















"The reason why I think employers have to stay engaged in health care is because the innovations in health care systems have come from employers. Whether it's the wellness initiatives that we're doing, finding new ways of creating new types of plan designs, whether it's consumer-directed health care or consumerism, innovation has come from employers and clearly not from Medicare." With Medicare, she added, "We do have national health insurance; you just have to be 65 to get it."

She also added that part of the innovation is going to be for employers to help organizations—on the national, regional, or even on the state level—to create a system where people will be able to buy insurance in a better way than they can today. "Right now, there are a lot of people saying, 'it's just going to happen.' But I think, as employers, we have to innovate and help to make it better because we have a stake in this outcome," she stated.

Denz also predicted that the biggest problem will be Medicare: "You cannot reconfigure health care within a care system and have Medicare stay on the current payment model that they're on."

**David Guilmette**, president of the National Segment at CIGNA, said his company's interests as a health services company are definitely aligned with plan sponsors, "Simply because they fund the health services support we provide for the more than 11 million people we serve." Eighty percent of those payments are through self-funded arrangements, he said.

In order to improve both employee health and control health care costs, CIGNA wants to drive employee and family accountability through informed decision-making and shared financial responsibility. "Clearly, we want to improve the health and well-being of the work force," he said.

Guilmette said that by combining financial incentives with the tools to foster greater individual engagement and health improvement, CIGNA Choice Fund consumer-driven health plans have experienced explosive growth. According to Guilmette, CIGNA plans are specifically designed to offer sustainable cost savings without sacrificing care or shifting costs to employees or their families.

Pointing to the results of the 2010 *Fifth Annual CIGNA Choice Fund Experience Study*, Guilmette said the data show that employees reduced their health care costs while improving their care through greater participation in health coaching and disease management programs, selection of generic medications, and making more informed health care choices, such as avoiding unnecessary emergency room visits and instead choosing urgent-care facilities, doctor's office visits, or convenience clinics.

Guilmette said that one of the reasons employers stay in the health benefits business, and will for a long time, is to derive a competitive advantage. But how is that going to be defined and measured? He suggested the competitive advantage comes from a healthy and productive work force, which is something that employers will continue to care a great deal about.

As far as innovation in the short-term—starting in 2011 and going for the next three to five years—he said the big worry for employers is what the health reform law means and what they have to do to comply. Insurers are facing the same challenge, he added, which means they are having to focus on the short-term issues.

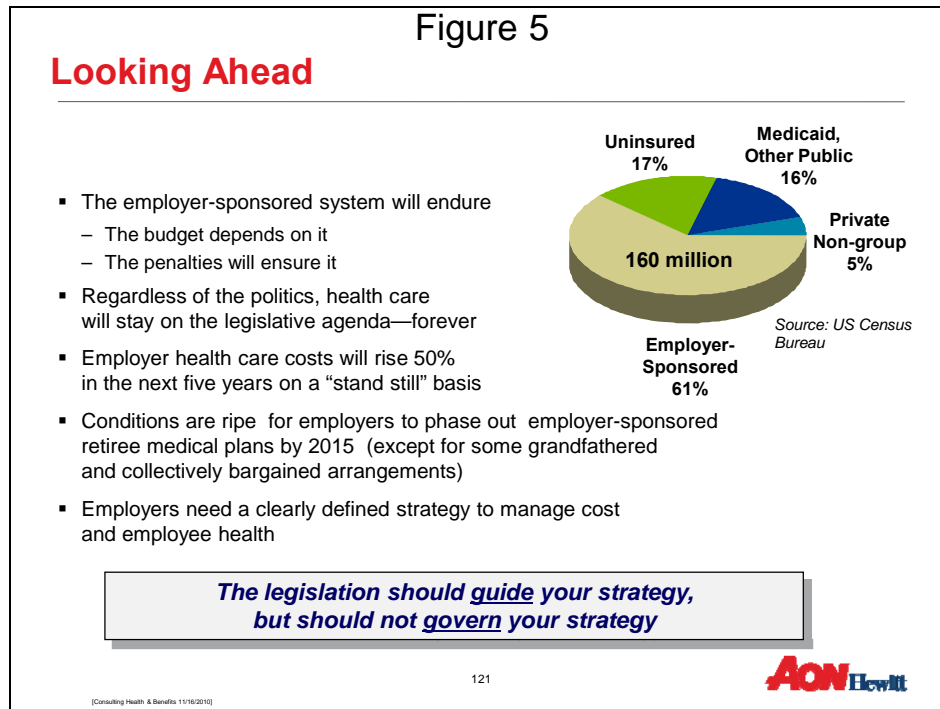
Guilmette said that there is a serious need to change the way insurers pay for health care, which he described as moving to "accountable care" or "collaborative accountable-care organizations." Although there are tough details to work out, he said health exchanges could be very valuable and may have a very positive impact.

