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Satisfaction With Health Coverage and Care: Findings from the 2013 EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, *by Paul Fronstin, Ph.D., EBRI*

- The overall satisfaction rate among consumer-driven health plan (CDHP) enrollees increased in most years of the EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey (CEHCS), while it decreased in most years among traditional enrollees.

- Differences in out-of-pocket costs may explain some of the differences in overall satisfaction rates. In 2013, 44 percent of traditional-plan participants were extremely or very satisfied with out-of-pocket costs (for health care services other than for prescription drugs), while 20 percent of high-deductible health plan (HDHP) enrollees and 31 percent of CDHP participants were extremely or very satisfied. Satisfaction has been trending upward among CDHP enrollees.

- CDHP and HDHP enrollees were less likely than those in a traditional plan both to recommend their health plan to friends or co-workers and to stay with their current health plan if they had the opportunity to switch plans. The percentage of HDHP and CDHP enrollees reporting that they would be extremely or very likely to recommend their plan to friends or co-workers has been trending upward, while it has been flat among individuals with traditional coverage.

Contributory "Negligence?" The Impact of Future Contributions to Defined Contribution Plans on Retirement Income Adequacy for Gen Xers, *by Jack VanDerhei, Ph.D., EBRI*

- One of the major findings in each of the last five annual retirement income adequacy studies by EBRI was that the retirement income adequacy prospects for Gen Xers were approximately the same as Baby Boomers. However, recent studies by other organizations suggest Gen Xers will fare much worse than the Boomers. Unfortunately, these studies appear to be plagued by either explicitly ignoring future contributions to defined contribution plans or failing to account for the recent changes in many defined contribution plans to incorporate automatic enrollment features (including automatic escalation of contributions).

- Ignoring future contributions exaggerates the percentage of Gen-X workers simulated to run short of money in retirement by roughly 10 to 12 percentage points among all but the lowest-income group.

Satisfaction With Health Coverage and Care: Findings from the 2013 EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey

By Paul Fronstin, Ph.D., Employee Benefit Research Institute

Introduction

This article examines satisfaction with various aspects of health care by type of health plan. It examines satisfaction among three groups of health-plan enrollees: those with a consumer-driven health plan (CDHP), those with a high-deductible health plan (HDHP), and those with traditional coverage. The findings presented in this paper are derived from the 2013 EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey (CEHCS), an online survey that examines issues surrounding consumer-directed health care, including the cost of insurance, the cost of care, satisfaction with health care, satisfaction with health care plans, reasons for choosing a plan, and sources of health information. This paper also presents trends in satisfaction using findings from the 2005–2007 EBRI/Commonwealth Fund Consumerism in Health Care surveys, and the 2008–2012 CEHCS.[1]

