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Tax Reform and Tax-Favored Retirement Accounts

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1 Introduction

Mr. Chairman and members of the committee, thank you for your invitation to testify today on tax reform and tax-favored retirement accounts. I am Jack VanDerhei, research director of the Employee Benefit Research Institute. EBRI is a nonpartisan research institute that has been focusing on retirement and health benefits for the past 34 years. EBRI does not take policy positions and does not lobby.

The testimony draws on the extensive research conducted by EBRI on these topics over the last 13 years with its Retirement Security Projection Model® as well as annual analysis of tens of millions of individual 401(k) participants dating back in some cases as far as 1996.

Today's testimony will deal with the following questions:

- What is the size of American's retirement savings gap?
- What is the impact of tax favored retirement accounts on retirement income adequacy?
- What is the value of tax-favored retirement accounts under current tax incentives (with particular emphasis on 401(k) plans)?
- How might workers react to changing tax incentives?
- What is the potential impact of two recent tax reform proposals on retirement security?

2 What is the size of Americans' retirement savings gap?

The concept of measuring retirement security – or retirement income adequacy – is an extremely important topic. EBRI launched a major project to provide this type of measurement in the late 1990s for several states that were concerned whether their residents would have sufficient income when they reached retirement age. After conducting studies for Oregon, Kansas and Massachusetts, we expanded the simulation model to a full-blown national model in 2003, and in 2010 updated it to incorporate several significant changes, including the impacts of defined benefit plan freezes, automatic enrollment provisions for 401(k) plans and the recent crises in the financial and housing markets.[1]

When we modeled the Baby Boomers and Gen Xers in 2012 (Figure 1) between 43.3–44.3 percent of the simulated lifepaths for retired households were projected to have inadequate retirement income for basic retirement expenses plus uninsured health care costs. This is 5-8 percentage points LOWER than what we found in our 2003 analysis.

While the passage of time allowed more funds to be saved, the improvement over the last nine years is largely due to the fact that in 2003 very few 401(k) sponsors used automatic enrollment (AE) provisions and the participation rates among the lower income employees (those most likely to be at risk) was quite low. With the adoption of AE in the past few years, the participation rates have often increased to values in excess of 80 percent.

While we found no significant trends by age demographic, Figure 2 shows that the lower-income households are much more likely to be at risk for insufficient retirement income (even though we model our basic retirement expenses as a function of the household's expected retirement income). The 2012 baseline ratings for Early Boomers ranges from a projection that 87 percent of the simulated lifepaths for retired lowest-income households are at risk to only 13 percent for the simulated lifepaths for retired highest income households. Similar trends are evidenced for both the Late Boomers and Gen Xers.

Knowing the percentage of households that will be at risk for inadequate retirement income is important for public policy analysis; however, equally important is knowing just how large the accumulated deficits are likely to be. The aggregate deficit number with the current Social Security retirement benefits and the assumption that net housing equity is utilized "as needed" is estimated to

be $4.3 trillion for all Baby Boomers and Gen Xers.[2] While trillion dollar deficits are useful in focusing attention on this problem, they do little to help policy makers understand exactly where these deficits are coming from.[3] For example, Figure 3 provides information on the average individual retirement income deficits by the number of future years eligible for coverage in a defined contribution retirement plan for Gen Xers. These Retirement Savings Shortfalls (RSS) are present values at retirement age and represent the additional amount each individual in that group would need to have accumulated at age 65 to eliminate their expected deficits in retirement (which could be a relatively short period or could last decades). The values for those assumed to have no future years of eligibility is approximately $78,000 per individual. The number decreases substantially for those with 1-9 years of future eligibility to $55,000 and even further to $39,000 for those with 10-19 years of future eligibility. Gen Xers fortunate enough to have at least twenty years of future eligibility find their average deficits reduced to only $23,000.

Figure 4 provides similar information for the impact of future eligibility for defined contribution plans for Gen Xers although this time the analysis also controls for relative levels of pre-retirement income. For those in the lowest income quartile, the average deficit declines from approximately $106,000 for those with no years of future eligibility to approximately $66,000 for those with twenty or more years. A similar reduction is found for the higher income quartiles.

3 Impact of tax favored retirement accounts on retirement income adequacy

Previous research by EBRI has demonstrated that one of the most important factors contributing to retirement income adequacy for the Boomers and Gen Xers is eligibility to participate in employment-based retirement plans. VanDerhei (August 2011) provides information on how the relative value of the defined benefit accruals impact retirement income adequacy. Figure 5 categorizes any positive value for a defined benefit accrual into quartiles for each income group. The largest reduction in at-risk ratings between the highest and lowest income-specific defined benefit value quartiles takes place for the lowest-income quartile. For these households, the at-risk ratings drop 36 percentage points, from 82 percent to 46 percent. Households in the second income quartile drop 25 percentage points (from an at-risk rating of 58 percent for those in the lowest defined benefit value quartile to 33 percent for those in the highest defined benefit value quartile) while those in the third and highest income quartile drop 24 and 21 percentage points, respectively.

Figure 6 provides similar information for eligibility in defined contribution plans for Gen Xers in 2012. In this case we see that the number of future years the workers are eligible for participation in a defined contribution plan makes a tremendous difference in their at-risk ratings. For example, Gen Xers with no future years of eligibility are simulated to run short of money 60.7 percent of the time, whereas those with twenty or more years of future eligibility would only experience this situation 18.2 percent of the time.

4 The value of tax-favored retirement accounts under current tax provisions: the case of 401(k) plans

Given the phenomenal growth of defined contribution plans (especially those with a 401(k) feature) in the private sector in the last three decades, it appears that this form of employer-provided retirement plan will provide a substantial percentage of non-Social Security retirement wealth for Baby Boomers and Gen Xers. Unfortunately, the "success" of these plans are sometimes measured by metrics that are not at all relevant to the potential for defined contribution plans to provide a significant portion of a worker's pre-retirement income. For example, some analysts will merely report the average balance in defined contribution plans (most commonly the 401(k) subset of this universe) and attempt to assess the value of these plans by determining the amount of annual income that this lump sum amount could

be converted to at retirement age. Of course, this concept does not adjust for the fact that the vast majority of 401(k) participants are years, if not decades, away from retirement age. Moreover, even if one does look at the average balances for workers near retirement age, it is obviously not correct to look only at the 401(k) balance with the employee's current employer. [4]

4.1 Average account balances

In an attempt to provide meaningful statistics on the 401(k) system, EBRI entered into a collaborative effort with the Investment Company Institute (ICI) in 1996 known as the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project. As of December 31, 2010,[5] the database included participant-level information about:

- 23.4 million 401(k) plan participants, in
- 64,455 employer-sponsored 401(k) plans, holding
- $ 1.414 trillion in assets.

Since the inception of the project, average balances have been displayed as a function of both the participant's age and tenure with the current employer to allow a more meaningful assessment of the accumulation potential of these plans. VanDerhei, Holden, Alonso and Bass (2011) computed an overall average account balance at year-end 2010 of $60,329; however, the average value for participants in their 60's was much more representative of what a participant would have available for retirement. Even looking at participants in this age cohort may be misleading unless one controls for tenure with the current employer. For example, participants in their 60's with no more than two years of tenure had an average account balance at the end of 2010 of $26,649.[6] The longest tenured participants in their 60's had been with the current employer for at least 30 years and had an average account balance of $202,329.

While the $202,329 value is considerably larger than the often-reported overall balance of $60,329, it is still not a fair representation of what a full-career's participation in a 401(k) plan might produce in terms of income replacement in retirement for several reasons:

- Some of the participants in their 60's may still plan to work several additional years before they retire.
- Even though a participant has at least thirty years of tenure with the current employer, it does not mean not the 401(k) plan has been in place for the entire period. Moreover, there is no guarantee that the employee who is participating in 2010 has done so the entire time they were eligible.
- Many of the participants in their 60's have already started to withdrawal money from their account balances. Figure 7 shows the average account balance for similarly long-tenured participants who were 55-64 in 2010. However, in this case only participants with a positive value for the sum of employee and employer contributions in 2010 were included. The year-end 2010 average account balance for this group was $255,075. Projections were also performed based on 2010 asset allocation and contribution behavior as well as subsequent market performance. The estimated year-end 2011 average account balance for this group was $272,681 and the value for the end of first quarter 2012 was $292,258.

Since 1999, average balances are also computed for a "consistent sample" of participants to control for the downward bias that would otherwise exist from IRA rollovers when 401(k) participants change jobs.[7] VanDerhei, Holden and Alonso (2010) report on the average account balances among 401(k) participants present from year-end 1999 through year-end 2009 and find the overall average increases from $67,420 at year-end 1999 to $131,438 at year-end 2009, an increase of 95.0%.[8]

4.2 Simulation results for voluntary enrollment 401(k) plans

Even with these empirical techniques, it is difficult to obtain a true value of the 401(k) system's potential to generate significant 401(k) accumulations over an entire working career when many of today's retirees only had access to a 401(k) plan for a portion of their career.[9] In an attempt to control for these problems, EBRI and ICI produced a joint publication in 2002[10] with simulation results showing that under a continuous coverage situation, 401(k) participants could expect to replace someplace between 51 and 69 percent (depending on income quartile) of their pre-retirement income assuming the purchase of a (nominal) annuity at age 65. The lower savings rate for low-income participants is somewhat ameliorated by their Social Security payments representing a relatively large measure of what their pre-retirement income had been. When Social Security benefits (using the current statutory formulae) are added in, the median combined replacement rates in the first year of retirement are 103 percent for the lowest income quartile and between 83 and 86 percent for the highest three income quartiles.[11]

4.3 The "controversy" over automatic enrollment decreasing retirement savings

In an article that appeared in the Wall Street Journal last July, Anne Tergesen[12] suggested that the automatic enrollment (AE) provision for 401(k) plans, a plan design expanded and clarified in the Pension Protection Act of 2006 (PPA), and designed to broaden participation in these programs, was actually suppressing retirement savings. What that article failed to mention is that automatic enrollment is actually increasing savings for many more—especially the lowest-income 401(k) participants.

EBRI has been publishing studies on the likely impact of AE for seven years. In a joint 2005 study with ICI,[13] we looked at the potential change in 401(k)/IRA[14] accumulations as a result of changing traditional voluntary enrollment (VE) 401(k) plans to AE plans. Although we had the advantage of using a database of tens of millions of 401(k) participants (going back in some cases to 1996), data was unavailable with respect to how workers would react to AE provisions, and thus simulated the likely response based on the results of academic studies.[15] What we found was that the overall expected improvement in retirement accumulations—especially for the lower-income quartiles—were nothing less than spectacular.

One point that had previously been made clear in the academic literature was that some workers defaulted into a 401(k) AE plan (without automatic escalation provisions) would continue to contribute at the defaulted contribution rate that the plan sponsor had chosen (typically in the range of 3 percent of compensation). Traditionally, and in the absence of these AE provisions, many workers have chosen to start contributing at a 6 percent rate (largely in response to the matching contribution incentive provided by the employer). However, some participants in AE plans – who otherwise might have voluntarily chosen to participate at a higher contribution level –instead might simply allow their savings to start – and remain – at the default rate. As a result, they were likely contributing at a lower rate than if they been working for a plan sponsor offering a VE 401(k) plan AND had made a positive election to participate.

This anchoring effect can be seen by looking at the top-income quartile in the 2005 study, where the median replacement rate for the top-income quartile decreased by 4 percentage points for the scenario with a 3 percent contribution rate and default investment in a money market fund.[16] However, it would appear that this was more than offset by the increase in participation for the lower-income quartiles due to auto-enrollment, resulting in substantial increases in their retirement accumulations (for the same scenario as mentioned above, the third-income quartile's median replacement rate increased 2 percentage points, the second-income quartile increased 7 percentage points, and the lowest-income quartile increased 14 percentage points). In sum, while some workers saved less than they might otherwise, more workers saved.

A year after this study was released, Congress passed the Pension Protection Act of 2006, or PPA, which eased some of the administrative barriers to providing AE and for the first time outlined safe harbor provisions for automatic escalation. Although it was too soon to know how plan sponsors would respond to this new clarity, EBRI published a study in 2007[17] that showed how automatic escalation – the systematic increase of deferral rates over time - would render even more favorable results for AE designs under a number of different scenarios.

In 2008, EBRI included all the new PPA provisions in a study[18] that compared potential accumulations under AE and VE for several different age groups. Again, we found certain (high-income) groups were likely to do better under VE than AE, but overall, the AE results dominated.[19] Note that the AE design itself in no way precludes these high-income groups from increasing their initial default rates.

By 2009, many of the 401(k) sponsors who previously had VE plans had shifted to AE plans and EBRI was able to track the changes in plan provisions for hundreds of the largest 401(k) plans. This information was used in an April 2010 EBRI Issue Brief[20] to show, once again, the significant impact of moving to AE plans: for those currently ages 25–29, the difference in the median accumulations at normal retirement age would be approximately 2.39 times final salary in an AE plan relative to a VE plan.