**Tom Lerche**, senior vice president with Aon Consulting, said that 2010 was a challenging year in terms of compliance, but focus is shifting to health care strategy from compliance with PPACA. The issues now are how to design health benefits over the next three to five years to make them affordable and lower



the long-term medical trend. PPACA expanded coverage for the uninsured and small employers and changed the business practices of insurance companies, but there is a significant amount of work to do in payment and delivery systems reform along with employee engagement to reduce health risk factors, he said.

Lerche added that employers are facing annual premium increases, on average, of 9–11 percent, or even higher for small employers that are insured (Figure 5). Lerche suggested that the most popular managed care models, such as PPOs and health maintenance organizations (HMOs), as they are known today, have largely outlived their usefulness, and that a shift has begun among employers from offering a defined benefit-type of health plan to a defined contribution approach to health care benefits with greater employee accountability.



Lerche also thinks that a small number of employers in select industries will consider not offering health benefit coverage at all in 2014, primarily employers that have high turnover and very high-cost health plans; for these employers, he said, the value of offering employer-based care is not as strong as it is in industries like retail, hospitality, and professional employer organizations (PEOs). One strategy that Aon Hewitt is working on that he thinks will develop over time is the corporate or private exchange, as distinct from the state exchange. “The idea with the corporate exchange is there are standardized plan options. The employer will have the ability to monetize the subsidy or create a defined contribution model, and you have the buying power of multiple employers nationwide,” he said.

Lerche added that employers really need to take stock of the health status of their work force. They need to involve their chief executive and chief financial officers, as well as human resources staff to create a culture of health for the organization. “We see 2011 as the year to update or develop a health care strategy for the next three to five years, to design a strategy resulting in higher employee engagement, a healthier work force, and a lower long-term medical trend,” he said.

# Retirement Income Adequacy: Alternative Thresholds and the Importance of Future Eligibility in Defined Contribution Retirement Plans

*By Jack VanDerhei, Employee Benefit Research Institute*

## Introduction

The concept of retirement income adequacy for today's workers has been gaining increased interest in recent months with the prospects of probable modification of Social Security, Medicare, and Medicaid in the years ahead. In 2010, EBRI updated its Retirement Security Projection Model<sup>®</sup> (RSPM) to show how the EBRI Retirement Readiness Ratings<sup>™</sup> (measuring the percentage of households that are likely to have sufficient money in retirement to pay for basic expenses plus uninsured health care costs) have changed in the last seven years (VanDerhei and Copeland, July 2010).

The good news from that research is that the portion of Boomers and Gen Xers "at risk" of having inadequate retirement income has actually decreased during the 2003–2010 time frame, even after factoring in the recent decline in the financial markets and housing values. Early Boomers (those born between 1948 and 1954) had an "at-risk" rating of 59 percent in 2003; however, by 2010 that number had dropped to 47 percent. The "at-risk" ratings for late Boomers (those born between 1955 and 1964) decreased from 55 to 44 percent, while those for Gen Xers (those born between 1965 and 1974) decreased from 57 to 45 percent.<sup>1</sup>

Unfortunately, that still leaves nearly one-half of the households in these age cohorts "at risk" of having inadequate retirement income, and the likelihood that the Early Boomers will run short of money within the first 10 years of retirement is as high as 41 percent for those in the lowest (preretirement) income quartile.

## Alternative Thresholds of Retirement Income Adequacy

While the "at-risk" percentages provide a convenient summary statistic of the percentage of households that are likely to have inadequate retirement income, they provide little information on the dispersion around this binary variable.<sup>2</sup> For example, public policy concerns may be vastly different if a significant percentage of "at-risk" households are extremely close to meeting the definition of adequacy, as opposed to those who miss the threshold by a very wide margin.