To examine trends in satisfaction rates, the sample was divided into three groups: those with a CDHP, those with an HDHP, and those with traditional health coverage. Individuals were assigned to the CDHP and HDHP groups if they had a deductible of at least $1,000 for individual coverage or $2,000 for family coverage. To be assigned to the CDHP group, they must also have had an account, such as a health savings account (HSA) or health reimbursement arrangement (HRA) with a rollover provision that they could use to pay for medical expenses or with portability so that they could take their account with them if they changed jobs. Individuals were assigned to the HDHP group if they did not have an account used for health care expenses with a rollover provision or portability if they changed jobs. This group included individuals with an HSA-eligible health plan but may also have included individuals with a high deductible who were not eligible to contribute to an HSA. Individuals with traditional health coverage had a broad range of plan types, including health maintenance organizations (HMOs), preferred provider organizations (PPOs), other managed care plans, and plans with a broad variety of cost-sharing arrangements. The shared characteristics of this group's members were that participants did not have an HRA-based plan and either had no deductible or a deductible that was below current thresholds that would qualify for HSA tax preference.
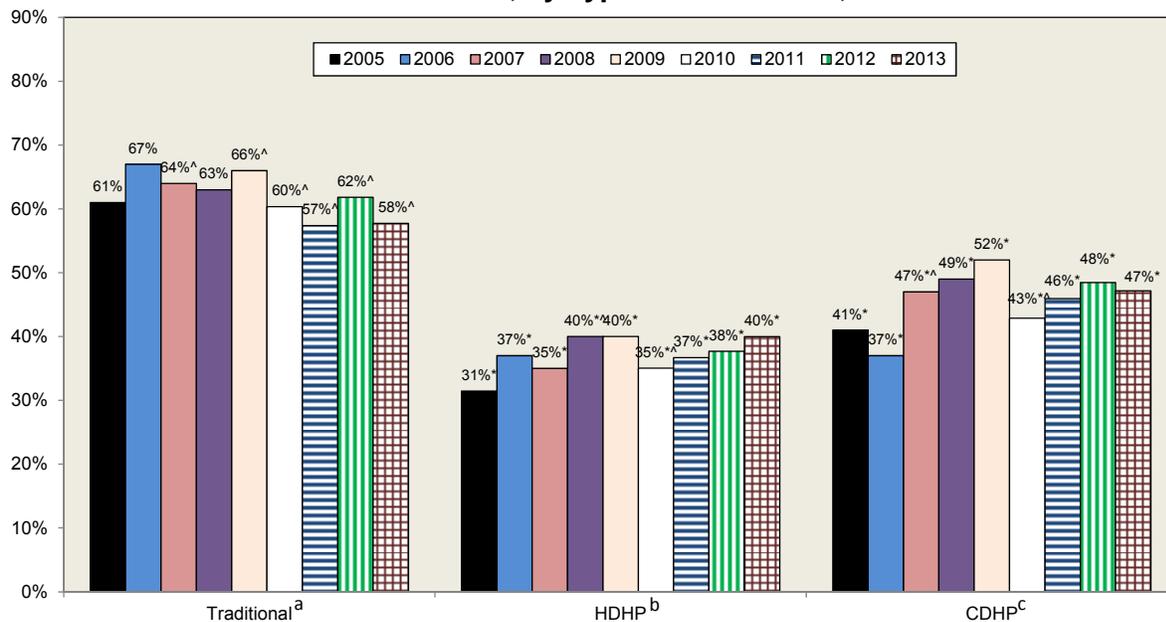
Satisfaction

Respondents were asked a series of questions regarding their attitude toward their health plan and their satisfaction with various aspects of their health care, including satisfaction with the quality of care received, out-of-pocket expenses, choice of doctors, and ability to get doctor appointments.

Overall Satisfaction With Health Plan—Traditional-plan enrollees were more likely than CDHP and HDHP enrollees to be extremely or very satisfied with their overall plan in all years of the survey. In 2013, 58 percent of traditional-plan enrollees were extremely or very satisfied with their overall health plans, compared with 47 percent among CDHP enrollees and 40 percent among HDHP enrollees (Figure 1).

Overall satisfaction rates among CDHP enrollees increased from 37 percent to 52 percent between 2006 and 2009, although there was a drop in satisfaction rates between 2009 and 2010. Satisfaction rates increased from 43 percent to 48 percent between 2010 and 2012 and were statistically unchanged in 2013. Overall satisfaction rates have been trending upward for CDHP enrollees and downward for traditional enrollees.

Figure 1
Percentage Extremely or Very Satisfied With
Overall Health Plan, by Type of Health Plan, 2005–2013

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.

a Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
b HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
c CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
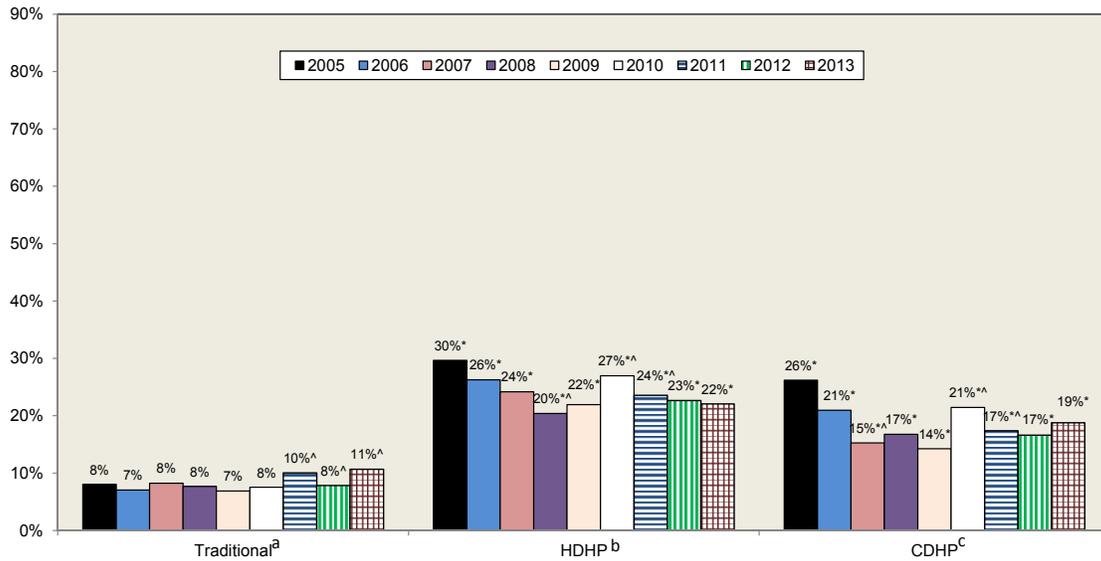* Difference between HDHP/CDHP and Traditional is statistically significant at $p \leq 0.05$ or better.
^ Estimate is statistically different from the prior year shown at the $p \leq 0.05$ or better.

Very few traditional-plan enrollees were not too or not at all satisfied with their health plan in any year of the survey. In 2013, only 11 percent of traditional-plan enrollees were not too or not at all satisfied with their health plan (Figure 2). In comparison, 22 percent of HDHP and 19 percent of CDHP enrollees reported that they were not too or not at all satisfied with their health plan. Overall, dissatisfaction among CDHP and HDHP enrollees has been trending downward during the survey period.

Quality of Care—Other than in 2006, individuals in a CDHP were as satisfied as individuals with traditional coverage with the quality of care received. By 2013, about two-thirds of individuals whether in a CDHP (67 percent) or with traditional coverage (68 percent) were extremely or very satisfied with the quality of care received (Figure 3). In contrast, individuals with an HDHP were less likely to be satisfied with the quality of care received than those in a traditional plan in every year of the survey. By 2013, 61 percent of HDHP enrollees were extremely or very satisfied with quality of care received, compared with 68 percent among traditional plan enrollees. Satisfaction with quality of care fell between 2012 and 2013 for both individuals with a CDHP and those with traditional coverage.

Out-of-Pocket Costs—Differences in out-of-pocket costs may explain some of the difference in overall satisfaction rates among enrollees in traditional plans, HDHPs, and CDHPs. In 2013, 44 percent of traditional-plan participants were extremely or very satisfied with out-of-pocket costs (for health care services other than for prescription drugs), while 20 percent of HDHP enrollees and 31 percent of CDHP participants were extremely or very satisfied (Figure 4). Satisfaction rates have been trending upward among individuals with a CDHP or HDHP. In contrast, they have been mostly flat for individuals with traditional coverage.
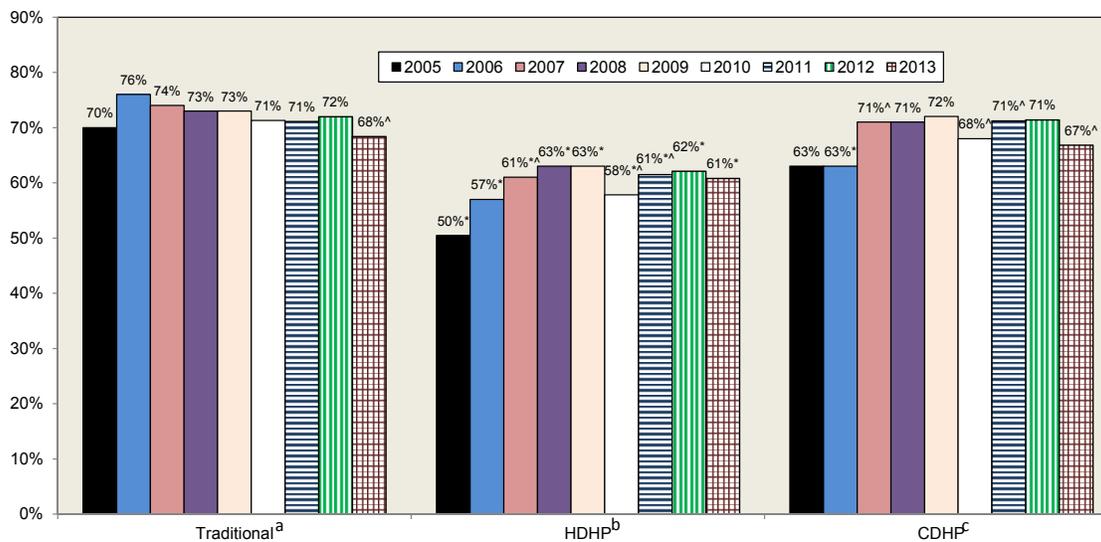
Figure 2
Percentage Not Too or Not at All Satisfied With
Overall Health Plan, by Type of Health Plan, 2005–2013