Later that year, VanDerhei and Lucas (2010) focused on how to improve plan design and worker education to optimize the results under AE plans with automatic escalation of contributions. While it is difficult to determine a precise "target" for retirement savings, we tried to demonstrate these designs' ability to produce what, by most financial planning standards, appears to be quite generous: an 80 percent real income replacement rate in retirement, when 401(k) accumulations are combined with Social Security. Figure 8 demonstrates that if the most pessimistic[21] combination of plan design and worker behavioral assumptions were used in the AE plans studied, 45.7 percent of the lowest-income quartile would obtain this threshold,[22] and in view of the way in which Social Security benefits are designed, an even lower percentage of the highest-income quartile (27 percent) would reach the 80 percent threshold.

The study found that with the all-optimistic assumptions, the percentage of lowest-income quartile workers achieving the 80 percent threshold increased to 79.2 percent, while that of the highest-income quartile workers increased to 64 percent.

Surprisingly, the Wall Street Journal article reported only the most pessimistic set of assumptions, and did not cite any of the other 15 combinations of assumptions in the study. The article also reported only results under the threshold of a real replacement rate of 80 percent, while Figure 9 shows that even decreasing the threshold to a 70 percent real replacement rate would increase the percentage of "successful" retirement events by 19 percentage points for the lowest-income quartile and 12 percentage points for the highest-income quartile under the all-pessimistic set of assumptions.

The other statistic attributed to EBRI in the article dealt with the percentage of AE-eligible workers who would be expected to have larger tenure-specific worker contribution rates had they been VE-eligible instead. The simulation results we provided showed that approximately 60 percent of the AE-eligible workers would immediately be better off in an AE plan than in a VE plan, and that over time (as automatic escalation provisions took effect for some of the workers) that would increase to 85 percent.

The Wall Street Journal article did not report the positive impact of auto-enrollment 401(k) plans on many workers who began to save for retirement due to AE. As with any change, some people will not have the most desirable results; but if the focus of auto-enrollment is to increase participation among lower-income participants (and, as a result, their retirement financial preparedness), objective analysis suggests auto-enrollment does indeed achieve that goal.

4.4 Summary

To summarize, it appears from both empirical analysis and simulation results based on tens of millions of individual participant observations (dating all the way back to 1996 in many cases), that the traditional (VE) type of 401(k) plan under the current set of tax incentives has the potential to generate a sum that, combined with Social Security benefits. would replace a sizeable portion of the employee's preretirement income for those fortunate enough to have continuous coverage during their working careers. Moreover, the AE type of 401(k) plan when combined with automatic escalation provisions appears to have the potential to produce even larger retirement accumulations for many of those covered by such a plan during a significant portion of their working careers.

5 Changing tax incentives

5.1 Results From the 2011 Retirement Confidence Survey

VanDerhei (March, 2011) provides an analysis of two new questions from the 21st wave of the Retirement Confidence Survey (RCS)[23] showing how workers[24] would likely react if they were no longer allowed to deduct retirement savings plan contributions from taxable income.

Although analysis based on financial economics suggests that higher-income employees would be the most likely to be negatively affected by a proposal to cut or eliminate the deductibility of 401(k) contributions (at least to the point they are constrained with respect to the annual funds available to contribute to a 401(k) plan),[25] behavioral economics has shown that the reaction of employees in situations similar to this can be at odds with what might be predicted by an objective focused strictly on optimizing a particular financial strategy. In an attempt to better understand potential employee behavior with respect to a proposed elimination of deductions for 401(k) contributions, the 2011 RCS included two new questions. The first asked respondents how important is being able to deduct their retirement savings plan contributions from their taxable income in encouraging them to save for retirement. When confined to full-time workers (n=591), the weighted results were as follows:[26]

Not at all important 4.3%

Not too important..... 5.0%

Somewhat important..... 27.8%

Very important..... 61.5%

If one were to look at this from a strictly financial perspective, one would assume that the lower-income individuals (those most likely to pay no or low marginal tax rates and therefore have a smaller financial incentive to deduct retirement savings contributions from taxable income) would be least likely to rate this as "very important." However, those in the lowest household income category ($15,000 to less than $25,000) actually have the largest percentage of respondents classifying the tax deductibility of contributions as very important (76.2 percent).

The second question asked of those currently saving for retirement was "Suppose you were no longer allowed to deduct retirement savings plan contributions from your taxable income. What do you think you (and your spouse) would be most likely to do?" When confined to full-time workers (n=460), and eliminating those who refused to answer or responded that they did not know, approximately 1 in 4 full-time workers (25.6 percent) indicated that they would reduce (in some cases completely) their contributions if the ability to deduct them was eliminated. The lowest-income category ($15,000 to less than $25,000) has the largest negative reaction to this proposal, with 56.7 percent indicating a savings reduction.

A similar occurrence takes place when the percentage of those stating they would reduce the amount they are saving or stop saving altogether is displayed by the amount they currently have in savings and investments, not including the value of their primary residence or the value of defined benefit plans. There is a significant increase in the self-reported propensity to reduce savings for those in the lowest savings categories. For example, of the full-time workers who are currently saving for retirement who report that they currently have less than $1,000, 71.3 percent indicate they would reduce the amount saved. This value declines to 38.8 percent for those with savings of $1,000 to less than $10,000.

6 The Potential Impact of Tax Reform on Retirement Security

Prior to estimating the potential reductions in accumulations resulting from reduced 401(k) contributions, a set of baseline results first needs to be run to determine the likely values if the various tax reform options are not imposed on the current 401(k) system. The model used in this article is based on the 401(k) voluntary enrollment modules from the EBRI Retirement Security Projection Model® (RSPM) and is similar in many respects to the one used in Holden and VanDerhei (2002) in that it looks only at current 401(k) participants and does not attempt to include eligible nonparticipants[27] or workers who are currently not eligible.[28] However, unlike the 2002 model, this analysis assumes no job turnover, withdrawals, or loan defaults.[29]

Using the 401(k) voluntary enrollment modules from RSPM, VanDerhei (November 2011) shows that the median real-replacement rates at age 67 from 401(k) balances exclusively for participants currently ages 25–29 by income quartiles.[30] The values vary from a low of 53 percent for the lowest-income quartile to a high of 77 percent for the highest-income quartile.[31] The simulated rates of return are explained in more detail in VanDerhei and Copeland (2010), but they are based on a stochastic process with a mean equity return of 8.9 percent and a mean fixed-income return of 6.3 percent (expressed in nominal terms).

6.1 20/20 Caps

In December 2010, the National Commission on Fiscal Responsibility and Reform released their long-awaited document on federal debt reduction, "The Moment of Truth." Although their guiding principles and values (pages 13–14) specifically mention the need to keep America sound over the long run by implementing "policies today to ensure that future generations have retirement security, affordable health care, and financial freedom," the document puts forth an example that would modify retirement plans by capping annual "tax-preferred contributions to [the] lower of $20,000[32] or 20% of income" (page 31). This is often referred to as the "20/20 cap."

Even if one were to ignore the potential interaction of the proposed limitations with the present values of accruals under defined benefit plans and/or the existing tax preferences available to some IRA contributions, this alternative formulation of capping tax-preferred contributions would substantially reduce the current limits available under qualified defined contribution plans. Currently, the combination of employee and employer contributions is the lesser of a dollar limit of at least $50,000 per year[33] and a percentage limit of 100 percent of an employee's compensation.[34]

VanDerhei (July, 2011) provides preliminary evidence of the impact of these "20/20 caps" on projected retirement accumulations. If the 20/20 caps are assumed to be imposed starting in 2012, the annual percentage reductions in 401(k) account balances at Social Security normal retirement age are displayed in Figure 10 by age and age-specific income quartiles for all 401(k) participants with salaries in excess of $10,000 and tenure of at least two years.

Two points stand out immediately:

- With the exception of the earliest age cohort[35] (those currently 26–35), the average reduction for any income quartile decreases for older age cohorts. This is due to the fact that those closest to retirement age will have fewer years of future contributions subject to potential reduction as a result of the 20/20 caps.
- Within each of the four age cohorts, the highest-income quartile experiences the largest average percentage reduction from the 20/20 caps. This reaches a maximum value of 15.1 percent for the highest-income quartile for those currently ages 36–45 and falls to 8.6 percent for the highest-income quartile for those currently ages 56–65.

The finding that the highest-income quartile within each age cohort experiences the largest average percentage reduction is no surprise, given the increased likelihood that workers in this cohort either currently exceed the $20,000 (indexed) limit when their contributions are combined with employer contributions or are predicted to do so in the future. However, for each age cohort other than the oldest one, the lowest-income quartile has the second-highest average percentage reductions. Although this may be due to several considerations,[36] it is almost always a result of their current or expected future contributions exceeding 20 percent of compensation when combined with employer contributions. Phrased another way, the 20/20 cap would, as expected, most affect the highest-income workers, but it also would cause a significant reduction in retirement accumulations for the lowest-income workers.

6.2 Modifying the existing tax treatment of worker and employer 401(k) contributions

In September 2011, the U.S. Senate Finance Committee held a hearing on "Tax Reform Options: Promoting Retirement Security." One of the primary topics during the hearing was an assessment of the potential benefits and consequences that may result from a proposal to modify the federal tax treatment of 401(k) plan contributions in exchange for a flat-rate government match. Gale (2011) updated a 2006 analysis by Gale, Gruber, and Orszag and analyzed a plan that would change the treatment of retirement saving in three ways:[37]

> "First, unlike the current system, workers' and firms' contributions to employer-based 401(k) accounts would no longer be excluded from income subject to taxation, contributions to IRAs would no longer be tax-deductible, and any employer contributions to a 401(k) plan would be treated as taxable income to the employee (just as current wages are). Second, all qualified employer and employee contributions would be eligible for a flat-rate refundable tax credit, given to the employee. Third, the credit would be deposited directly into the retirement saving account, as opposed to the current deduction, which simply results in a lower tax payment than otherwise."

Regarding the proposed tax credit, Gale (2011) reports estimates from the Tax Policy Center for both an 18 percent credit and a 30 percent credit. The paper includes a distributional analysis of the winners and losers under the two versions of the proposal; however, the underlying analysis holds retirement saving contributions constant for both employers and participants (page 6). Gale mentions that the proposal "could conceivably affect incentives for firms to offer 401(k)s or pensions" (page 7) but concludes that this seems unlikely. He also dismisses as likely overstated the concern that the tax credit/matches called for in the proposal may discourage employer matches to 401(k) plans, but offers no supporting data for this assumption

These two papers provide an interesting analysis of a proposal with profound public-policy implications. The assumptions based on responses (or lack thereof), both from individual workers and the plan sponsors themselves, will likely be the focus of serious debate. Moreover, public policy consideration of

this proposal will undoubtedly be subject to a cost-benefit analysis beyond the assumption that retirement savings contributions will remain constant on the part of participants and/or plan sponsors.

On a cautionary note, it is admittedly very difficult to determine how those workers not currently covered and/or participating in a defined contribution plan would react to this set of incentives, and EBRI will continue to work with actual participant data to better assess some of the behavioral tendencies of this group. Until this type of information is available, it will be quite difficult to fully assess the "benefit" portion of the cost-benefit analysis suggested above. EBRI did provide an analysis of some of the likely "costs" in terms of reduced retirement benefits for those currently in the 401(k) system at a September 2011 Senate Finance Committee hearing. However, no information on plan sponsor reaction to the proposal was available at that time. Consequently, the 2011 EBRI analysis presented there was based on several alternative scenarios.[38] Moreover, the information used to model potential 401(k) participant reaction to the proposal was limited to "an analysis of two new questions from the 21st wave of the Retirement Confidence Survey (RCS) reflecting how workers indicated they would likely react if they were no longer allowed to defer retirement savings plan contributions from taxable income."[39]

6.2.1 New Survey Analysis

6.2.1.1 Plan Sponsors

In recent months, two surveys have provided additional information on potential responses from plan sponsors with respect to this type of proposed modification of the 401(k) system. A survey conducted on behalf of The Principal Financial Group (2011) determined that if workers' ability to deduct any amount of the 401(k) contribution from taxable income was eliminated, 65 percent of the plan sponsors responding to the survey would have less desire to continue offering their 401(k) plan.[40]

A separate survey by AllianceBernstein (2011) provided plan sponsors with the following question:[41]

> Suppose U.S. legislation were enacted such that employees were no longer allowed to deduct retirement savings plan contributions from their federal taxable income. In addition, suppose that the employee had to pay federal income tax on anything an employer contributed to the employee's retirement savings account in the year it was contributed. In exchange for this modification of the current tax incentives, assume the U.S. government would match 18% of whatever was contributed to a retirement savings plan. What do you believe would be the most likely change to your plan?

Responses were obtained from 1,018 plan sponsors grouped into six size categories based on total retirement plan assets.

