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Subcommittee on Social Security, Pensions, and Family Policy

Hearing on:

The Role of Social Security, Defined Benefits, and Private Retirement Accounts in the Face of the Retirement Crisis

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Statement for the Record

Jack VanDerhei, Ph.D.
Research Director
Employee Benefit Research Institute (EBRI)



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Introduction

Measuring retirement income adequacy is an extremely important and complex topic, and the Employee Benefit Research Institute (EBRI) started to provide this type of measurement in the late 1990s with the development of the EBRI Retirement Security Projection Model® (RSPM)¹, a computer simulation model that projects the financial outcomes for U.S. households in retirement. When we most recently modeled the Baby Boomers and Gen Xers earlier this year (2013), we found that their Retirement Readiness Ratings (or RRRs™, defined for public policy purposes as the probability of having adequate retirement income for standard retirement expenses—housing, food, etc.—plus uninsured health care costs, including long-term care) was between 55-58 percent. Not surprisingly, lower-income households have much lower RRRs: The 2013 baseline RRRs range from 16 percent for the households in the lowest-income quartile (meaning that 16 percent of the simulated lifepaths for that demographic are projected not to run short of funds in retirement) to 86 percent for the households in the highest income quartile.

In 2010, EBRI calculated the accumulated retirement adequacy deficits by age, family status, and gender for Baby Boomers, those born between 1948 and 1964, and Gen Xers, those born between 1965 and 1974. The aggregate deficit number, assuming current Social Security retirement benefits, is estimated to be \$4.6 trillion² with an individual average of approximately \$48,000. These numbers are present values at retirement age and represent the additional amount each member in that group would need at age 65 to eliminate their expected deficits in retirement (which could be a relatively short period or could last decades). Social Security benefits are, of course, an integral component of this equation. If Social Security benefits were to be eliminated, the aggregate deficit would jump to \$8.5 trillion and the average would increase to approximately \$89,000.

The 2010 analysis noted above incorporated the impact of the crisis in financial and housing markets in the 2007 through 2009 period. Even with these financial shocks to retirement savings, we found that, overall, the Baby Boomers and Gen Xers were significantly better off in 2010 than when we first ran the national model in 2003. The primary reason for this change was the adoption of automatic enrollment by a growing number of 401(k) plans (often accompanied by the adoption of automatic escalation of contributions) described later in this statement.³

An EBRI analysis in 2011 showed the tremendous importance of defined benefit pension plans in achieving retirement income adequacy for Baby Boomers and Gen Xers that have access to such programs. Overall, the presence of a defined benefit accrual at age 65 increases the probability of not running short of money in retirement by 11.6 percentage points. The defined benefit plan advantage is particularly valuable for the lowest-income quartile but also has a strong impact on the middle class.⁴

The Potential of 401(k) Plans to Produce Adequate Income Replacement

The annual 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 1996.⁵ 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/ICI analysis found that the average 401(k) account balance fell 34.8 percent in 2008, then rose from 2009 to 2011.⁶ 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 the impact of the financial crisis on 401(k) plans, it needs to be supplemented with simulation modeling for a proper evaluation 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 IRA rollovers and therefore may only provide information on a fraction of a participant’s retirement accumulations if they have had job changes.
- Even if one looks only at 401(k) participants who have had decades of 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.⁷
- 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. While employees have the ability to opt out of such enrollment, it is clear that these plans have had a substantial impact on participation rates, especially for lower income employees.⁸

- An analysis based solely on current balances will not incorporate the impact of future employee activity (such as potential cash-out behavior at job change) nor the impact of future financial market returns.

To assist the Subcommittee in its evaluation of the role of 401(k) plans in the face of the retirement crisis, EBRI has used its RSPM to analyze the potential of 401(k) plans to produce “adequate” income replacement.⁹ The analysis provides probabilities of successful retirement (defined below) by income quartile for both voluntary and automatic enrollment 401(k) plans. Given that the objective of this analysis is to focus on the potential for 401(k) plans to produce a threshold level of income replacement at retirement, the analysis is limited to those individuals who are simulated to have more than 30 years of eligibility for participating (whether or not they actually choose to participate in each of those years) by the time they reach age 65.¹⁰

Figure 1 summarizes the projections for the percentage of “successful retirements” for 401(k) participants by income quartile for those currently ages 25-29 in a voluntary enrollment 401(k) plan. Workers are assumed to retire at age 65 and all balances are converted into an inflation-adjusted annuity at an annuity purchase price of 18.62.¹¹ The annual income provided by these annuities in the first year of retirement is added to the simulated Social Security retirement benefit provided for the worker (spousal benefits are not included) and the combined retirement income is expressed as a percentage of the salary the worker was simulated to have earned at age 64.