Legend: ■ 2005 ■ 2006 ■ 2007 ■ 2008 □ 2009 □ 2010 ⊟ 2011 ⊞ 2012 ⊞ 2013

Traditional[a]: 8%, 7%, 8%, 8%, 7%, 8%, 10%^, 8%^, 11%^

HDHP[b]: 30%*, 26%*, 24%*, 20%*^, 22%*, 27%*^, 24%*^, 23%*, 22%*

CDHP[c]: 26%*, 21%*, 15%*^, 17%*, 14%*, 21%*^, 17%*^, 17%*, 19%*

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.
[a] Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
[b] HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
[c] CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.

Figure 3
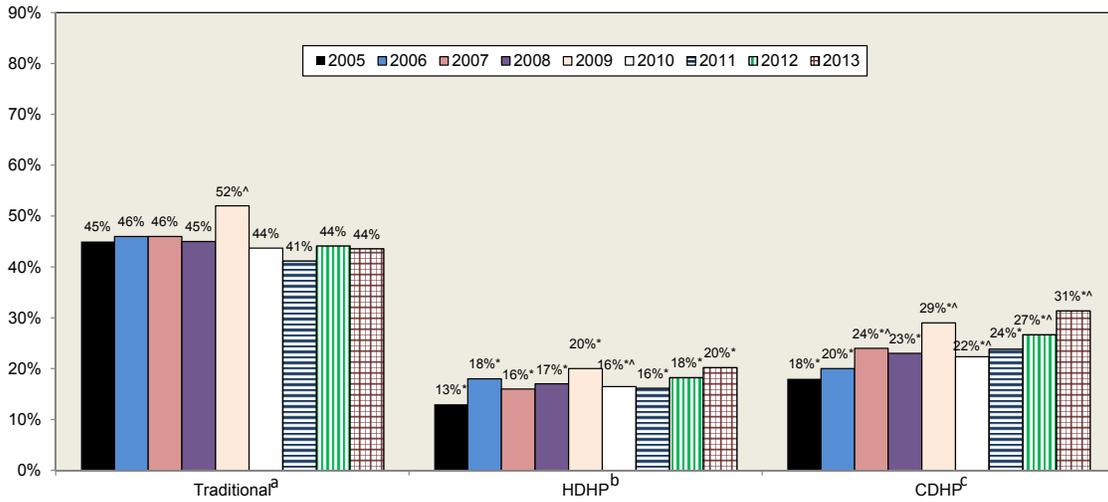## Percentage Extremely or Very Satisfied With Quality
of Health Care Received, by Type of Health Plan, 2005–2013

Legend: ■ 2005 ■ 2006 ■ 2007 ■ 2008 □ 2009 □ 2010 ⊟ 2011 ⊞ 2012 ⊞ 2013

Traditional[a]: 70%, 76%, 74%, 73%, 73%, 71%, 71%, 72%, 68%^

HDHP[b]: 50%*, 57%*, 61%*^, 63%*, 63%*, 58%*^, 61%*^, 62%*, 61%*

CDHP[c]: 63%*, 63%*, 71%^, 71%, 72%, 68%^, 71%^, 71%, 67%^

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.
[a] Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
[b] HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
[c] CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.

