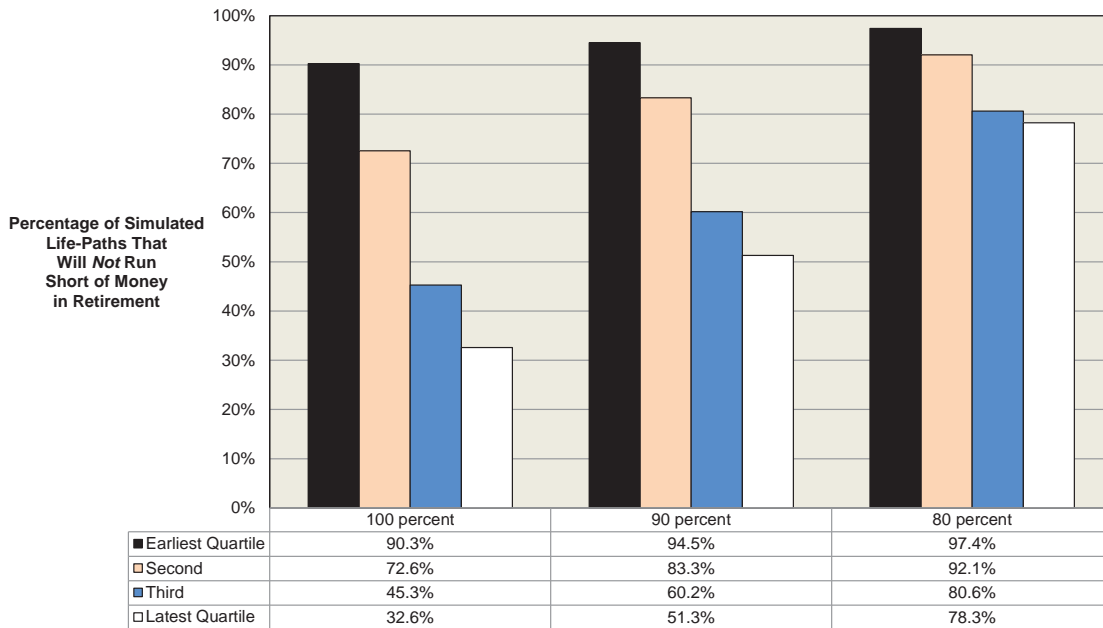
¹³ VanDerhei (September 2006).

¹⁴ EBRI is currently working on a separate study to model sequence of return risk that will need to be completed before investment risk in the decumulation period can be appropriately analyzed in RSPM.

¹⁵ VanDerhei (August 2012).

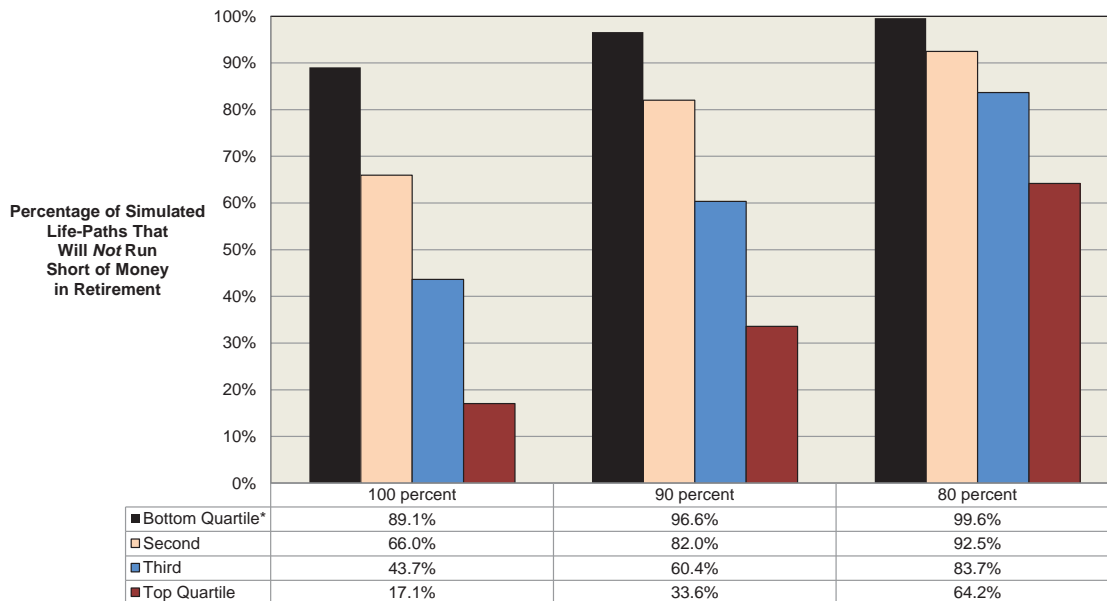
¹⁶ See VanDerhei (February 2014) for details.