One difficulty in evaluating the potential of any type of retirement income source is the determination of the threshold for “success”. While there have been a number of attempts to quantify this in the past;¹² there appears to be little consensus on the appropriate level(s).¹³ Therefore the analysis in this article uses three alternative “success” thresholds: attaining 60, 70 and 80 percent, respectively, of the pre-retirement income replaced by the combination of the annuitized value of the 401(k) accumulations¹⁴ combined with the primary Social Security benefit amounts.

The top row in the grid for Figure 1 shows that for the lowest income quartile¹⁵ 86 percent of the workers currently ages 25-29 who will have more than 30 years of eligibility for participation in a 401(k) plan are simulated to be able to replace at least 60 percent of their age 64 salary from their annuitized 401(k) accumulations and Social Security. This percentage decreases somewhat for their higher income counterparts, but goes no lower than 83 percent.

The second row in the grid for Figure 1 provides the same results when the threshold is increased to 70 percent. As expected, the percentage of workers able to meet a more stringent threshold decreases and the percentage of those in the lowest income quartile with successful retirements under this analysis is now 76 percent. The percentages for the second, third and fourth income quartiles are somewhat smaller but none are less than 73 percent.

The third row in the Figure 1 grid illustrates the impact of increasing the threshold for success to 80 percent. At this point the progressive nature of the benefit formula in Social Security causes the lowest income quartile to have a much higher probability of success (67 percent) than the highest income quartile (59 percent).

Figure 2 presents a similar type of analysis as Figure 1, but in this case the automatic enrollment type of 401(k) plan is simulated rather than the voluntary enrollment type, where employees must make a positive election to participate in the plan. In addition, the simulated analysis for Figure 2 assumes that 401(k) sponsors adopting automatic enrollment provisions also adopt automatic escalation of contributions. Note that while automatic enrollment plans have been in place for a number of years, there has been a substantial increase in the proportion incorporating some type of an automatic escalation feature as a result of the Pension Protection Act of 2006. However, it will be a number of years before these provisions have been in place long enough to accurately assess participant response with respect to items such as opt-out behavior and whether participants will retain their current savings rates when they change jobs, or simply revert to the deferral rate in the plan of the new employer. In the current analysis, plans are assumed to have automatic escalation with a 1 percent of annual compensation increase along with the current plan-specific default contribution rates.¹⁶ Employees are assumed to retain their previous level of contributions when they participate in a new plan and to opt-out of automatic escalation in accordance with the probabilities outlined in VanDerhei (September 2007).

It would appear from even a cursory comparison of the results in Figures 1 and 2 that this type of automatic enrollment plan would result in additional contributions sufficient to produce higher probabilities of success than the voluntary enrollment 401(k) plans in all income quartiles. For example, the top grid of Figure 2 shows that 94 percent of the lowest income quartile of workers currently ages 25-29 who will have more than 30 years of eligibility for participation in a 401(k) plan are simulated to be able to replace at least 60 percent of their age 64 salary in retirement from the annuitized 401(k) accumulations and Social Security. Again, these numbers drop somewhat for their higher-income

counterparts (88 percent for the highest income quartile) but are still substantially higher than the probabilities when voluntary enrollment is assumed.

The second row in the grid for Figure 2 presents the results when the threshold is increased to 70 percent. As expected, the percentage of workers able to meet this more stringent threshold decreases; the percentage of those in the lowest income quartile with successful retirements under this analysis is now 90 percent. Again the success percentages for the second, third and fourth income quartiles are somewhat smaller, but none are less than 81 percent.

The third row in the Figure 1 grid shows the impact of raising the threshold for success to 80 percent. At this point the benefit formula in Social Security causes the lowest income quartile to have a much higher probability of success (85 percent) than the highest income quartile (73 percent).