Figure 4
Percentage Extremely or Very Satisfied With Out-of-Pocket
Health Care Costs, by Type of Health Plan, 2005–2013

Legend: ■2005 ■2006 ■2007 ■2008 □2009 □2010 ▤2011 ▥2012 ▦2013

Traditional[a]: 45%, 46%, 46%, 45%, 52%^, 44%, 41%, 44%, 44%

HDHP[b]: 13%*, 18%*, 16%*, 17%*, 20%*, 16%*^, 16%*, 18%*, 20%*

CDHP[c]: 18%*, 20%*, 24%*^, 23%*, 29%*^, 22%*^, 24%*, 27%*^, 31%*^

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.
Note: survey question changed in 2009 from asking about "Out-of-pocket health care costs for my health care" to "Out-of-pocket health care costs for my other health care" because of the introduction of a question specifically asking about out-of-pocket costs for drugs.
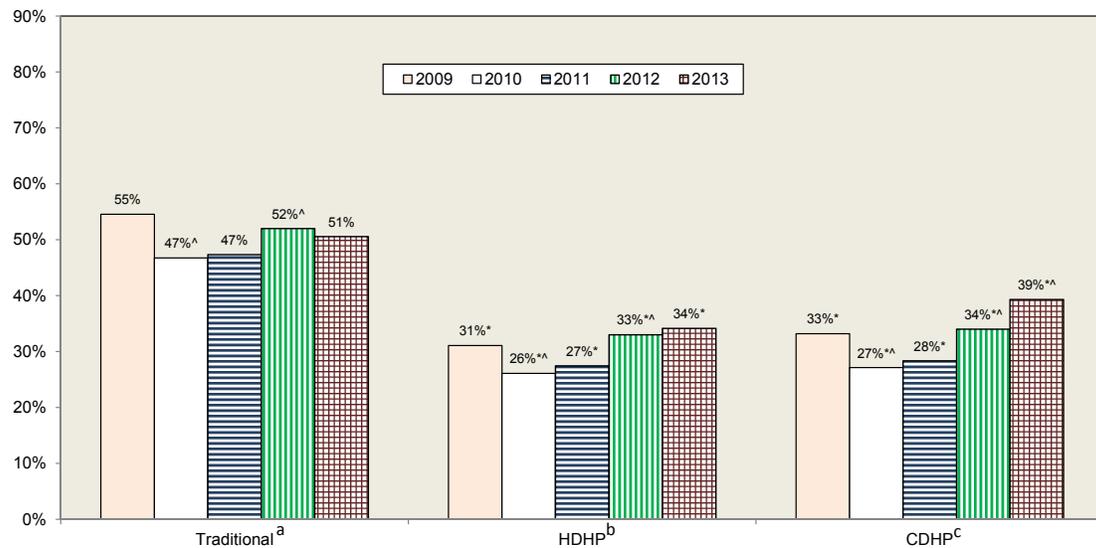[a] Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
[b] HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
[c] CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.

Figure 5
Percentage Extremely or Very Satisfied With Out-of-Pocket
Prescription Drug Costs, by Type of Health Plan, 2009–2013