6.2.1.2 Participants

With respect to potential worker reactions to this proposal, a new set of questions concerning participant behavior in response to the specific federal tax modifications proposed in Gale (2011) was included in the 2012 RCS. Specifically, workers currently contributing to a workplace retirement plan were asked:

1. Suppose you were no longer allowed to deduct your retirement savings plan contributions for federal income tax purposes and that anything your employer contributed to your retirement savings this year on your behalf was also treated as part of your taxable income. Suppose the government matched 18% of contributions so that for every $100 you or your employer contributed to your retirement savings plan this year, the government would contribute $18. What do you think you would be most likely to do?[42]

a. Stop contributing altogether

b. Reduce the amount you contribute

c. Continue to contribute what you do now

d. Increase the amount you contribute

Follow-up questions were asked of those who indicated they would either increase or decrease the amount they currently contribute:

2. By about how much do you think you would reduce your contribution? Would you:
   a. Reduce it by about a quarter
   b. Cut it in half, or
   c. Reduce it by about three-quarters
3. By about how much do you think you would increase your contribution? Would you increase it by about
   a. A quarter
   b. Half
   c. Three-quarters, or
   d. Double it

6.2.1.3 Impact on 401(k) Balances at Retirement Age

VanDerhei (March 2012) utilizes the defined contribution participant responses to the RCS questions above, as well as the plan sponsor responses to the AllianceBernstein survey, to parameterize the voluntary enrollment module of RSPM in order to estimate the likely impact of the proposed federal-tax modifications on projected 401(k) balances at retirement age, assuming the modifications took effect immediately.

6.2.1.3.1 Age and Salary

Figure 11 shows the baseline average percentage reductions in 401(k) account balances at Social Security normal retirement age due to expected modifications of plan sponsors and participants in reaction to the proposal to modify the federal tax treatment of employer and worker contributions for 401(k) plans in exchange for an 18 percent match from the federal government, by age and age-specific salary quartiles.[43] The average percentage reductions for the youngest cohort (those currently 26–35) are largest for those in the lowest-income quartile (22.2 percent).[44] The reductions for the youngest cohort decrease to 13.0 percent for those in the second-income quartile and reach a minimum of 6.1 percent for those in the third-income quartile. The reductions increase to 10.8 percent for those in the highest-income quartile.

Measuring the impact on older cohorts (those over age 35) is somewhat problematic in that the values are influenced by plan-sponsor and participant reactions to the tax proposal as well as the distribution of tenure with the current employer within each age group. For example, if a 401(k) participant in the oldest cohort (those currently 56−65) has recently changed jobs and has a relatively low account balance in his or her current 401(k) plan, any reported decrease in contributions would have a much larger impact than it would on the same individual (with the same survey response) had that worker not recently changed jobs and had a significantly larger 401(k) balance. Therefore, the analysis in VanDerhei

(March 2012) filters out anyone over age 35 whose tenure with their current employer is less than their current age minus 30.[45]

The average-percentage reductions for the "long-tenure" cohort currently ages 36–45 are again largest for those in the lowest-income quartile (24.9 percent). The reductions for this age cohort decrease to 7.2 percent for those in the second-income quartile and then increase to 10.0 percent for those in the third-income quartile. The reductions increase to 17.1 percent for those in the highest-income quartile.

The average-percentage reductions for the "long-tenure" cohort currently ages 46–55 are largest for those in the lowest-income quartile (21.1 percent). The reductions for this age cohort decrease to 9.9 percent for those in the second-income quartile and then increase to 11.6 percent for those in the third-income quartile. The reductions increase to 14.1 percent for those in the highest-income quartile.

Analysis of the oldest cohort (those currently 56–65) show a marked decrease in the average percentage reductions for the "long-tenure" cohort in the lowest-income quartile (12.7 percent), although it should be noted that the average reduction will be most muted by previous account balances for 401(k) participants in this age group. Moreover, the lowest-income quartile no longer has the largest reduction, as the reduction for the second-income quartile is slightly larger at 13.3 percent. The reductions for this age cohort decrease to 11.4 percent for those in the third-income quartile and then decrease to 8.7 percent for those in the highest-income quartile.

6.2.1.3.2 Plan Size

An interesting finding of the AllianceBernstein survey of plan sponsors with respect to potential federal tax modifications is the impact of plan size on the expected plan sponsor response. The reasons to expect an increased sensitivity by smaller plans to federal tax modifications have previously been documented by others.[46] However, Figure 12 shows the average percentage reductions in 401(k) account balances at Social Security normal retirement age due to expected modifications in response to the proposal to modify the federal tax treatment of employer and worker contributions for 401(k) plans in exchange for an 18 percent match from the federal government, by plan size and age-specific salary quartiles for workers currently ages 26–35.[47] For all four income quartiles, the average percentage reduction for plan sponsors in the two smallest plan size categories (less than $1 million and $1–$10 million in assets) are more than 1.5 times the value of the average percentage reduction for plans sponsors in any of the larger-size categories.

6.2.2 Caveats for This Research

6.2.2.1 Plan Size

Given the much larger simulated account balance reductions for smaller plans shown in Figure 12, it is important to note that the plan-size distribution used in this simulation model is based on those found in the EBRI/Investment Company Institute (ICI) 401(k) database, not the universe of 401(k) plans. Evidence of the magnitude of possible statistical bias in this regard can be found in VanDerhei, Holden, Alonso and Bass (2011). The third panel of Figure 4 (page 8) in that publication shows the distribution of plans in the EBRI/ICI 401(k) database in 2010 vs. 2008 Department of Labor (DOL) Form 5500 for all 401(k) plans and suggests an under-representation of small plans for the EBRI/ICI 401(k) database.[48] The plan-size variable was specified in terms of participants instead of assets, but a similar distribution would be expected in the latter case. If this is indeed the case, the RSPM estimates for overall average benefit reductions presented here would be expected to be smaller than those that would be evidenced by the full 401(k) universe.

6.2.2.2 Automatic Enrollment

The previous results assumed none of the 401(k) participants were automatically enrolled in these retirement plans; instead, they presumed that workers' rate of contribution after the first year were driven primarily by age and income characteristics rather than tenure with the current employer, as they might be in auto-enrollment plans with an automatic escalation of worker contributions.

The exclusion of auto-enrollment plans in this analysis was necessary given the current modeling assumption of no job change. It would be very difficult to provide an accurate analysis of the average percentage reductions in 401(k) balance under auto-enrollment if the plans included an automatic escalation provision. For example, if a participant's contribution rate had already been escalated to 8 percent of compensation at one employer, and upon job change was automatically enrolled into another 401(k) plan, would they "remember" their current rate of deferral and start deferring in the new plan at that rate, or would their contribution rate drop to the default rate of the new plan? Undoubtedly many 401(k) participants in this automatic enrollment situation follow the latter approach. As additional information becomes available on workers' behavioral responses to auto-enrollment, EBRI will update this analysis to provide a more robust model.

7 Future work

In addition to the expansion of the model used for the two analyses above to include 401(k) plans with automatic enrollment, EBRI plans to continue to conduct research in this area as public policy evolves.

The potential reaction of employees not currently participating in 401(k) plans will be extremely difficult to model for new incentive structures. For example, does the current experience under 401(k) plans allow researchers to extrapolate behaviors to this population with respect to:

- Initial participation choices.
- Decisions to opt out once participation has begun.
- Contribution behavior.
- Asset allocation.
- Cash outs at time of job change.

Many of EBRI's previous simulation projects (see Appendix B for a brief chronology) will be directly applicable to such additional research and we will be happy to work with the Committee on Ways and Means to provide cost/benefit assessments of these type proposals in the future.

8 Conclusions

EBRI has documented a significant reduction in the percentage of simulated lifepaths for retired households "at risk" for inadequate retirement income between 2003 and 2012, based in large part on the advent of auto-enrollment in 401(k) plans; however, for Gen Xer households in the two lowest-indexed[49] pre-retirement income quartiles, the at-risk percentages, while much smaller (they were 85 percent for the lowest income quartile and 65 percent for the second lowest income quartile in 2003) are still extremely high (78 percent for the lowest income quartile and 46 percent for the second lowest income quartile in 2012). Of course, when one limits the analysis to those who are simulated to be saving in the future, the numbers improve substantially: among Gen Xer households without any future eligibility for participation in a defined contribution plan, the at-risk percentage is 60.7 percent, but it drops all the way to 18.2 percent for those with 20 or more years of future eligibility.[50]

Given that the financial fate of future generations of retirees appears to be so strongly tied to whether they are eligible to participate in employer-sponsored retirement plans,[51] the logic of modifying (either completely or marginally) the incentive structure of employees and/or employers for defined

contribution plans at this time needs to be thoroughly examined. EBRI studies[52] have documented that defined contribution plans (and the IRA rollovers they produce) are the component of retirement security that appears to be generating the most non-Social Security retirement wealth for Baby Boomers and Gen Xers. However, the potential increase of at-risk percentages resulting from (1) employer modifications to existing plans, and (2) a substantial portion of low-income households decreasing or eliminating future contributions to savings plans as a reaction to the exclusion of employee contributions for retirement savings plans from taxable income, needs to be analyzed carefully when considering the overall impact of such proposals.

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10 Appendix A: Brief Description of RSPM[53]

One of the basic objectives of RSPM is to simulate the percentage of the population that will be "at risk" of having retirement income that is inadequate to cover basic expenses and pay for uninsured health care costs for the remainder of their lives once they retire.[54] However, the EBRI Retirement Readiness Rating™ also provides information on the distribution of the likely number of years before those at risk "run short of money," as well as the percentage of compensation they would need in terms of additional savings to have a 50, 70, or 90 percent probability of retirement income adequacy.

Appendix C describes how households (whose heads are currently ages 36–62) are tracked through retirement age, and how their retirement income/wealth is simulated for the following components:

- Social Security.
- Defined contribution balances.
- IRA balances.

- Defined benefit annuities and/or lump-sum distributions.
- Net housing equity.[55]

A household is considered to run short of money in this model if aggregate resources in retirement are not sufficient to meet aggregate minimum retirement expenditures, which are 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). 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 calculations, and other ad hoc thresholds.

The version of the model used for the analysis in this testimony assumes all workers retire at age 65 and immediately begin to withdraw money from their individual accounts (defined contribution and cash balance plans, as well as IRAs) whenever the sum of their basic expenses and uninsured medical expenses exceed the after-tax[56] annual income from Social Security and defined benefit plans (if any). If there is sufficient money to pay expenses without tapping into the tax-qualified individual accounts,[57] the excess is assumed to be invested in a non-tax-advantaged account where the investment income is taxed as ordinary income.[58] The individual accounts are tracked until the point at which they are depleted; if the Social Security and defined benefit payments are not sufficient to pay basic expenses, the entity is designated as having “run short of money” at that time.

11 Appendix B: Brief Chronology of RSPM

The original version of RSPM was used to analyze the future economic well-being of the retired population at the state level. EBRI and the Milbank Memorial Fund, working with the governor of Oregon, set out in the late 1990s to see if this situation could be addressed for Oregon. The analysis[59] focused primarily on simulated retirement wealth with a comparison to ad hoc thresholds for retirement expenditures, but the results made it clear that major decisions lie ahead if the state’s population was to have adequate resources in retirement.

Subsequent to the release of the Oregon study, it was decided that the approach could be applied to other states as well. Kansas and Massachusetts were chosen as the next states for analysis. Results of the Kansas study were presented to the state’s Long-Term Care Services Task Force on July 11, 2002,[60] and the results of the Massachusetts study were presented on Dec. 1, 2002.[61] With the assistance of the Kansas Insurance Department, EBRI was able to create Retirement Readiness Ratings 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. This was followed by the expansion of RSPM and the Retirement Readiness Ratings to a national model and the presentation of the first micro-simulation retirement-income-adequacy model built in part from administrative 401(k) data at the EBRI December 2003 policy forum.[62] The basic model was then modified for testimony for the Senate Special Committee on Aging in 2004 to quantify the beneficial impact of a mandatory contribution of 5 percent of compensation.[63]

The first major modification of the model was presented at the EBRI May 2004 policy forum. In an analysis to determine the impact of annuitizing defined contribution and IRA balances at retirement age, VanDerhei and Copeland, 2004, were able to demonstrate that for a household seeking a 75 percent probability of retirement income adequacy, the additional savings that would otherwise need to be set aside each year until retirement to achieve this objective would decrease by a median amount of 30 percent. Additional refinements were introduced in 2005 to evaluate the impact of purchasing long-term care insurance on retirement income adequacy.[64]

The model was next used in March of 2006 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.[65] Later that year, an updated version of the model was developed to enhance the EBRI interactive Ballpark E$timate® worksheet by providing Monte Carlo simulations of the necessary replacement rates needed for specific probabilities of retirement-income adequacy under alternative-risk-management treatments.[66]

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.[67] Additional modifications were added in 2009 for a Pension Research Council presentation that involved a winners/losers analysis of defined benefit freezes and the enhanced employer contributions to defined contribution plans provided at the time the defined benefit plan was frozen.[68]

A new subroutine was added to the model to allow simulations of various styles of target-date funds for a comparison with participant-directed investments in 2009.[69] In April 2010, the model was completely re-parameterized with 401(k) plan-design parameters for sponsors that have adopted automatic-enrollment provisions.[70] 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*.[71]

The new model was used to analyze how eligibility for participation in a defined contribution plan impacts retirement income adequacy in September 2010.[72] It was also used to compute retirement savings shortfalls for Baby Boomers and Generation Xers in October 2010.[73]

In October 2010 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.[74]

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.[75]

An April 2011 article introduced a new method of analyzing the results from the RSPM.[76] Instead of simply computing an overall percentage of the simulated life paths in a particular cohort that will 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 *Issue Brief,* the RSPM allowed retirement-income adequacy to be assessed at retirement ages later than 65.[77]

In a July 2011 *Notes* article[78], it provided preliminary evidence of the impact of the "20/20 caps" proposed by the National Commission on Fiscal Responsibility and Reform on projected retirement accumulations.