Impact of a Potential Reduction in Social Security Retirement Benefits

The analysis presented in both Figures 1 and 2 assumes that the computation of Social Security retirement benefits under current law would not be modified. However, the current Social Security Trustee's Report projects that the OASDI fund will be exhausted by 2033.¹⁷ Left unaddressed, while this would not result in Social Security retirement benefits being eliminated, it would seem to require a reduction in benefits for at least some cohorts of retirees. For purposes of the analysis in Figures 3 and 4, it was assumed that a proportional (and permanent) 24 percent reduction would be provided to the Social Security retirement benefits for all simulated workers.

As expected, the simulated reduction in Social Security retirement benefits would have a much larger impact on the lower income quartile; the percentage of the lowest income quartile under voluntary enrollment 401(k) plans with an 80 percent threshold drops 17 percentage points, from 67 percent to 50 percent, while the highest income quartile – which receives less proportionate benefits from Social Security - only drops by nine percentage points, from 59 percent to 50 percent (cf Figures 1 and 3).

A similar, but less pronounced, impact is found for the automatic enrollment plans (cf Figures 2 and 4). In this case, the percentage of the lowest income quartile with successful retirements at an 80 percent threshold drops 9 percentage points (from 85 percent to 76 percent) with the potential reduction in Social Security retirement benefits, while the highest income quartile drops only by 7 percentage points from 73 percent to 67 percent.

Summary

Since 2003 EBRI research has documented and quantified the role of Social Security, defined benefit and private retirement accounts on retirement income adequacy for Baby Boomers and Gen Xers in the United States. This statement summarizes that research, and presents new evidence on the importance of 401(k) plans for workers currently entering the workforce. Assuming current Social Security benefits are not reduced, between 83 and 86 percent of 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, will 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 financially successful retirement is increased to 70 percent replacement of age 64 income, 73 to 76 percent of these workers will still meet that threshold, relying only on 401(k) and Social Security combined. At an 80 percent replacement rate, 69 percent of the lowest income quartile will still meet the threshold; however the percentage of those in the highest income quartile deemed to be “successful” relying on just these two retirement components slips to 59 percent.

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 increases substantially: 88 to 94 percent at a 60 percent threshold; 81 to 90 percent at a 70 percent replacement and 73 to 85 percent at an 80 percent threshold.

EBRI looks forward to assisting 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) highlights the changes in private pension plan participation for DB and DC plans and uses the model to quantify how much the importance of individual account plans is 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 potentially catastrophic 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 to quantify the beneficial impact of a mandatory contribution of 5 percent of compensation for testimony for the Senate Special Committee on Aging (VanDerhei, January 2004).
- The model was enhanced to allow an analysis of the impact of annuitizing defined contribution and 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\$imate® 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 *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 Issue Brief expands upon earlier work by EBRI to provide the first results of a new simulation model that estimates 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 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*, the 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 defined contribution (DC) and defined benefit (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 are simulated to end up running short of money in retirement if today’s historically low interest rates are assumed to be a permanent condition.
- The August 2013 *EBRI Issue Brief* (VanDerhei, August 2013) used RSPM to analyze the Obama administration’s 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 computes 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.

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Endnotes

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

² This number is somewhat larger than the \$4.3 trillion reported in VanDerhei (May 2012); however, the baseline assumptions used in the 2010 analysis did not provide for the utilization of net housing equity to ensure retirement income adequacy. When the analysis is repeated with the same assumptions as used in 2010, the aggregate deficit actually increases to \$4.8 trillion.

³ As a result of several requests to determine the impact of the financial and real estate market crises on overall retirement income adequacy, EBRI conducted another analysis in 2011 that found the percentage of households that would not have been “at risk” without the 2008–2009 crisis but that ended up “at risk” varies from a low of 3.8 percent to a high of 14.3 percent. See VanDerhei (February 2011) for more detail.