Figure 7 published in VanDerhei and Copeland (July 2010) provides this sensitivity analysis on the 2010 version of RSPM by age cohort, while Figure 8 provides a similar analysis by preretirement "income" quartile. While nearly one-half of the Early Boomers are considered to be "at risk" using the 100 percent threshold, approximately one-third (35 percent) have less than 90 percent of the financial resources necessary to cover the basic expenses and uninsured health care costs. The number drops to 18.4 percent if the threshold is relaxed to 80 percent.

Figure 8 published in VanDerhei and Copeland (July 2010) provides similar results by preretirement income quartiles. While approximately three-quarters (75.5 percent) of the lowest-income quartile are considered to be "at risk" with the 100 percent threshold, the number decreases to less than two-thirds (63.0 percent) at the 90 percent threshold and approximately two-fifths (40.2 percent) at the 80 percent threshold. For the highest preretirement income quartile, approximately one-fifth (19.8 percent) of these households are considered to be "at risk" with the 100 percent threshold, and this decreases to approximately one-tenth (11.3 percent) at the 90 percent threshold and only 3.9 percent at the 80 percent threshold.

Another modification to the output metric that has been suggested<sup>3</sup> involves keeping the threshold the same (e.g., 100 percent of the resources required to meet the minimum expenses and uninsured medical costs in retirement); however, show the distribution of at-risk probabilities by age, income, and other factors. Figure 1 uses the 2011 RSPM<sup>4</sup> to provide the percentage of the population at risk for inadequate retirement income for a specified percentage of simulated life-paths by age cohort. For example, among the Early Boomers, 89 percent of the households will be at risk of inadequate retirement income under the definition used in the model in at least 1 percent of the simulated life-paths. The percentage of the population will obviously decrease as the threshold level increases: 82 percent of the Early Boomer households will be at risk of inadequate retirement income in at least 5 percent of the simulated life-paths, 75 percent of the Early Boomer households will be at risk of inadequate retirement income in at least 10 percent of the simulated life-paths, and 55 percent of the Early Boomer households will be at risk of inadequate retirement income in at least 30 percent of the simulated life-paths. Only 38 percent of the Early Boomer households will be at risk of inadequate retirement income in at least 50 percent of the simulated life-paths.

The variation of this new output metric among age cohorts fluctuates, but focusing on the 50 percent threshold, Figure 1 shows a gradual improvement over time. Whereas 38 percent of the Early Boomer households will be at risk of inadequate retirement income in at least 50 percent of the simulated life-paths, the number decreases to 33 percent of the Late Boomer households and only 32 percent of the Gen Xer households. This trend is due in large part to the increasing importance of automatic enrollment and automatic escalation of contributions for 401(k) plans in future years.<sup>5</sup>

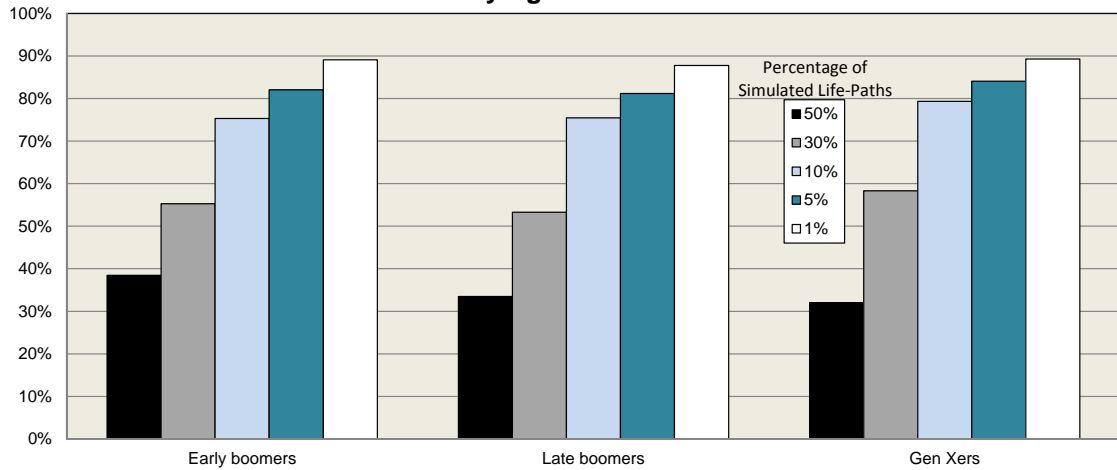
Figure 2 provides a similar analysis; however, this time all three age cohorts are combined and the percentages are categorized by quartile of preretirement income.<sup>6</sup> Focusing on the 1 percent threshold first, 98 to 99 percent of the households in the lowest two-income quartiles will be at risk of inadequate retirement income in at least 1 percent of the simulated life-paths, while the percentage drops to 91 percent for those in the third-income quartile and only 66 percent for those in the highest-income quartile. Similar trends among the income quartiles take place at the 5, 10, and 30 percent level.