Legend: □2009 □2010 ▤2011 ▥2012 ▦2013

Traditional[a]: 55%, 47%^, 47%, 52%^, 51%

HDHP[b]: 31%*, 26%*^, 27%*, 33%*^, 34%*

CDHP[c]: 33%*, 27%*^, 28%*, 34%*^, 39%*^

Sources: EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2009–2013.
[a] Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
[b] HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
[c] CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.
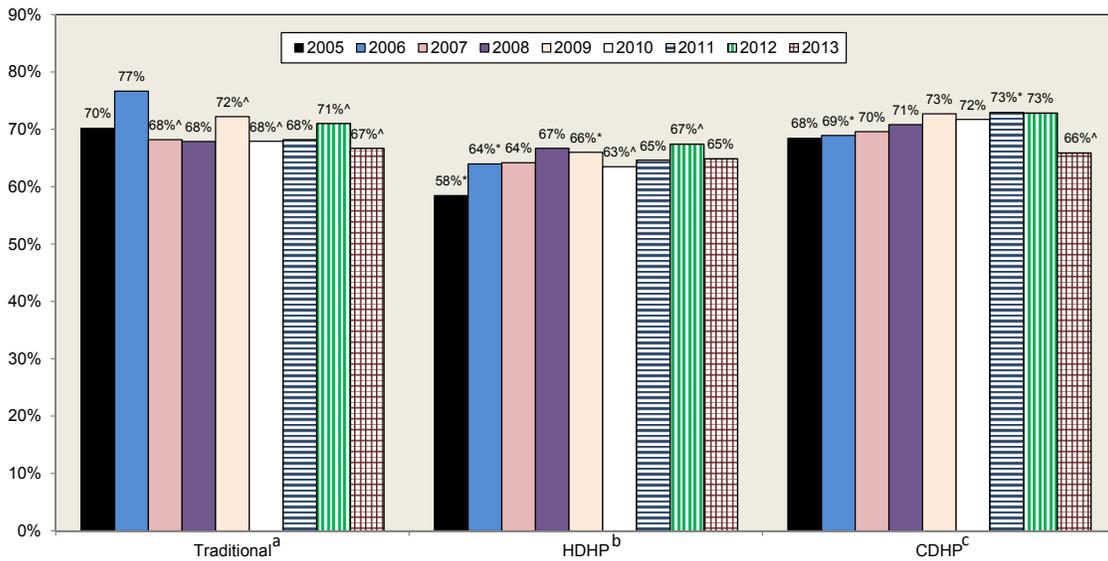
To provide additional insights, a separate question on out-of-pocket spending relating specifically to prescription drugs was added to the survey in 2009. Satisfaction with out-of-pocket spending on prescription drugs has been trending upward since 2010, regardless of plan type (Figure 5). While those with traditional coverage were more likely to report being extremely or very satisfied with out-of-pocket costs for prescription drugs than those with an HDHP or a CDHP, the relative increase in satisfaction rates for out-of-pocket costs for prescription drugs was much greater for HDHP and CDHP enrollees than it was for traditional plan enrollees.

Access to Doctors—Satisfaction levels with getting doctor appointments were high relative to other aspects of health care, regardless of plan type. In 2013, about two-thirds of plan participants were extremely or very satisfied with their ability to get doctor appointments (Figure 6). Satisfaction rates have been largely flat among traditional plan enrollees, while they have been trending upward among CDHP enrollees. However, among both groups, satisfaction levels fell between 2012 and 2013. The same pattern was found for satisfaction with choice of doctors (Figure 7).

Attitude Toward Health Plan

As in previous years of the survey, in 2013 individuals in a CDHP or an HDHP were found to be less likely than those in a traditional plan both to recommend their health plan to friends or co-workers (Figure 8), and to stay with their current health plan if they had the opportunity to switch plans (Figure 9). However, the percentage of HDHP and CDHP enrollees reporting that they would be extremely or very likely to recommend their plan to friends or co-workers has been trending upward, while it has been flat among individuals with traditional coverage. In addition, the increase between 2012 and 2013 was statistically significant among CDHP enrollees.

Figure 6
Percentage Extremely or Very Satisfied With Ease of
Getting Doctor Appointment When Needed, 2005–2013

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.
a Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
b HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
c CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.

Figure 7
Percentage Extremely or Very Satisfied
With Choice of Doctors, 2005–2013

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.
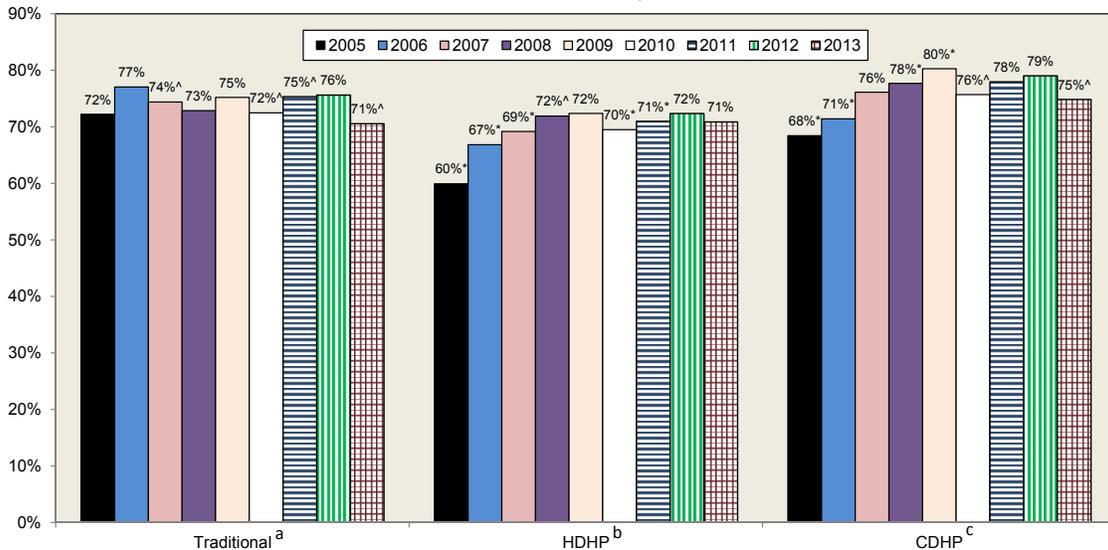a Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
b HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
c CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.