The August 2011 *Notes* article[79] evaluated the importance of defined benefit plans for households, assuming they retire at age 65, while demonstrating the impact of defined benefit plans in achieving retirement income adequacy for Baby Boomers and Gen Xers.

Finally, the September 2011 Senate Finance testimony[80] analyzed the potential impact of various types of tax-reform options on retirement income adequacy. This was expanded in the November 2011 EBRI Issue Brief[81] and a new set of survey results were added to the model in the March 2012 Notes article.[82]

12 Appendix C: Impact of the financial and housing market crisis in 2008 and 2009 on retirement readiness

The analysis in VanDerhei (February 2011) was designed to answer two questions:

1. What percentage of U.S. households became "at risk" of insufficient retirement income as a result of the financial market and real estate market crisis in 2008 and 2009?
2. Of those who are at risk, what additional savings do they need to make each year until retirement age to make up for their losses from the crisis?

As one would expect, the answer to the first question depends to a large extent on the size of the account balance the household had in defined contribution plans and/or IRAs as well as their relative exposure to fluctuations in the housing market. The resulting percentages of households that would not have been "at risk" without the 2008/9 crisis that ended up "at risk" vary from a low of 3.8 percent to a high of 14.3 percent.

The answer to the second question also depends on the size of account balances and exposure to the equity market; however, it is a more complicated question involving both the proximity of the household to retirement age (the closer to retirement age, the fewer years of additional savings available), the relative level of preretirement income, and the desired probability of adequate retirement income.

Looking at all households that would need to save an additional amount (over and above the savings already factored into the baseline model), the median percentage of additional compensation for Early Boomers desiring a 50 percent probability of retirement income adequacy would be 3.0 percent of compensation each year until retirement age to account for the financial and housing market crisis in 2008 and 2009. Similar values are 0.9 percent for Late Boomers and 0.3 percent for Gen Xers. A 90 percent probability of retirement income adequacy would require an even larger increase: The median percentage of additional compensation for Early Boomers desiring a 90 percent probability of retirement income adequacy would be 4.3 percent, to account for the financial and housing market crisis in 2008 and 2009.

Looking only at those households that had exposure to the market crisis in 2008 and 2009 from all three fronts (defined contribution plans, IRAs, and net housing equity) shows a median percentage for Early Boomers of 5.6 percent for a 50 percent probability and 6.7 percent for a 90 percent probability of retirement income adequacy. Younger cohorts experience a similar increase, going from the all-household analysis to the more select group.

13 Endnotes

1 A brief description of the EBRI Retirement Security Projection Model® (RSPM) is provided in Appendix A followed by a chronology of its development and utilization in Appendix B. See Appendix C for additional detail on the impact of the 2008-2009 crises in the financial and real estate markets on retirement income adequacy.

2 This number is somewhat smaller than the $4.6 trillion reported in VanDerhei (October 2010); however, the baseline assumptions used in the 2010 analysis did not allow for the utilization of net housing equity to ensure retirement income adequacy. When the 2012 analysis is repeated with the same assumptions as used in 2010, the aggregate deficit increases to $4.8 trillion.

3 Unfortunately one of the most significant components of Retirement Savings Shortfalls comes from an exposure that faces most retirees, however, very few of them choose to actively treat this risk. VanDerhei (October 2010) provides a first-order approximation of the impact of the stochastic nature of the nursing home and home health care expenses on the RSS values by age cohort, gender and marital status. Adding the nursing home and home health care expense increases the average individual RSS for married households by $25,317. Single males experience an average increase of $32,433 while single females have an increase of $46,425. A precise evaluation of the impact would involve a comparison of the values supplemented with the premia required to fully insure the financial consequence of nursing home and home health care expenses. For an example of this comparison with a different output metric, see VanDerhei (2005).

4 For example, an employee age 60 may have very recently changed jobs and rolled over a substantial account balance from his previous employer to an IRA.

5 Year-end 2011 data is currently being analyzed and the annual update will be available later in the year.

6 This value increased to $37,560 for participants in their 60's with 2-5 years of tenure and $53,108 for those with 5-10 years of tenure. Participants in their 60's with 10-20 years of tenure had an average account balance of $89,956 and those with 20-30 years had an average account balance of $159,654.

7 EBRI is currently in the process of integrating year-end 2010 account balances of 401(k) participants with their 2010 IRA account balances. Preliminary findings suggest the need for analyzing the combined IRA and 401(k) balances when attempting to assess any form of comprehensive retirement income adequacy. For example, VanDerhei (April 2012) analyzed the median ratios of combined 401(k) and IRA balances as a multiple of 401(k) balance by age and tenure for individuals with both 401(k) and IRA balances at the end of 2010. For individuals in their 60's, a median ratio of 1.23 was found for individuals with at least thirty years of tenure with the current employer. This number increased to 8.53 for those with no more than two years of tenure with the current employer.

8 Year-end 2010 data is currently being merged with the consistent sample.

9 The proposed regulations for 401(k) plans were published in November 1981 and much of the growth in these plans took place in the next few years.

10 Holden and VanDerhei (2002).

11 It should be noted that this combination is in essence adding a nominal annuity for the 401(k) accumulations with a real annuity from Social Security. Given the larger replacement rates for the lowest income quartile under Social Security, the disparity in favor of the lower income would increase as the retirees grow older.

12 Tergesen (2011).

13 Holden and VanDerhei (2005).

14 IRA rollovers that originated from 401(k) plans are included in the projected accumulations.

15 Choi, Laibson, Madrian, and Metrick (2001) and Choi, Laibson, Madrian, and Metrick (2004).

16 Figure 1 of Holden and VanDerhei (2005).

17 VanDerhei (September 2007).

18 VanDerhei and Copeland (2008).

19 Figures 6 and 7 of VanDerhei and Copeland (2008)

20 VanDerhei (April 2010)

21 The lowest rates are experienced by employees who do not "remember" their previous contribution rates when they change jobs, have a stochastic opt-out of the automatic escalation, and participate in plans that limit the automatic contributions to 6 percent of compensation and increase the contributions by 1 percent per year (the "all-pessimistic" assumption scenario). In contrast, the highest rates are experienced by employees who do "remember" their previous contribution rates when they change jobs, do not opt-out of the automatic escalation, and participate in plans that allow the automatic contributions to increase to 15 percent of compensation and increase the contributions by 2 percent per year (the "all-optimistic" assumption scenario).

22 Results are limited to employees currently ages 25–29 and assumed to have 31–40 years of eligibility

23 These findings are part of the 21st annual Retirement Confidence Survey (RCS), a survey that gauges the views and attitudes of working-age and retired Americans regarding retirement, their preparations for retirement, their confidence with regard to various aspects of retirement, and related issues. The survey was conducted in January 2011 through 20-minute telephone interviews with 1,258 individuals (1,004 workers and 254 retirees) age 25 and older in the United States. Random digit dialing was used to obtain a representative cross section of the U.S. population. To further increase representation, a cell phone supplement was added to the sample. Starting with the 2001 wave of the RCS, all data are weighted by age, sex, and education to reflect the actual proportions in the adult population. Data for waves of the RCS conducted before 2001 have been weighted to allow for consistent comparisons; consequently, some data in the 2011 RCS may differ slightly with data published in previous waves of the RCS. Data presented in tables in this report may not total to 100 due to rounding and/or missing categories. In theory, the weighted sample of 1,258 yields a statistical precision of plus or minus 3 percentage points (with 95 percent certainty) of what the results would be if all Americans age 25 and older were surveyed with complete accuracy. There are other possible sources of error in all surveys, however, that may be more serious than theoretical calculations of sampling error. These include refusals to be interviewed and other forms of nonresponse, the effects of question wording and question order, and screening. While attempts are made to minimize these factors, it is impossible to quantify the errors that may result from them. The RCS was co-sponsored by the Employee Benefit Research Institute (EBRI), a private, nonprofit, nonpartisan public policy research organization, and Mathew Greenwald & Associates, Inc., a Washington, DC, based market research firm. The 2011 RCS data collection was funded by grants from more than two dozen public and private organizations, with staff time donated by EBRI and Greenwald. RCS materials and a list of underwriters may be accessed at the EBRI Web site: www.ebri.org/rcs. For more detail, see Helman, Copeland, and VanDerhei (March 2011, online at www.ebri.org/surveys/rcs/2011/).

24 In the RCS, retiree refers to individuals who are retired or who are age 65 or older and not employed full time. Worker refers to all individuals who are not defined as retirees, regardless of employment status.

25 Actually, the constraints would need to be compared to the 402(g) limit as well as any plan-specific constraints on tax contributions (primarily for the Highly Compensated Employees).

26 1.4 percent responded that they did not know.

27 See Holden and VanDerhei (2005).

28 See VanDerhei and Copeland (2008).

29 The full stochastic nature of the model will be included in future analysis.

30 It is important to note that the annuitized accumulations in this analysis are from 401(k) contributions exclusively and do not include projected Social Security retirement benefits. This is in contrast to other EBRI research (e.g., VanDerhei and Lucas, 2010) that includes both components. However, in the previous analysis, all workers were simulated and job change was allowed.

31 These estimates compare quite favorably to those in Holden and VanDerhei (2002) when the difference between nominal and real replacement rates are considered. However, this is to be expected given the assumptions listed above (especially the lack of job turnover and therefore the suppression of cashouts prior to retirement).

32 Presumably, the $20,000 figure would be indexed for inflation in the future similar to current treatment of IRC Sec. 415(c) limits.

33 Employees age 50 or over may be allowed to contribute up to an additional $5,500 per year.

34 Sec. 415(c) of the Internal Revenue Code.

35 The reason that the youngest age cohort does not follow this trend is due to their relatively lower current wages than older cohorts after adjusting for historic age/wage profiles.

36 Although additional analysis needs to be performed before assessing relative importance of these factors, it appears that this result is caused by at least two factors. First, the definition of income quartile in RSPM is determined in a manner similar to the average indexed monthly earnings computation for Social Security with the following modifications: (a) 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); (b) 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; and (c) Percentile distributions are established based on population statistics for each age cohort. Therefore, it is possible that an individual whose preretirement income ranks in the lowest quartile over their remaining work history may indeed end up with an income that would rank higher than the bottom quarter in one or more specific years. Second, the impact of the 20 percent limitation for the lowest-income quartile may fall disproportionately on the part-time workers. For example, a worker who enters the work force part time whose spouse already has a full-time job may be in a better situation to attempt to maximize retirement contributions on his/her income. Although EBRI is in the process of attempting to model the impact on part-timers on a longitudinal basis, the current analysis filtered out any 401(k) participants with annual income of less than $10,000 as well as those with less than two years of tenure.

37 Gale (2011).

38 The analysis for the Senate Finance Committee hearing modeled the following scenarios:

- Employer contributions are modified in such a manner that the total match (employer plus government match) remains constant.
- All plan sponsors drop the plan match, and all employees receive a 30 percent match from the government.
- All plan sponsors drop the plan match, and all employees receive an 18 percent match from the government.

In later EBRI analysis (VanDerhei, November 2011), the following scenarios were added:

- No plan sponsors drop the plan match, and all employees receive an 18 percent match from the government.
- No plan sponsors drop the plan match, and all employees receive a 30 percent match from the government.

39 VanDerhei (September 2011). The 2011 RCS questions were fielded in January 2011 and therefore did not ask 401(k) participants about the specific provisions used in the September 2011 Gale proposal.

40 This survey was conducted online within the United States by Harris Interactive commissioned by the Principal Financial Group from May 17– June 17, 2011. It surveyed 798 employee-benefit decision makers for companies with three to 1,000 employees that do offer defined contribution retirement plans. These decision makers were selected from a Principal Financial Group client list, and their data were not weighted.

41 A similar question was asked with the 30 percent government match provision suggested in Gale, Gruber, and Orszag (2006).

42 A similar question was asked for a 30 percent government match. However, follow-up information for those indicating an increase or decrease in contributions is not available.