At the 50 percent level in Figure 2, 74 percent of the households in the lowest-income quartile will be at risk of inadequate retirement income in at least 50 percent of the simulated life-paths, while the percentage drops dramatically to 47 percent for those in the second-income quartile, 26 percent for those in the third-income quartile and only 13 percent for those in the highest-income quartile.

## **The Importance of Future Eligibility in Defined Contribution Retirement Plans**

Previously, EBRI research demonstrated the large extent to which “at-risk” percentages are associated with the years of future eligibility in defined contribution retirement plans (including 401(k) plans).<sup>7</sup> The “at-risk” percentages are categorized for each of the three age cohorts into levels based on years of future years of eligibility (whether or not the employee actually chooses to participate in a voluntary enrollment plan or opts out of an automatic enrollment plan). When the results for Early Boomers are divided by future eligibility in a defined contribution plan, the difference in the “at-risk” percentages is quite large (16 percentage points), even after at most nine years of future eligibility.<sup>8</sup> Late Boomers and Gen Xers have significantly longer future periods of eligibility to participate in a defined contribution plan, and therefore the differences are much larger. Late Boomers with no future eligibility are simulated to have an “at-risk” level 26 percentage points larger than those with 10–19 future years of eligibility. Gen Xers have the largest differential (40 percentage points): Those with no future years of eligibility have an “at-risk” level of 60 percent, compared with only 20 percent for those with 20 or more years of eligibility.

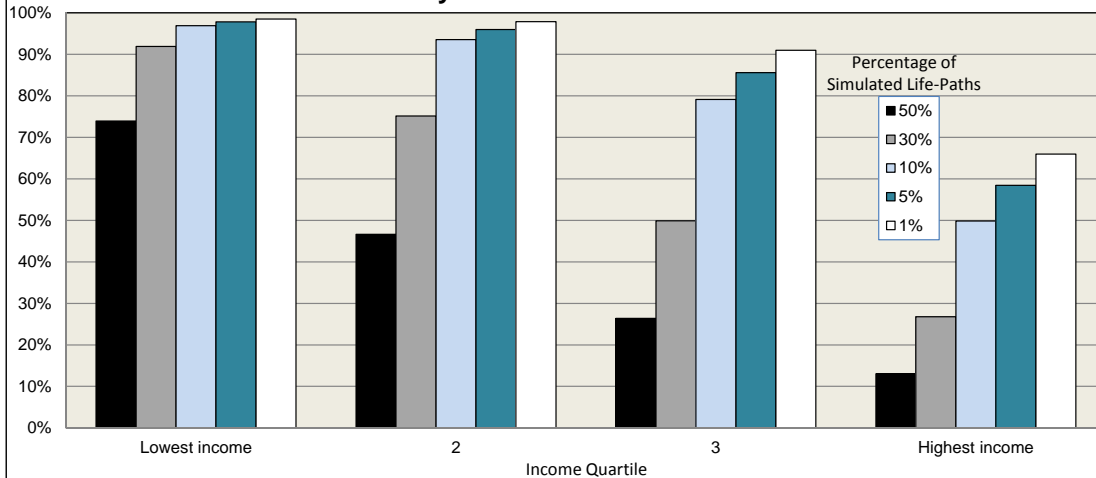
**Figure 1**  
**Percentage of Population At Risk\* for Inadequate Retirement Income**  
**More Than a Specified Percentage of Simulated Life-Paths,**  
**by Age Cohort**



Source: Employee Benefit Research Institute Retirement Security Projection Model® version 110401i.