Figure 1
Impact of Relative Longevity Quartile* on 2014 Retirement Readiness Ratings,TM for Middle Class Households



Source: EBRI Retirement Security Projection Model[®] Version 1995.
 * The longevity quartile is established relative to family status, gender, and age cohort.

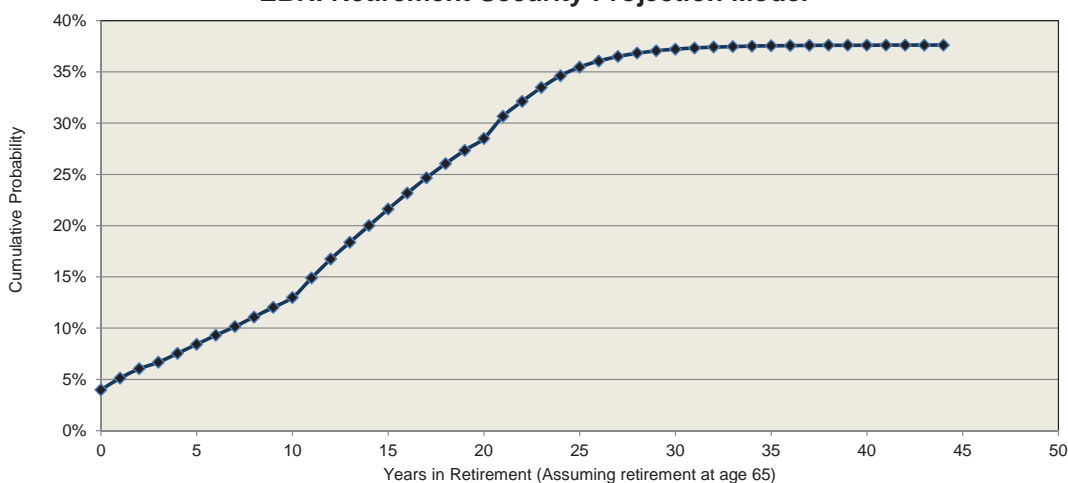
Figure 2
Impact of Stochastic Health Care Costs on 2014 Retirement Readiness Ratings,TM for Middle Class Households: Only Those Simulated Retirement Paths With Stochastic Health Care Costs Greater Than Zero



Source: EBRI Retirement Security Projection Model[®] Version 1995.
 * Measured as quartile of present value at age 65 per capita stochastic health care costs in 2014 dollars.

Figure 3

Years in Retirement Before Middle Class Boomers and GenXers Run Short of Money,* Simulations with the 2014 version of the EBRI Retirement Security Projection Model®

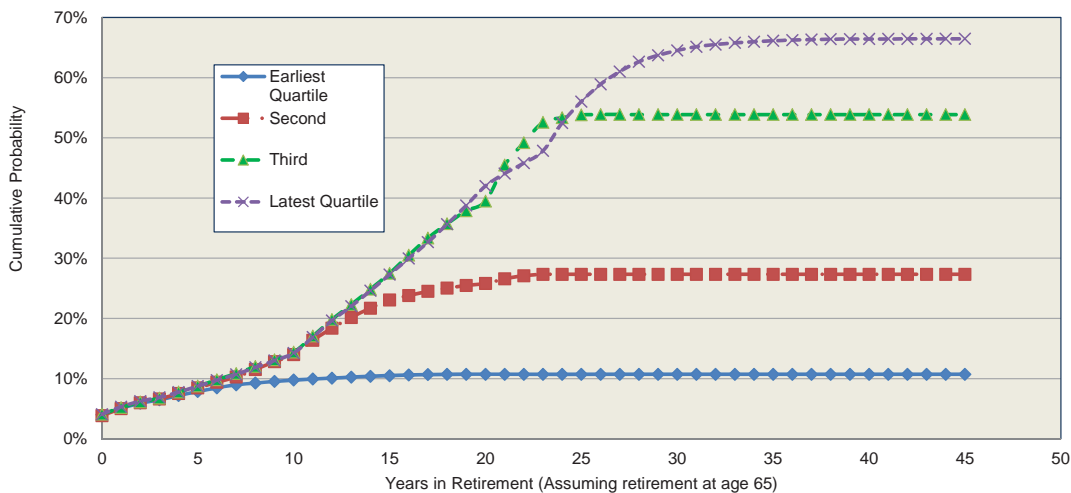


Source: EBRI Retirement Security Projection Model® version 2030.