⁴ See VanDerhei (August 2011) for more detail. It should be noted that the huge impact on retirement income adequacy of having a defined benefit plan accrual at age 65 may be a bit misleading given that any participant changing jobs prior to age 65 is assumed to receive a lump sum distribution instead of a terminated vested annuity if the present value of the accrual falls below statutory thresholds. Although the “defined benefit vs. defined contribution” debate has produced a substantial amount of conjecture in recent years, a careful analysis of the ability to generate “adequate” retirement income under either type of retirement plan needs to include proper data and methods to simulate future job changes and employee behavior at that time as well as future participation, contribution and asset allocation decisions by defined contribution participants. See VanDerhei (June 2013a) and VanDerhei (December 2013) for an example of this type of comparative analysis.

⁵ See VanDerhei, Holden, Alonso and Bass (December 2013) for the most recent results.

⁶ VanDerhei, Holden, Alonso and Bass (October 2013).

⁷ 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).

⁸ See Figure 23 of Utkus and Young (2013) for recent evidence.

⁹ Additional details on RSPM and the assumptions used in 2013 can be found in VanDerhei (June 2013b). 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.

¹⁰ For an indication of how years of eligibility impact overall Retirement Readiness Ratings, see VanDerhei (June 2013b). This analysis simulates the impact of future years of eligibility for a defined contribution plan on the probability of households NOT running short of money in retirement. As can be seen in Figure 3 of that analysis, the probability that a Gen Xer household with no future years of defined contribution eligibility will not run short of money in retirement is 38.6 percent. This increases to 59.8 percent for Gen Xer households with 1-9 years of future eligibility and 73.4 percent for those with 10-19 years. More than 17 out of 20 (86.1 percent) of Gen Xer households with more than 20 years of future eligibility are simulated to not run short of money in retirement. This analysis was for all income quartiles combined. Similar results are found when we control for relative levels of pre-retirement income (see Figure 4 of VanDerhei May 2012).

¹¹ The annuitization of the balances are performed only for purposes of providing an income stream that can be added to the inflation-adjusted annuity provided by Social Security. Indeed, only a small percentage of defined contribution participants currently annuitize their entire account balance at retirement (and even a smaller percentage purchase an inflation-adjusted annuity for the entire amount). When RSPM is used to compute Retirement Readiness Ratings (the probability that a particular cohort will not run short of money in retirement), the defined contribution and IRA balances are not assumed to be annuitized but instead are assumed to be spent down as needed.

¹² See MacDonald and Moore (2011) for a very thorough review of the literature.

¹³ One reason for this is the need to determine how potentially catastrophic health care costs (such as nursing home costs) in retirement will be handled. Even though these costs will not be an issue for all retirees, and certainly not a problem in every year of retirement, a multi-year stay in a nursing home in retirement may deplete the retirement savings of a household to the point where it eventually runs short of money in retirement. See VanDerhei (August 2012) for more detail.

¹⁴ The phrase “401(k) accumulations” in this analysis denotes both accumulations in 401(k) accounts at retirement age as well as IRA rollovers that originated from 401(k) plan accumulations.

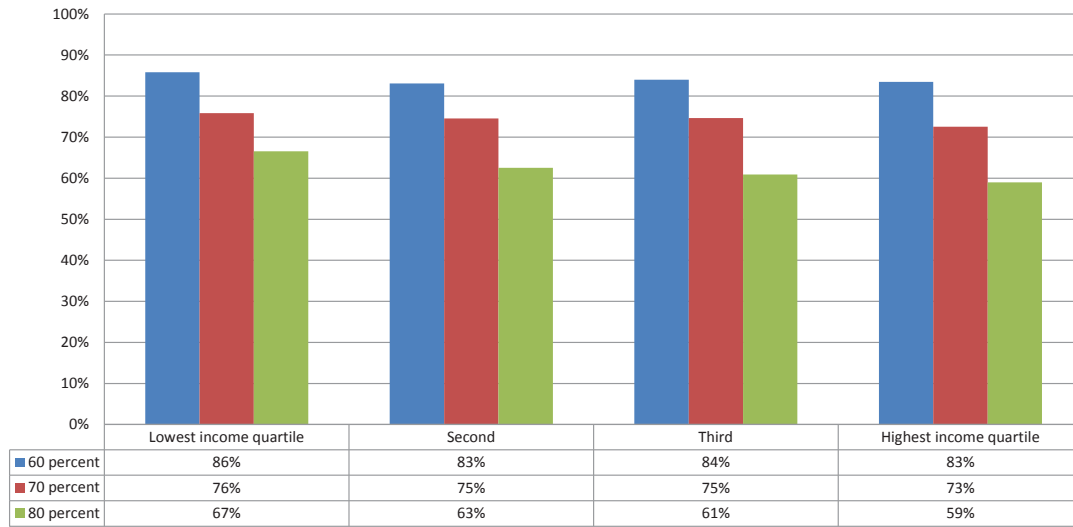
¹⁵ RSPM needs to use information during the worker’s entire career to determine pre-retirement income quartiles (similar to the AIME calculation for Social Security). This is explained in endnote 17 of VanDerhei and Copeland (2010).