43 The baseline results in Figures 11 and 12 were simulated assuming the midpoint value for each category in the AllianceBernstein survey. Sensitivity analysis of this assumption is shown in Figures 3 and 4 of VanDerhei (March 2012) for the minimum reduction in account balances, and in Figures 5 and 6 of the same publication for the maximum reduction in account balances. The average percentage reductions in account value in Figure 3 vary from 3.1 to 19.7 percent (depending on income quartile) for 401(k) participants currently 26–35 under the minimum reduction scenario. Figure 5 shows that they vary from 8.8 to 24.4 percent (depending on income quartile) for 401(k) participants currently 26–35 under the maximum reduction scenario

44 Under the baseline assumptions, the average percentage reduction in employee contributions for this group in response to the proposal is 14.3 percent. Account balances will also be reduced due to the plan-sponsor reaction.

45 For example, a 40-year-old participant would need to have a tenure of at least 10 years with the current employer to be included in this analysis. Alternative specifications of minimum tenure were used with essentially the same results.

46 See pages 10–11 of Miller (2011) for an example.

47 Given the much larger simulated account balance reductions for smaller plans shown in Figure 12, it is important to note that the plan-size distribution used in this simulation model is based on those found in the EBRI/Investment Company Institute (ICI) 401(k) database, not the universe of 401(k) plans. Evidence of the magnitude of possible statistical bias in this regard can be found in VanDerhei, Holden, Alonso and Bass (2011). The third panel of Figure 4 (page 8) in that publication shows the distribution of plans in the EBRI/ICI 401(k) database in 2010 vs. 2008 Department of Labor (DOL) Form 5500 for all 401(k) plans and suggests an under-representation of small plans for the EBRI/ICI 401(k) database. The plan-size variable was specified in terms of participants instead of assets, but a similar distribution would be expected in the latter case. If this is indeed the case, the RSPM estimates for overall average benefit reductions presented here would be expected to be smaller than those that would be evidenced by the full 401(k) universe.

48 The EBRI/ICI Participant-Directed Retirement Plan Data Collection Project (the EBRI/ICI 401(k) database) is the largest, most representative repository of information about individual 401(k) plan participant accounts. See VanDerhei, Holden, Alonso and Bass (2011).

49 See endnote 17 of VanDerhei and Copeland (July 2010) for more detail.

50 VanDerhei (September 2010) also demonstrates that eligibility for a defined contribution retirement plan has a significant positive impact on reducing the additional compensation most families need to achieve the desired level of retirement income adequacy.

51 See VanDerhei (August 2011) for evidence of the importance of participating in a defined benefit plan.

52 VanDerhei and Copeland (2002a).

53 This material first appeared in VanDerhei and Copeland (July 2010).

54 The nominal cost of these expenditures increases with component-specific inflation assumptions. See the appendix for more details.

55 Net housing equity is introduced into the model in three different mechanisms (explained below).

56 IRS tax tables from 2009 are used to compute the tax owed on the amounts received from defined benefit plans and Social Security (with the percentage of Social Security benefits subject to Federal Income Tax proxied as a function of the various retirement income components) as well as the individual account withdrawals.

57 Roth IRA and 401(k) accounts are not used in this version of the model but will be incorporated into a forthcoming EBRI publication.

58 Capital gains treatment is not used in this version of the model.

59 VanDerhei and Copeland (2001).

60 VanDerhei and Copeland (July 2002).

61 VanDerhei and Copeland (December 2002).

62 VanDerhei and Copeland (2003)

63 VanDerhei (January 2004).

64 VanDerhei (2005).

65 VanDerhei (March 2006).

66 VanDerhei (September 2006)

67 VanDerhei and Copeland (2008).

68 Copeland and VanDerhei (2010).

69 VanDerhei (2009).

70 VanDerhei (April 2010).

71 VanDerhei and Copeland (2010).

72 VanDerhei (September 2010).

73 VanDerhei (October 2010a).

74 VanDerhei (October 2010b).

75 VanDerhei (February 2011).

76 VanDerhei (April 2011).

77 VanDerhei and Copeland (June 2011).

78 VanDerhei (July 2011).

79 VanDerhei (August 2011).

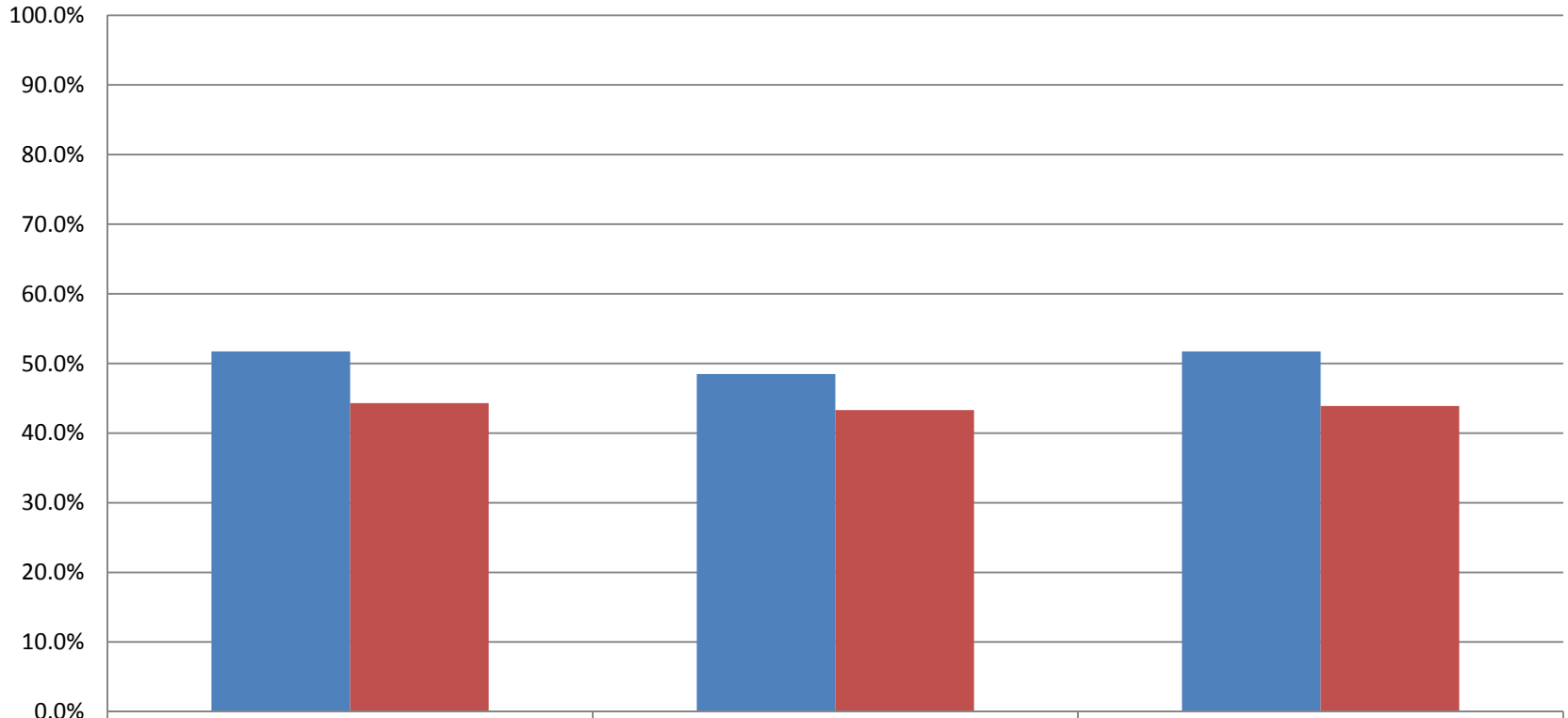
80 VanDerhei (September 2011).

81 VanDerhei (November 2011)

82 VanDerhei (March 2012).

Figure 1

EBRI Retirement Readiness Rating™ (RRR): 2003 vs. 2012
(Status Quo for Social Security, Housing Equity Used "As Needed")
Percentage of population at risk* for inadequate retirement income, by age cohort (baseline assumptions)

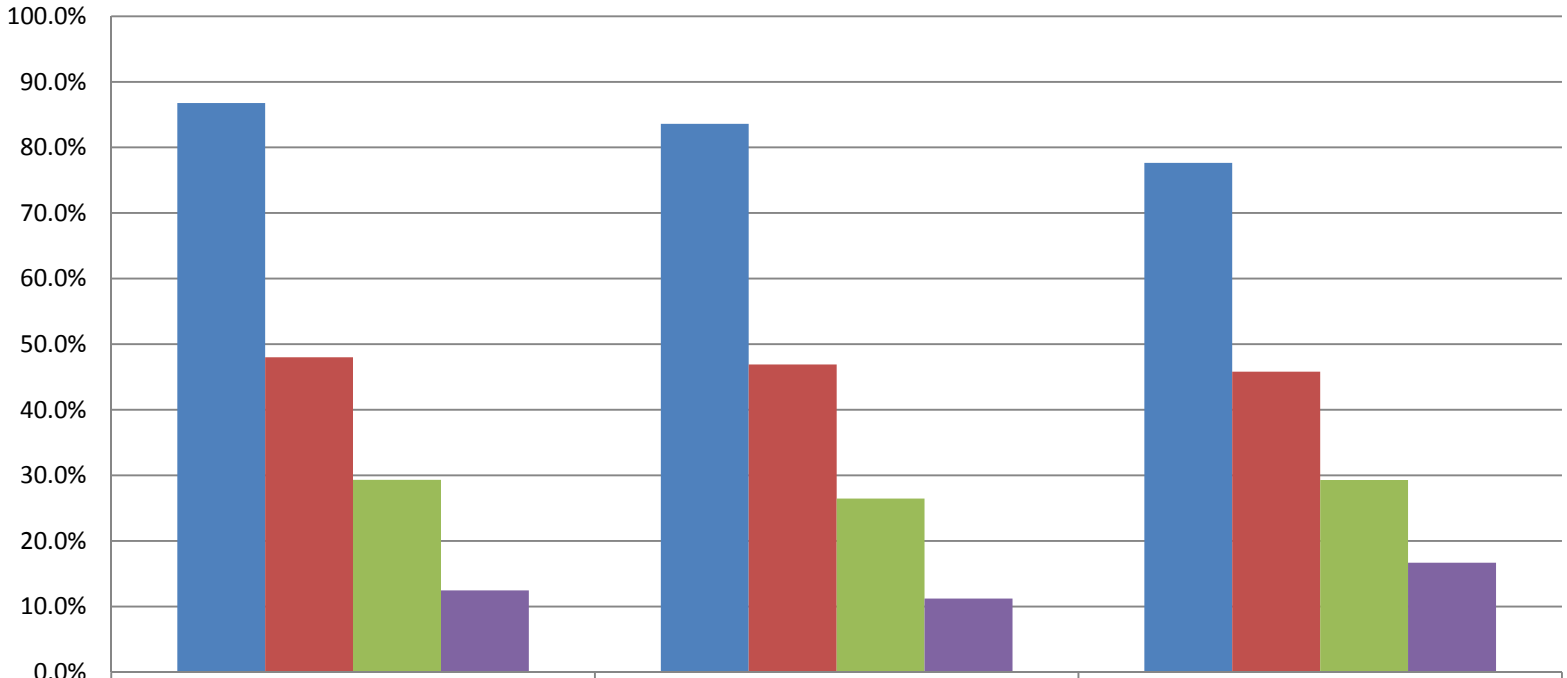


	Early Boomers	Late Boomers	Gen Xers
EBRI 2003 RRR	51.7%	48.5%	51.7%
EBRI 2012 RRR	44.3%	43.3%	43.9%

Sources: EBRI Retirement Security Projection Model™ versions 1501 and 1502.
* See text for definition of "at risk"

Figure 2

EBRI Retirement Readiness Rating™ (RRR): 2012
(Status Quo for Social Security, Housing Equity Used "As Needed")
Percentage of population at risk* for inadequate retirement income, by age cohort and income quartile (baseline assumptions)