\* 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 2**  
**Percentage of Population At Risk\* for Inadequate Retirement Income**  
**More Than a Specified Percentage of Simulated Life-Paths,**  
**by Preetirement Income**



Source: Employee Benefit Research Institute Retirement Security Projection Model® version 110401i.

\* 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.

Figures 3 through 6 show the percentage of Gen Xers at risk for inadequate retirement income more than a specified percentage of simulated life-paths by percentage of future working years eligible for participation in a defined contribution plan.<sup>9</sup> The impact of future eligibility in a defined contribution plan is measured by taking the simulated future years (i.e., years after 2011) that a worker is eligible to participate in a defined contribution plan (whether or not he or she chooses to participate) and expressing that as a percentage of the future years worked until age 65. This percentage is then categorized into one of the following four levels:

- Less than 25 percent.
- 25–50 percent.
- 50–75 percent.
- More than 75 percent.

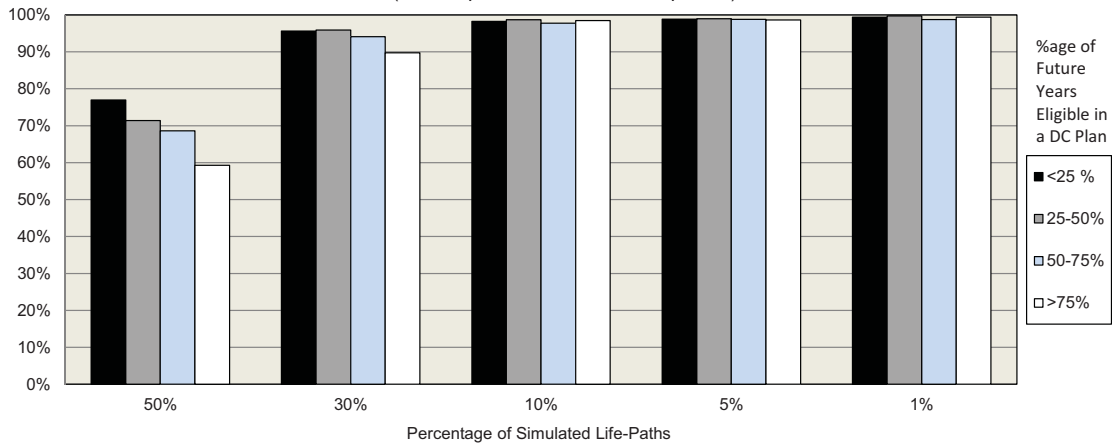
Figure 3 shows the percentages for the lowest-income quartile Gen Xer households. While there is some impact at the 30 percent threshold (96 percent of these households eligible for participation in a defined contribution plan less than 25 percent of their future work years would be at risk at least 30 percent of the time compared with 90 percent for those households eligible for participation in a defined contribution plan more than 75 percent of their future work years), it is clear the impact of future eligibility in a defined contribution plan for this income group is most pronounced at the 50 percent threshold. Among Gen Xer households, 77 percent of these households eligible for participation in a defined contribution plan less than 25 percent of their future work years would be at risk at least 50 percent of the time compared with 59 percent for those households eligible for participation in a defined contribution plan more than 75 percent of their future work years.

Figure 4 repeats the same analysis as the previous figure but this time isolates the impact on the second income quartile. Again, there is a strong impact of eligibility in a defined contribution plan for the 50 percent threshold (58 percent of these households eligible for defined contribution plan participation less than 25 percent of future work years would be at risk at least 50 percent of the time compared with only 21 percent for those eligible at least 75 percent of future work years). However, the 30 percent threshold has a much larger spread for this income quartile (91 percent versus 49 percent of the households) than for the lowest-income quartile. There is also a noticeable spread at the 10 percent threshold level (98 percent versus 85 percent).

Figure 5 shows the impact on the third-income quartile. The impact of eligibility in a defined contribution plan for the 50 percent threshold reduces the at-risk percentage from 36 percent of these households eligible for defined contribution plan participation less than 25 percent of future work years to only 7 percent for those eligible at least 75 percent of future work years. At the 30 percent threshold the at-risk percentages drop from 75 percent to 20 percent and at the 10 percent level they decrease from 93 percent to 57 percent. For this income quartile there is also a noticeable spread at the 5 percent level (95 percent to 69 percent) and even at the 1 percent level (97 percent to 78 percent).