¹⁶ VanDerhei (September 2012) simulated the impact of increasing the current plan-specific default rates (typically 3 percent of compensation) 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 successful under actual default contribution rates were found to be successful as a result of the change in deferral percentage.

¹⁷ The 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

Figure 1

Percentage of successful* retirements for voluntary enrollment 401(k) plans by income quartile:
Current Social Security retirement benefits

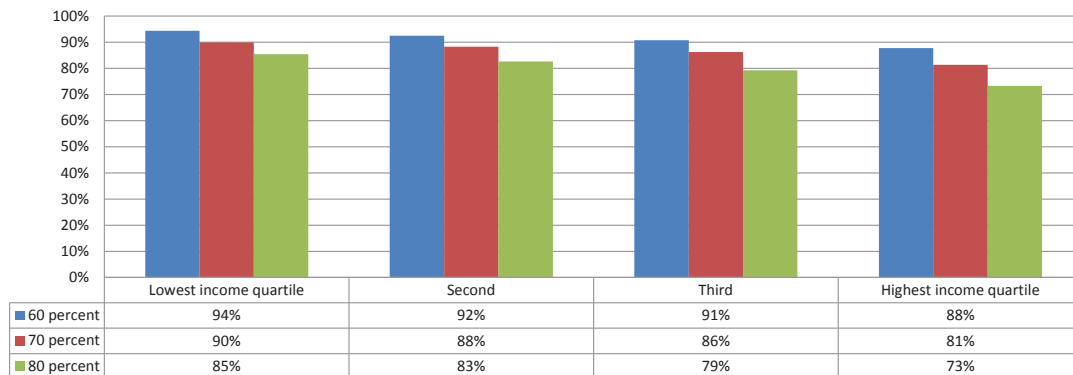


Source: EBRI Retirement Security Projection Model, versions 1950 and 1951.

* "Success" is defined as achieving an X percent real replacement rate from Social Security and 401(k) accumulations combined as defined in VanDerhei and Lucas (2010) where X = 60, 70 or 80. The population simulated consists of workers currently ages 25–29 who will have more than 30 years of simulated eligibility for participation in a 401(k) plan. Workers are assumed to retire at age 65 and all 401(k) balances are converted into a real annuity at an annuity purchase price of 18.62.

Figure 2

Percentage of successful* retirements for automatic enrollment 401(k) plans with automatic escalation** by income quartile:
Current Social Security retirement benefits



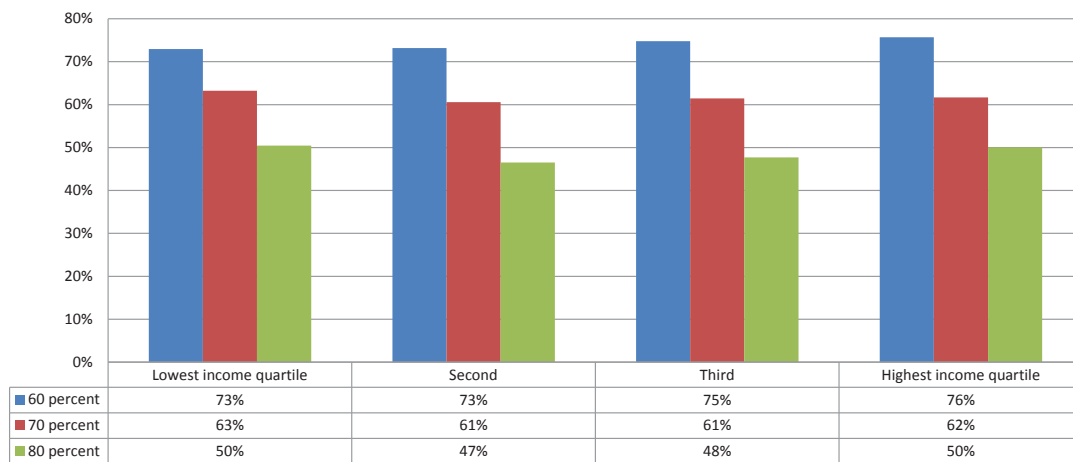
Source: EBRI Retirement Security Projection Model, version 1976.