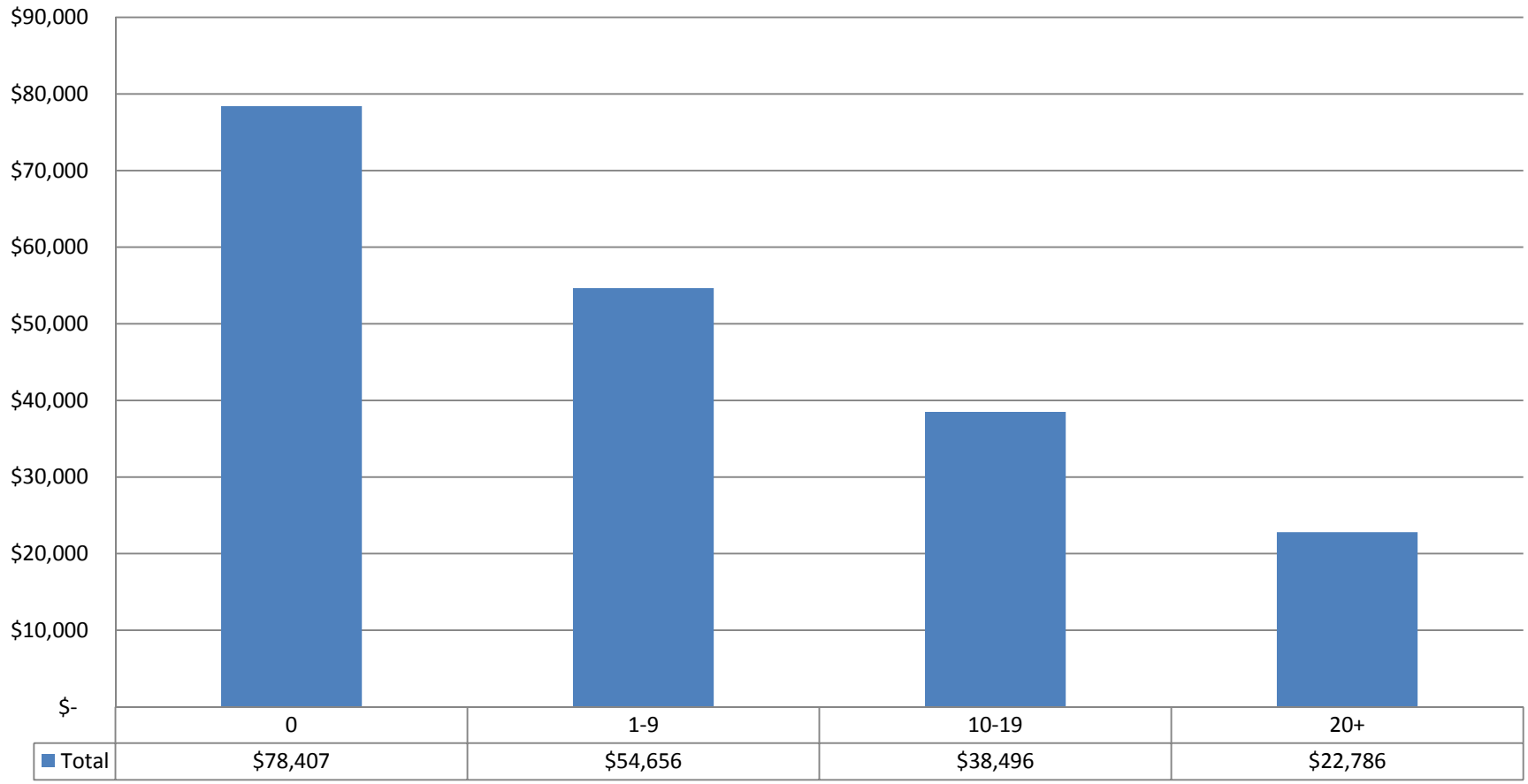


	Early Boomers	Late Boomers	Gen Xers
Lowest income quartile	86.8%	83.6%	77.7%
2	48.0%	46.9%	45.8%
3	29.3%	26.5%	29.3%
Highest income quartile	12.5%	11.2%	16.7%

Sources: EBRI Retirement Security Projection Model® versions 1501 and 1502.
* See text for definition of "at risk"

Figure 3

2012 Unconditional Retirement Savings Shortfall* numbers for GenXers by years of future eligibility for participation in a defined contribution plan

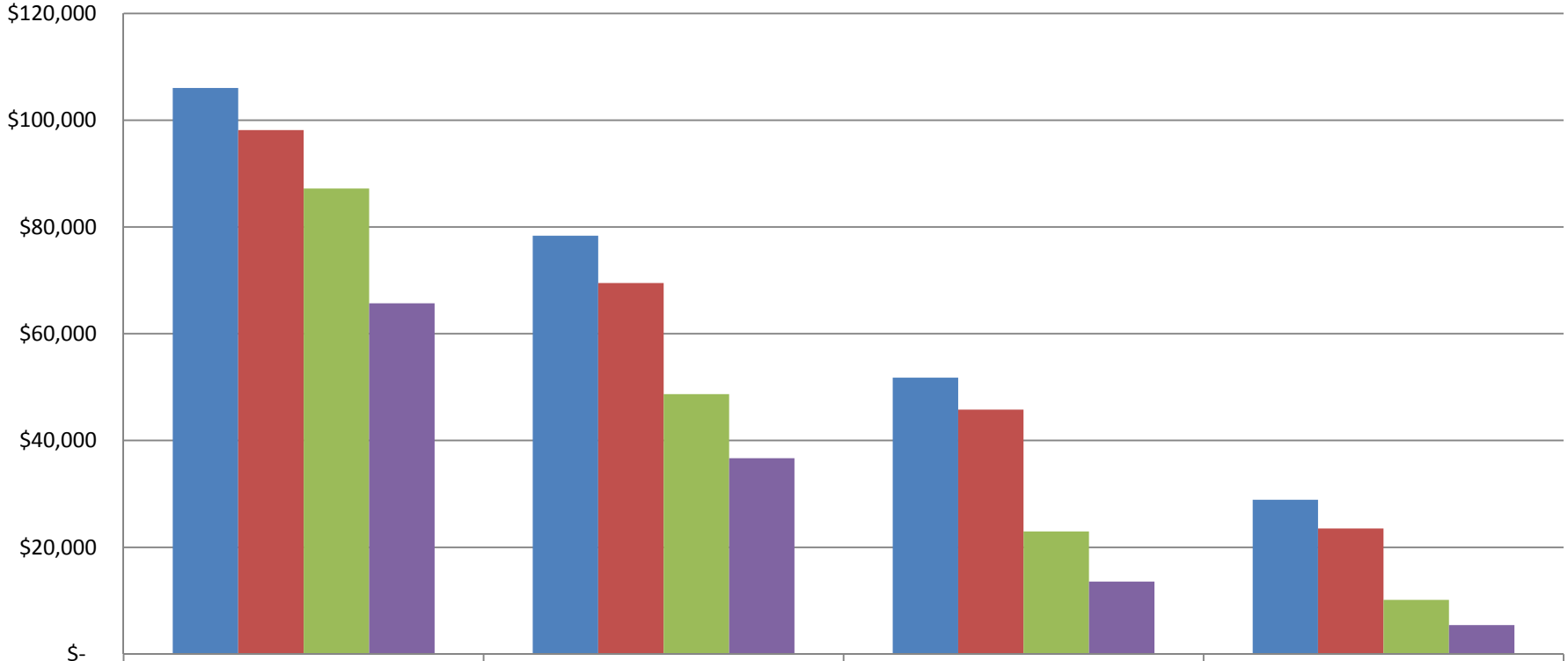


	0	1-9	10-19	20+
Total	$78,407	$54,656	$38,496	$22,786

*The Retirement Savings Shortfalls (RSS) are determined as a present value of retirement deficits at age 65.
Sources: EBRI Retirement Security Projection Model®versions 1501 and 1502.

Figure 4

2012 Unconditional Retirement Savings Shortfall* numbers for GenXers by income quartile and years of future eligibility for participation in a defined contribution plan



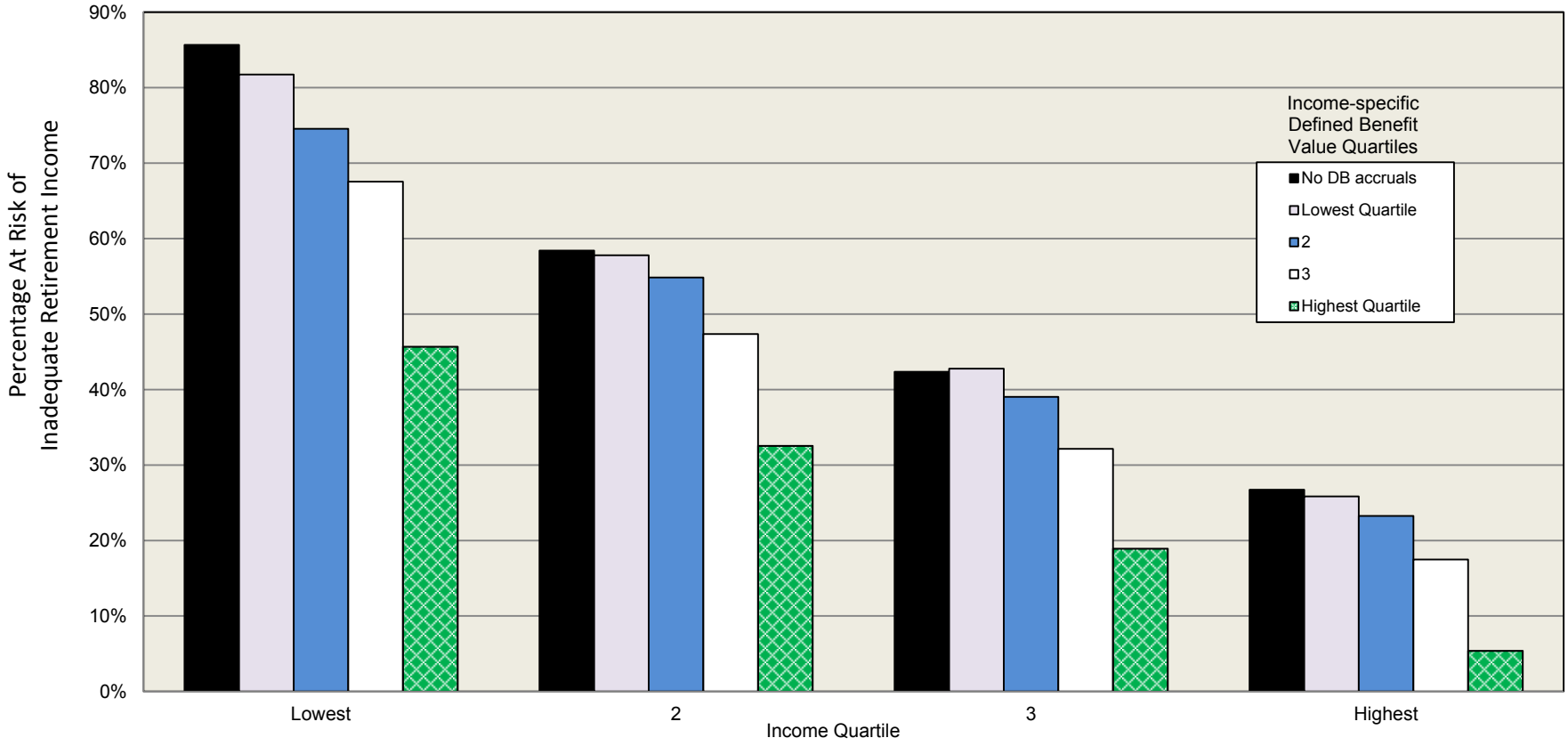
	lowest income quartile	2	3	highest income quartile
0	$106,026	$78,366	$51,778	$28,908
1-9	$98,157	$69,509	$45,801	$23,522
10-19	$87,212	$48,704	$22,962	$10,163
20+	$65,700	$36,690	$13,574	$5,430

*The Retirement Savings Shortfalls (RSS) are determined as a present value of retirement deficits at age 65.S ources: EBRI Retirement Security Projection Model®versions 1501 and 1502.