The highest-income quartile is analyzed in Figure 6. In this case, the spread between at-risk percentages of those eligible for defined contribution plan participation less than 25 percent of their future working years versus those eligible for defined contribution plan participation more than 75 percent of their future working years is actually smaller at the higher percentage thresholds, given the much smaller overall at-risk levels for this income group. The impact of eligibility in a defined contribution plan for the 50 percent threshold reduces the at-risk percentage from 22 percent of these households eligible for defined contribution plan participation less than 25 percent of future work years to only 2 percent for those eligible at least 75 percent

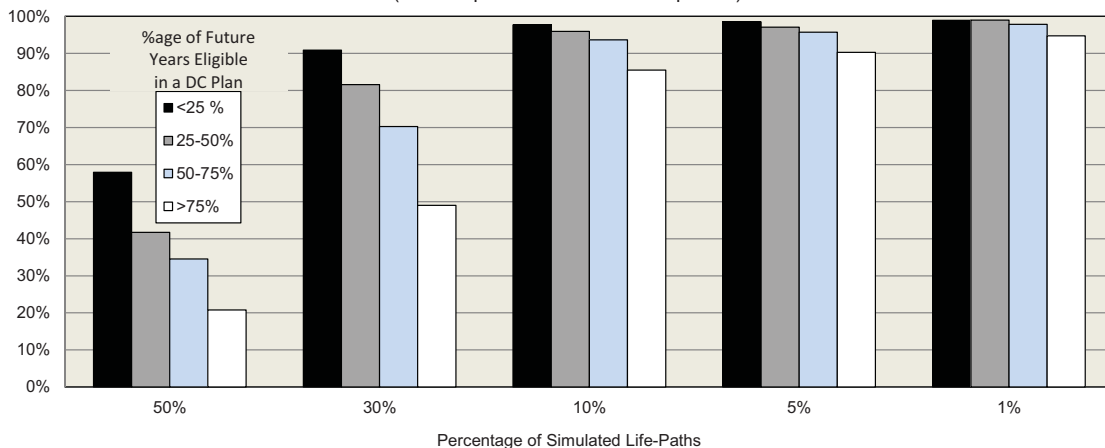
**Figure 3**  
**Percentage of Gen Xers At Risk\* for Inadequate Retirement Income**  
**More Than a Specified Percentage of Simulated Life-Paths,**  
**by Percentage of Future Working Years Eligible for**  
**Participation in a Defined Contribution Plan**  
(Lowest preretirement income quartile)



Source: Employee Benefit Research Institute Retirement Security Projection Model® version 110401i.

\* 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.

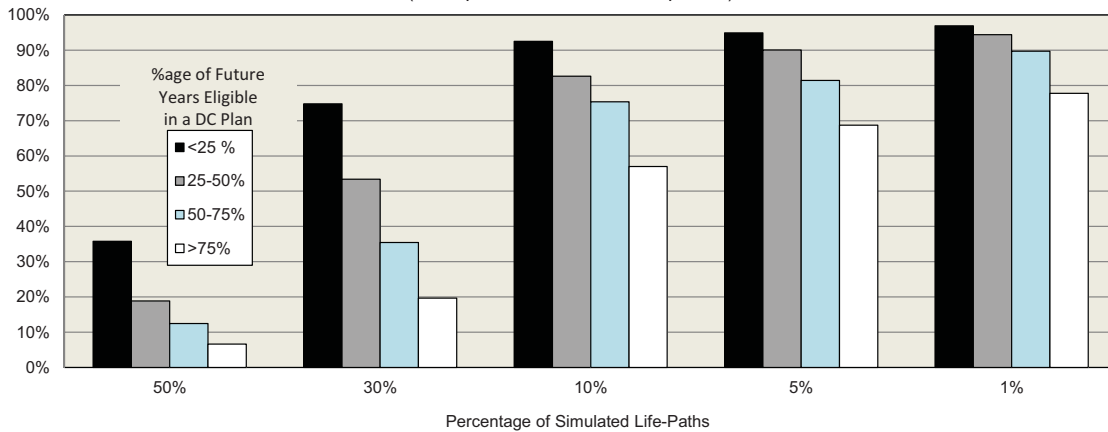
**Figure 4**  
**Percentage of Gen Xers At Risk\* for Inadequate Retirement Income**  
**More Than a Specified Percentage of Simulated Life-Paths,**  
**by Percentage of Future Working Years Eligible for**  
**Participation in a Defined Contribution Plan**  
(Second preretirement income quartile)



Source: Employee Benefit Research Institute Retirement Security Projection Model® version 110401i.