* "Success" is defined as achieving an X percent real replacement rate from Social Security and 401(k) accumulations combined as defined in VanDerhei and Lucas (2010) where X = 60, 70 or 80. The population simulated consists of workers currently ages 25–29 who will have more than 30 years of simulated eligibility for participation in a 401(k) plan. Workers are assumed to retire at age 65 and all 401(k) balances are converted into a real annuity at an annuity purchase price of 18.62.

**Plans are assumed to have automatic escalation with a 1 percent of annual compensation increase and plan-specific default contribution rates. Employees are assumed to retain their previous level of contributions when they participate in a new plan and opt-out of automatic escalation in accordance with the probabilities in VanDerhei (September 2007)

Figure 3

Percentage of successful* retirements for voluntary enrollment 401(k) plans by income quartile:
Current Social Security retirement benefits reduced by 24 percent

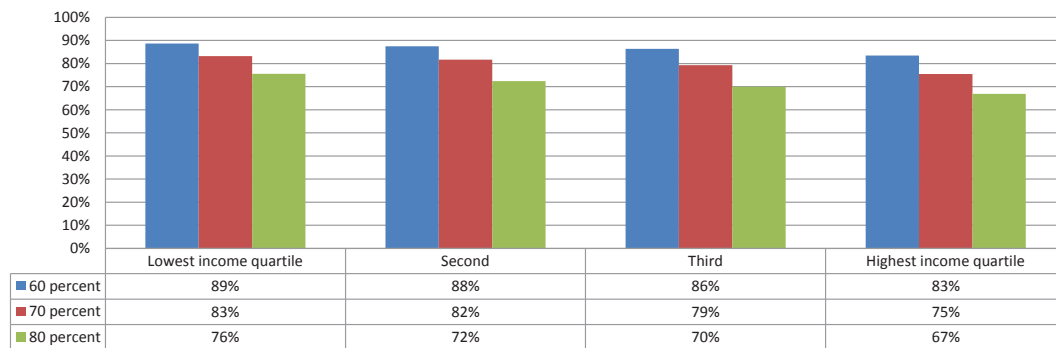


Source: EBRI Retirement Security Projection Model, versions 1950 and 1951.

* "Success" is defined as achieving an X percent real replacement rate from Social Security and 401(k) accumulations combined as defined in VanDerhei and Lucas (2010) where X = 60, 70 or 80. The population simulated consists of workers currently ages 25–29 who will have more than 30 years of simulated eligibility for participation in a 401(k) plan. Workers are assumed to retire at age 65 and all 401(k) balances are converted into a real annuity at an annuity purchase price of 18.62.

Figure 4

Percentage of successful* retirements for automatic enrollment 401(k) plans with automatic escalation** by income quartile:
Current Social Security retirement benefits reduced by 24 percent



Source: EBRI Retirement Security Projection Model, version 1976.

* "Success" is defined as achieving an X percent real replacement rate from Social Security and 401(k) accumulations combined as defined in VanDerhei and Lucas (2010) where X = 60, 70 or 80. The population simulated consists of workers currently ages 25–29 who will have more than 30 years of simulated eligibility for participation in a 401(k) plan. Workers are assumed to retire at age 65 and all 401(k) balances are converted into a real annuity at an annuity purchase price of 18.62.

**Plans are assumed to have automatic escalation with a 1 percent of annual compensation increase and plan-specific default contribution rates. Employees are assumed to retain their previous level of contributions when they participate in a new plan and opt-out of automatic escalation in accordance with the probabilities in VanDerhei (September 2007)