Figure 5

Impact of Income and Relative Value of Defined Benefit Accrual at Retirement Age on At-Risk* Probabilities

Percentage of population "at risk" for inadequate retirement income, by age-specific remaining career income quartiles and income-specific defined benefit value quartiles (baseline assumption)

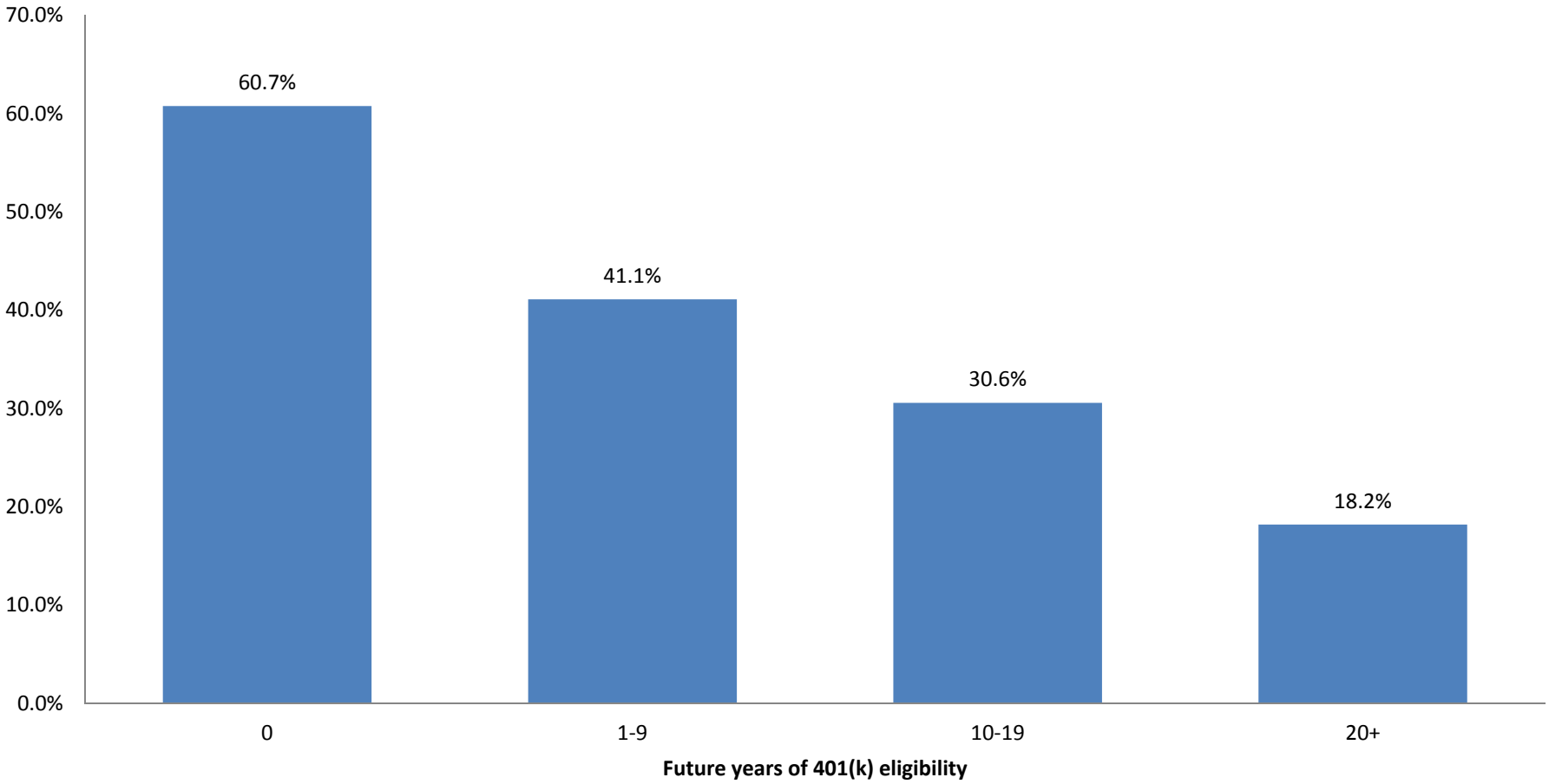


Source: EBRI/ERF Retirement Security Projection Model® version 110714e.

* An individual or family is considered to be "at risk" 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.

Figure 6

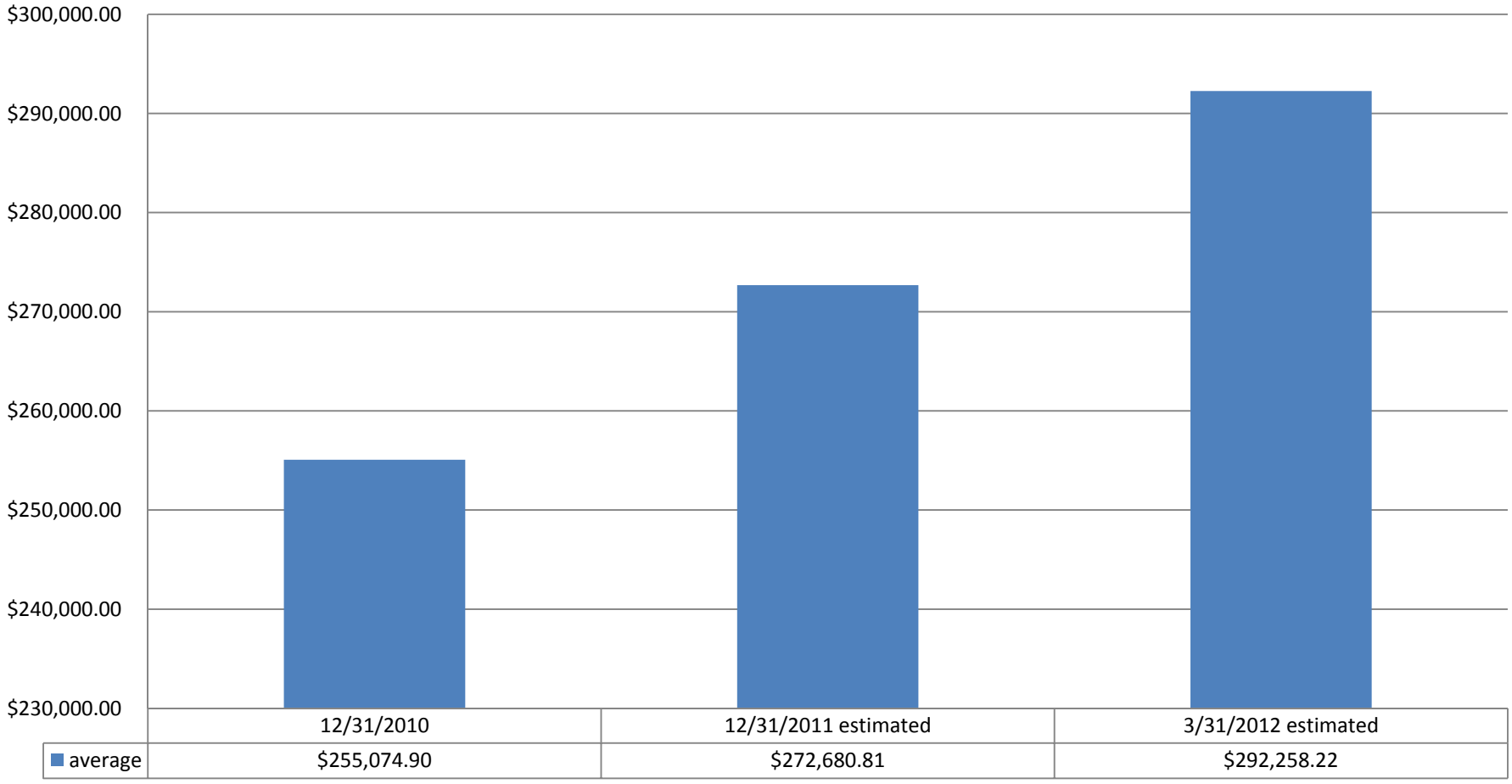
Impact of future years of 401(k) eligibility on 2012 at-risk* ratings for Gen Xers



*An individual is considered to be at-risk 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 net housing equity (in the form of 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 thresholds.

Source: EBRI Retirement Security Projection Model,® Version 120201.

Figure 7
Average account balances for 401(k) participants 55-64 with at least thirty years of tenure



Sources: 2010 Account Balances: Tabulations from EBRI/ICI Participant-Directed Retirement Plan Data Collection Project; 2011 and 2012 Account Balances: EBRI estimates. The analysis is based on all participants with account balances at the end of 2010 and positive values for the sum of employee and employer contributions for that year.

Figure 8

Success Rates of Achieving an 80 Percent Real Replacement Rate From Social Security and 401(k) Accumulations Combined Under Various Assumptions

Lowest Quartile

	6.0%	6.0%	6.0%	6.0%	9.0%	9.0%	9.0%	9.0%
	Don't Remember	Don't Remember	Remember	Remember	Don't Remember	Don't Remember	Remember	Remember
Auto-Escalation Delta	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out
1.0%	46.5%	45.7%	48.5%	47.5%	59.2%	56.4%	63.2%	59.4%
2.0%	47.5%	47.0%	48.9%	48.3%	62.1%	60.6%	64.2%	62.5%

Lowest Quartile

	12.0%	12.0%	12.0%	12.0%	15.0%	15.0%	15.0%	15.0%
	Don't Remember	Don't Remember	Remember	Remember	Don't Remember	Don't Remember	Remember	Remember
Auto-Escalation Delta	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out
1.0%	66.7%	61.0%	71.8%	65.1%	70.4%	62.1%	76.6%	66.8%
2.0%	70.6%	68.0%		70.6%	75.5%	71.4%	79.2%	74.7%

Highest Quartile

	6.0%	6.0%	6.0%	6.0%	9.0%	9.0%	9.0%	9.0%
	Don't Remember	Don't Remember	Remember	Remember	Don't Remember	Don't Remember	Remember	Remember
Auto-Escalation Delta	Don't Opt Out	Opt Out*	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out
1.0%	27.4%	27.0%	28.6%	28.2%	35.9%	34.1%	39.4%	37.1%
2.0%	27.9%	27.6%	28.9%	28.6%	38.6%	37.8%	41.0%	39.9%

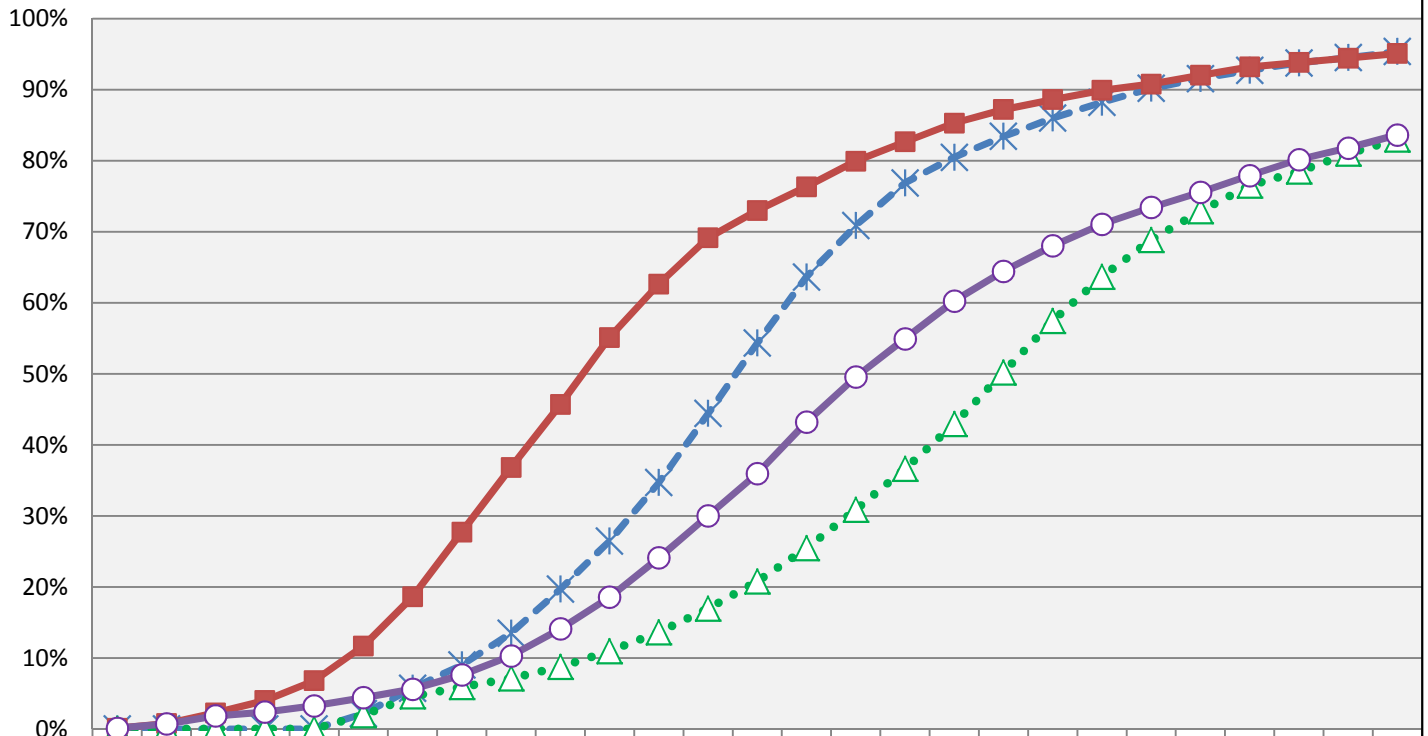
Highest Quartile

	12.0%	12.0%	12.0%	12.0%	15.0%	15.0%	15.0%	15.0%
	Don't Remember	Don't Remember	Remember	Remember	Don't Remember	Don't Remember	Remember	Remember
Auto-Escalation Delta	Don't Opt Out	Opt Out*	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out	Don't Opt Out	Opt Out
1.0%	43.7%	38.8%	50.1%	43.6%	50.0%	41.1%	58.6%	47.1%
2.0%	49.1%	46.9%		50.4%	57.5%	52.9%	64.0%	58.4%

Source: EBRI/ERF Retirement Security Projection Model, versions 100810a1-100810a16.

* See VanDerhei (2007) for distribution of opt-out rates from the Retirement Confidence Survey.