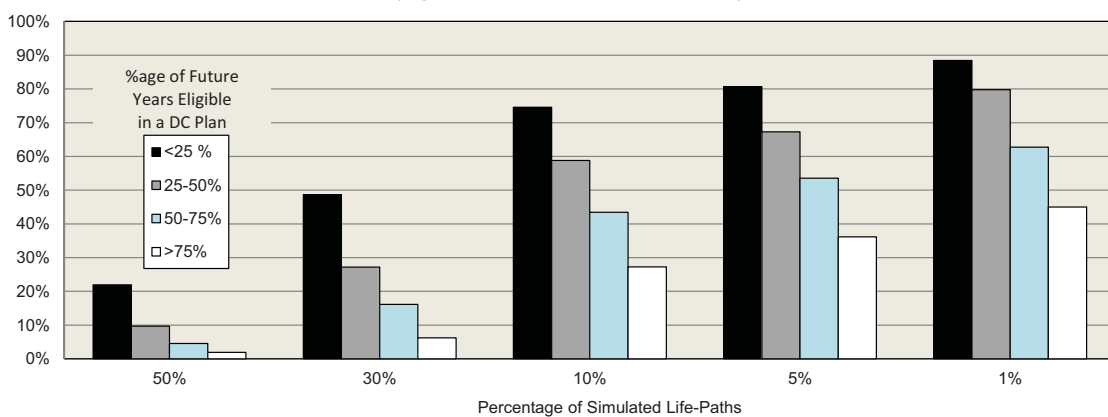
\* An individual or family is considered to be "at risk" in this version of the model if their aggregate resources in retirement are not sufficient to meet aggregate minimum retirement expenditures defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function 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 5**  
**Percentage of Gen Xers At Risk\* for Inadequate Retirement Income**  
**More Than a Specified Percentage of Simulated Lifepaths.**  
**by Percentage of Future Working Years Eligible for**  
**Participation in a Defined Contribution Plan**  
 (Third preretirement income quartile)



Source: Employee Benefit Research Institute Retirement Security Projection Model® version 110401i.  
 \* 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**  
**Percentage of Gen Xers At Risk\* for Inadequate Retirement Income**  
**More Than a Specified Percentage of Simulated Life-Paths,**  
**by Percentage of Future Working Years Eligible for**  
**Participation in a Defined Contribution Plan**  
 (Highest preretirement income quartile)



Source: Employee Benefit Research Institute Retirement Security Projection Model® version 110401i.  
 \* 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.

of future work years. At the 30 percent threshold, the at-risk percentages drop from 49 percent to 6 percent, and at the 10 percent level they decrease from 75 percent to 27 percent. For this income quartile there is also a considerable spread at the 5 percent level (81 percent to 36 percent) and even at the 1 percent level (88 percent to 45 percent).

## Conclusion

Retirement income adequacy in the future will depend on a number of key factors, including, among other things: the assumed retirement age, participation rates, employee contribution rates, employer matching formulae, employer nonelective contributions, asset allocation, job turnover, cashout rates, and rates of return. Each of these factors is modeled in the EBRI RSPM, and the impact of many of these will be explored in more detail in forthcoming EBRI publications.

This article introduced a new method of analyzing the results from this model. 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 computes what percentage of the households will meet that requirement more than a specified percentage of times in the simulation.

A second objective of this article is to focus on the importance of future eligibility for a defined contribution plan, whether or not the employee actually chooses to participate. In essence, this focuses on the public policy implications of having employers sponsor defined contribution plans.

It is clear from the results in Figures 3 through 6 that, although the relative impact of future eligibility in a defined contribution plan will depend on several factors, there are different percentage levels for each income cohort where these plans make the most difference. For example in the lowest-income cohort, the major difference is seen at the 50 percent and 30 percent thresholds. The larger income cohorts also experience a major impact at these levels but the beneficial effect of defined contribution plan eligibility has a much wider range for these individuals.