* An individual or family is considered to "run short of money" in this version of the model if their aggregate resources in retirement are not sufficient to meet aggregate minimum retirement expenditures defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function of income) and some health insurance and out-of-pocket health-related expenses, plus stochastic expenses from nursing home and home health care expenses (at least until the point they are picked up by Medicaid). The resources in retirement will consist of Social Security (either status quo or one of the specified reform alternatives), account balances from defined contribution plans, IRAs and/or cash balance plans, annuities from defined benefit plans (unless the lump-sum distribution scenario is chosen), and (in some cases) net housing equity (either in the form of an annuity or as a lump-sum distribution). This version of the model is constructed to simulate "basic" retirement income adequacy; however, alternative versions

Figure 4

Years in Retirement Before Middle Class Boomers and GenXers Run Short of Money,* by Relative Longevity Quartile: Simulations With the 2014 Version of the EBRI Retirement Security Projection Model®**



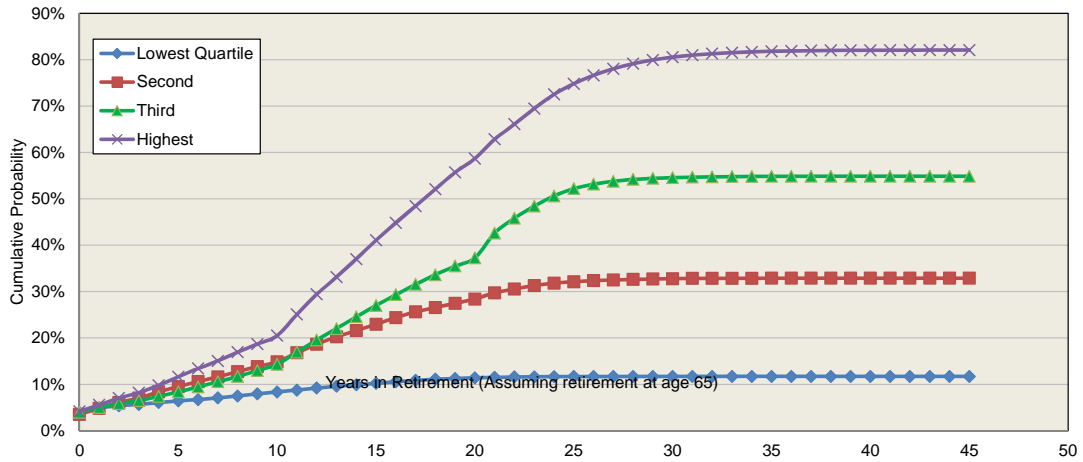
Source: EBRI Retirement Security Projection Model® version 2030.

* An individual or family is considered to "run short of money" in this version of the model if their aggregate resources in retirement are not sufficient to meet aggregate minimum retirement expenditures defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function of income) and some health insurance and out-of-pocket health-related expenses, plus stochastic expenses from nursing home and home health care expenses (at least until the point they are picked up by Medicaid). The resources in retirement will consist of Social Security (either status quo or one of the specified reform alternatives), account balances from defined contribution plans, IRAs and/or cash balance plans, annuities from defined benefit plans (unless the lump-sum distribution scenario is chosen), and (in some cases) net housing equity (either in the form of an annuity or as a lump-sum distribution). This version of the model is constructed to simulate "basic" retirement income adequacy; however, alternative versions of the model allow similar analysis for replacement rates, standard-of-living, and other ad hoc thresholds.

** The longevity quartile is established relative to family status, gender, and age cohort.

Figure 5

Years in Retirement Before Middle Class Boomers and GenXers Run Short of Money,* by Quartile of Stochastic Health Care Cost: Simulations With the 2014 Version of the EBRI Retirement Security Projection Model®



Source: EBRI Retirement Security Projection Model® version 2030.

* An individual or family is considered to "run short of money" in this version of the model if their aggregate resources in retirement are not sufficient to meet aggregate minimum retirement expenditures defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function of income) and some health insurance and out-of-pocket health-related expenses, plus stochastic expenses from nursing home and home health care expenses (at least until the point they are picked up by Medicaid). The resources in retirement will consist of Social Security (either status quo or one of the specified reform alternatives), account balances from defined contribution plans, IRAs and/or cash balance plans, annuities from defined benefit plans (unless the lump-sum distribution scenario is chosen), and (in some cases) net housing equity (either in the form of an annuity or as a lump-sum distribution). This version of the model is constructed to simulate "basic" retirement income adequacy; however, alternative versions of the model allow similar analysis for replacement rates, standard-of-living, and other ad hoc thresholds.

** The longevity quartile is established relative to family status, gender, and age cohort.