Figure 9
CDFs* of the Two Extreme Combinations of Design Variables and Employee Response Assumptions for Employees Currently Ages 25–29 and Assumed 31–40 Years of Eligibility, High- vs. Low-salary Quartiles



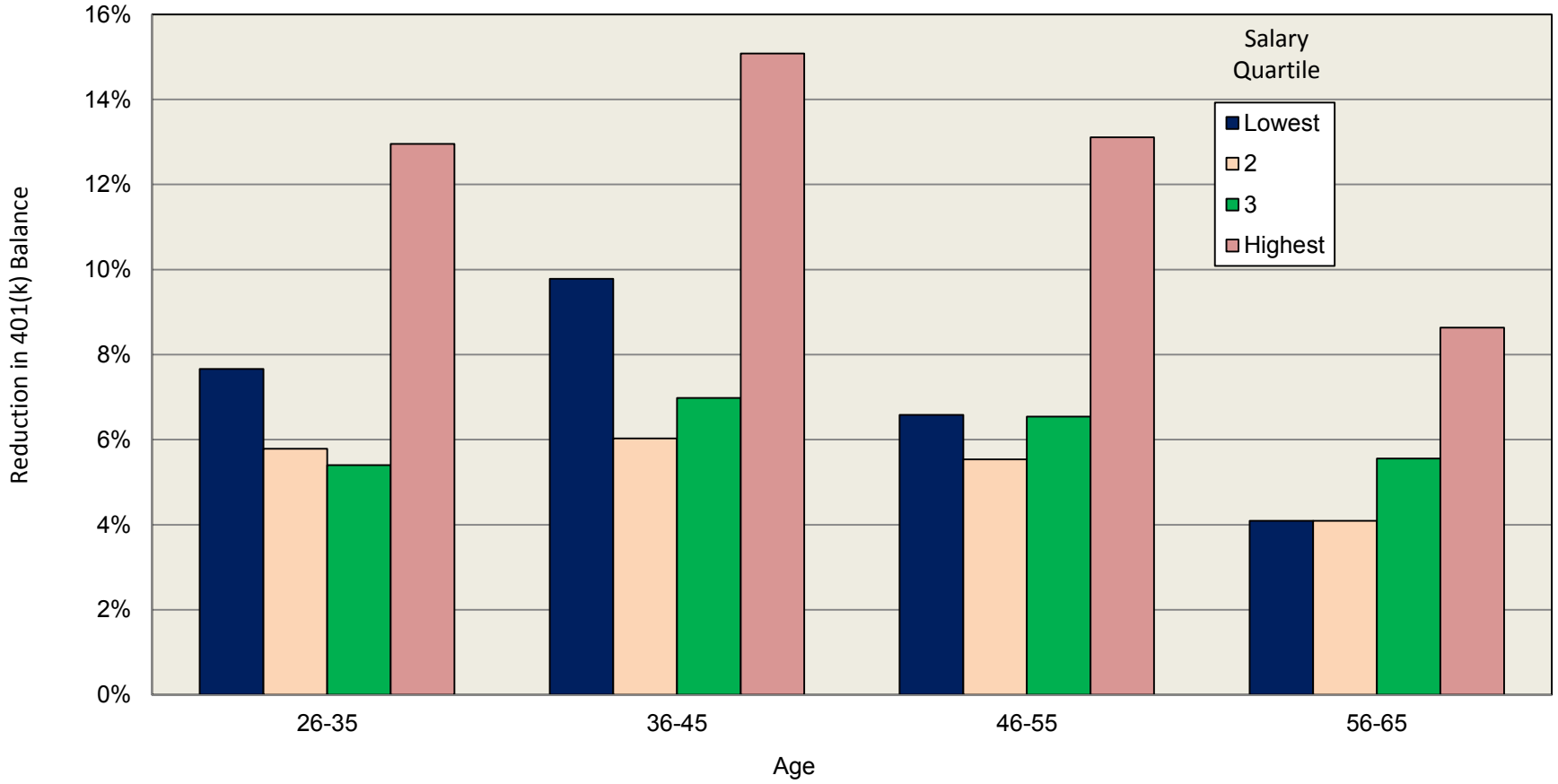
	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100 %	105 %	110 %	115 %	120 %	125 %	130 %	135 %	140 %	145 %
Lowest–income quartile, all pessimistic	0%	0%	0%	0%	0%	2%	6%	9%	13%	20%	26%	35%	44%	54%	64%	71%	77%	80%	83%	86%	88%	90%	92%	93%	94%	95%	95%
Highest-income quartile, all pessimistic	0%	1%	2%	4%	7%	12%	19%	28%	37%	46%	55%	63%	69%	73%	76%	80%	83%	85%	87%	89%	90%	91%	92%	93%	94%	94%	95%
Lowest-income quartile, all optimistic	0%	0%	0%	0%	0%	2%	5%	6%	7%	9%	11%	14%	17%	21%	25%	31%	37%	43%	50%	57%	64%	69%	73%	77%	78%	81%	83%
Highest-income quartile, all optimistic	0%	1%	2%	2%	3%	4%	6%	8%	10%	14%	19%	24%	30%	36%	43%	50%	55%	60%	64%	68%	71%	73%	76%	78%	80%	82%	84%

Combined Real Replacement Rate

Source: EBRI/ERF Retirement Security Projection Model, versions 100810a1–100810a16.
* Cumulative distribution functions.

Figure 10

Average Percentage Reductions in 401(k) Account Balances at Social Security NRA* by Imposing 20/20 Limits in 2012, by Age and Age-specific Salary Quartiles

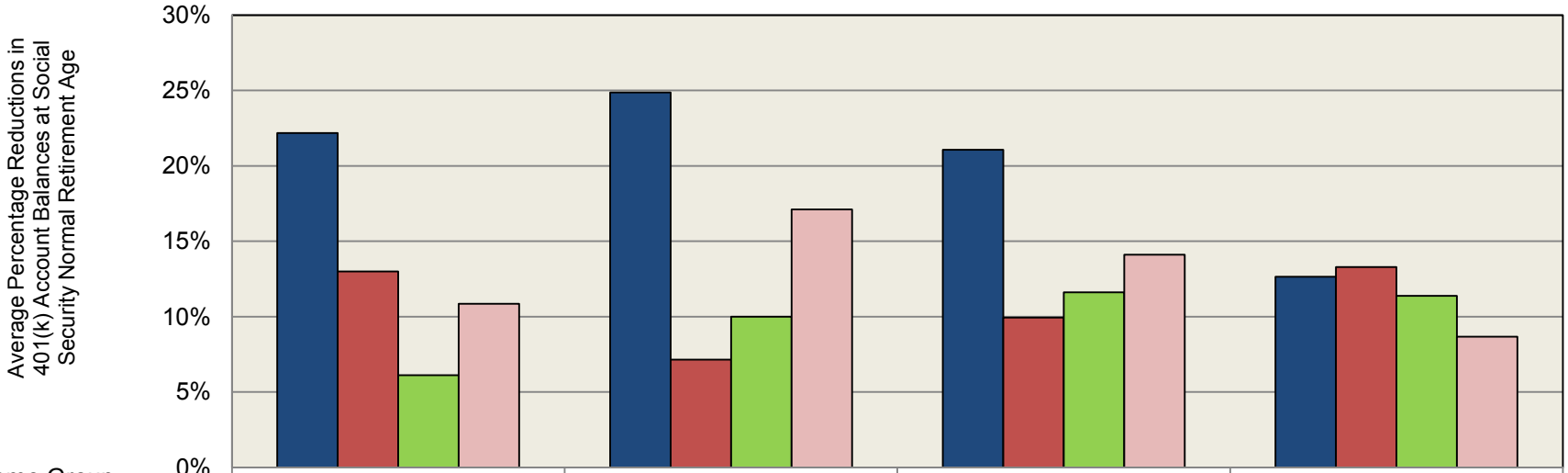


Source: EBRI Retirement Security Projection Model Version 110627c1.
NB: this simulation only models the financial impact of the expected reduction in 401(k) contributions for employees who are not automatically enrolled by imposing the new limits and does not attempt to assess behavioral modifications on the part of either the plan sponsor nor the employees assumed to be eligible for participation in the plan. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals or loan defaults. The full stochastic nature of the model will be included in future analysis.
* Normal retirement age.

Figure 11

Simulated Impact of Proposal to Modify the Federal Tax Treatment of Employer and Employee Contributions for 401(k) Plans In Exchange for an 18% Match From the Federal Government, by Age and Age-specific Salary Quartiles: Midpoint estimates

Assumption for this run: Employer increases or decreases to contributions are represented by the midpoint of the range denoted on the AllianceBernstein survey



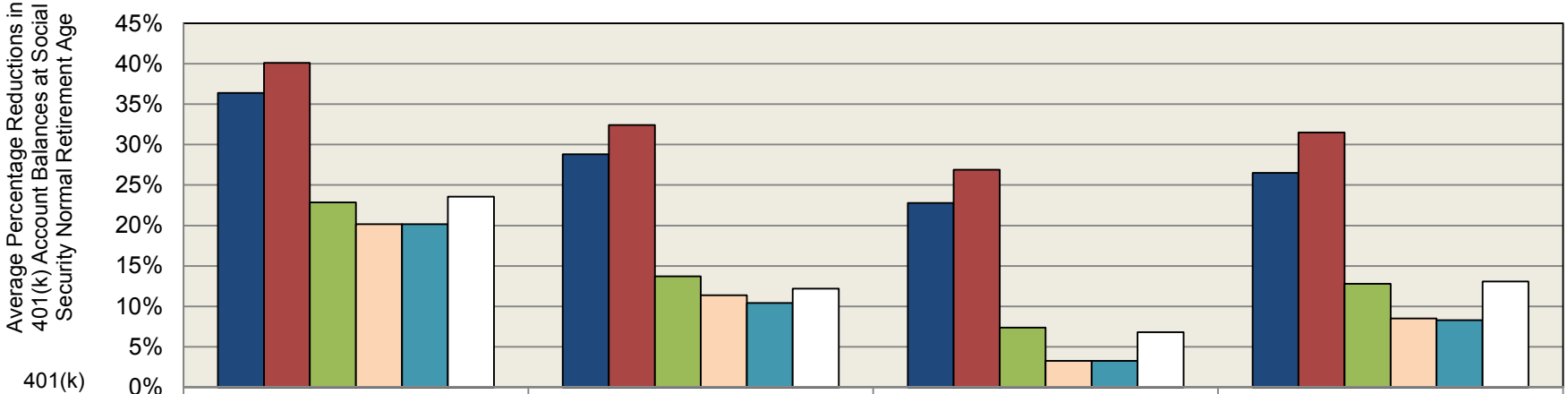
Income Group	26–35	36–45	46–55	56–65
Lowest income quartile	22.2%	24.9%	21.1%	12.7%
2	13.0%	7.2%	9.9%	13.3%
3	6.1%	10.0%	11.6%	11.4%
Highest income quartile	10.8%	17.1%	14.1%	8.7%

Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 1471, and responses to AllianceBernstein (2011) and Employee Benefit Research Institute and Mathew Greenwald & Associates, Inc., 2012 Retirement Confidence Survey.
Note: This simulation models only the financial impact of the expected reduction in 401(k) account balances for employees who are not automatically enrolled by modifying the behavior of plan sponsors and participants and does not attempt to assess behavioral modifications on the part of eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals or loan defaults. The full stochastic nature of the model will be included in a future analysis. Results for participants currently older than 35 are limited to high-tenure participants as explained in the text. Plan sponsor and participant reactions to the proposal are explained in the text. Employer increases or decreases to contributions are represented by the midpoint of the range denoted on the AllianceBernstein survey.

Figure 12

Simulated Impact of Proposal to Modify the Federal Tax Treatment of Employer and Employee Contributions for 401(k) Plans In Exchange for an 18% Match From the Federal Government for Employees Currently 26–35, by Plan Size and Age-specific Salary Quartiles: Midpoint Estimates

Assumption for this run: Employer increases or decreases to contributions are represented by the midpoint of the range denoted on the AllianceBernstein survey



401(k) Plan Size	Lowest income quartile	2	3	Highest income quartile
<1M	36.4%	28.8%	22.8%	26.5%
1−10M	40.1%	32.4%	26.9%	31.5%
10−50M	22.8%	13.7%	7.4%	12.8%
50−250M	20.2%	11.4%	3.3%	8.5%
250−500M	20.2%	10.4%	3.2%	8.3%
>500M	23.5%	12.2%	6.8%	13.1%

Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 1472, and responses to AllianceBernstein (2011) and Employee Benefit Research Institute and Mathew Greenwald & Associates, Inc., 2012 Retirement Confidence Survey.
Note: This simulation models only the financial impact of the expected reduction in 401(k) account balances for employees who are not automatically enrolled by modifying the behavior of plan sponsors and participants and does not attempt to assess behavioral modifications on the part of eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals or loan defaults. The full stochastic nature of the model will be included in a future analysis. Plan sponsor and participant reactions to the proposal are explained in the text. Employer increases or decreases to contributions are represented by the midpoint of the range denoted on the AllianceBernstein survey.