This finding has major implications for any policies that would decrease the percentage of workers eligible to participate in defined contribution retirement plans. Phrased another way, a crucial factor in workers' ability to achieve future retirement income adequacy is their eligibility to participate in a defined contribution retirement plan.

## Appendix: Brief Description of RSPM

EBRI originally developed the Retirement Security Projection Model (RSPM<sup>®</sup>) in 2003 to provide detailed micro-simulation projections of the percentage of preretirement households "at risk" of having inadequate retirement income to finance basic retirement expenditures, as well as uninsured retiree health care expenses (including nursing home care). This model benefits greatly from having access to administrative records on tens of millions of 401(k) participants,<sup>10</sup> dating back in some cases to 1996, to permit simulating the accumulations under the most important component (but also the most complicated in terms of modeling) of future wealth generated by the employer-sponsored retirement system. These household projections are combined with the other components of retirement income/wealth (such as Social Security, defined benefit annuities, and lump-sum distributions, IRA rollovers, non-rollover IRAs, and net housing equity) at retirement age, and run through 1,000 alternative retirement paths to see what percentage of the time the households "run short of money" in retirement. The present value of the deficits generated in retirement is also computed to provide Retirement Savings Shortfalls (RSS).<sup>11</sup>



The appendix to VanDerhei and Copeland (July 2010) 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.<sup>12</sup>

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 in this article assumes that 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<sup>13</sup> 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,<sup>14</sup> the excess is assumed to be invested in a non-tax-advantaged account where the investment income is taxed as ordinary income.<sup>15</sup> 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.

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.<sup>16</sup> However, RSPM also provides information on the present value of the deficits that each household is simulated to generate in retirement. These deficits can be aggregated for various age cohorts and reported as a function of several characteristics, including, inter alia:

- Gender.
- Marital status (at retirement).
- Preretirement income quartile.
- Future years of eligibility in a defined contribution plan.

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## Endnotes

<sup>1</sup> The major reason for the large magnitude of these decreases is attributed to the projection of future defined contribution account balances. The 2010 Retirement Readiness Ratings™ fully reflect the trend to auto-enrollment, auto-escalation of contributions, and qualified default investment alternatives (QDIAs) as a result of the Pension Protection Act of 2006 (PPA) and subsequent regulations. While some plans had already adopted auto-escalation at the time of the 2003 model, the percentage of workers affected was minimal and hence not included in the simulations. For more information on the impact of PPA, see VanDerhei (April 2010).

<sup>2</sup> The author thanks Stephen Goss for suggesting this improvement.

<sup>3</sup> The author thanks Joseph Piacentini for suggesting this improvement.

<sup>4</sup> Unlike the 2010 RSPM modification, the 2011 changes were relegated to updating financial market and real estate information as well as census information.

<sup>5</sup> See VanDerhei and Lucas (November 2010) for more detail on the potential impact of automatic escalation of contributions on retirement income adequacy.

<sup>6</sup> Preretirement income in RSPM is determined in a manner similar to the average indexed monthly earnings computation for Social Security with the following modifications:

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

<sup>7</sup> See Figure 9 of VanDerhei and Copeland, (July 2010).

<sup>8</sup> For purposes of the baseline version of the model, all workers are assumed to retire at age 65. This assumption will be relaxed in future EBRI research.

<sup>9</sup> The Gen Xer population was chosen as a focus of this study due to the additional years of employment prior to age 65.

<sup>10</sup> For a description of the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project, see the November 2010 *EBRI Issue Brief* and *ICI Perspective*, at [www.ebri.org/publications/ib](http://www.ebri.org/publications/ib) and [www.ici.org/research/perspective](http://www.ici.org/research/perspective)

<sup>11</sup> See VanDerhei (October 2010) for details.

<sup>12</sup> Net housing equity is introduced into RSPM in three different mechanisms but assumed not to be utilized in financing retirement expenses in this *Notes* article. This assumption will be relaxed in a future EBRI publication.

<sup>13</sup> IRS tax tables from 2010 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.

<sup>14</sup> Roth IRA and 401(k) accounts are not used in this version of the model but will be incorporated into a forthcoming EBRI publication.

<sup>15</sup> Capital gains treatment is not used in this version of the model.

<sup>16</sup> The nominal cost of these expenditures increases with component-specific (health and the other expenditures) inflation assumptions.



# Notes

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