Figure 8
Percentage Extremely or Very Likely to Recommend Health Plan to Friend or Co-Worker, by Type of Health Plan, 2005–2013

Legend: ■2005 ■2006 ■2007 ■2008 □2009 □2010 ▦2011 ▦2012 ▦2013

Traditional[a]: 49%, 53%, 52%, 49%^, 55%^, 48%^, 49%, 52%^, 49%
HDHP[b]: 23%*, 25%*, 27%*, 28%*, 32%*, 27%*^, 29%*, 29%*, 29%*
CDHP[c]: 33%*, 30%*, 39%*^, 38%*^, 45%*, 37%*^, 41%*, 40%*, 45%^

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.
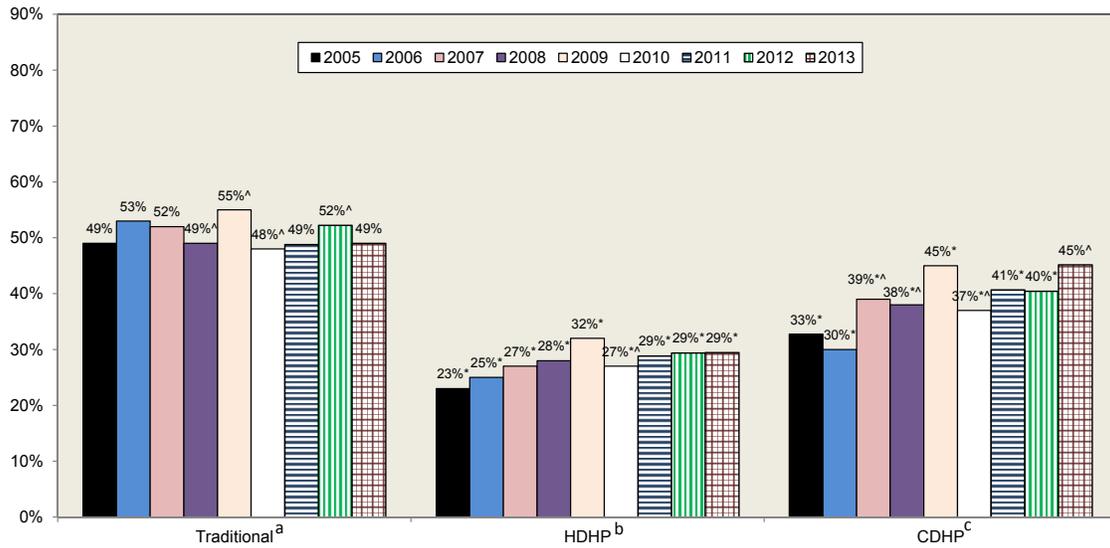[a] Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
[b] HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
[c] CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.

Figure 9
Percentage Extremely or Very Likely to Stay With Current Health Plan If Had the Opportunity to Change, by Type of Health Plan, 2005–2013

Legend: ■2005 ■2006 ■2007 ■2008 □2009 □2010 ▦2011 ▦2012 ▦2013

Traditional[a]: 60%, 63%, 64%, 61%^, 64%, 61%, 58%*^, 63%^, 58%^
HDHP[b]: 31%*, 30%*, 34%*^, 38%*^, 38%*, 32%*^, 34%*, 37%*, 40%*
CDHP[c]: 46%*, 36%*, 45%*^, 45%*, 49%*, 44%*^, 49%*^, 48%*, 52%*

Sources: EBRI/Commonwealth Fund Consumerism in Health Care Survey, 2005–2007; EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey, 2008–2013.
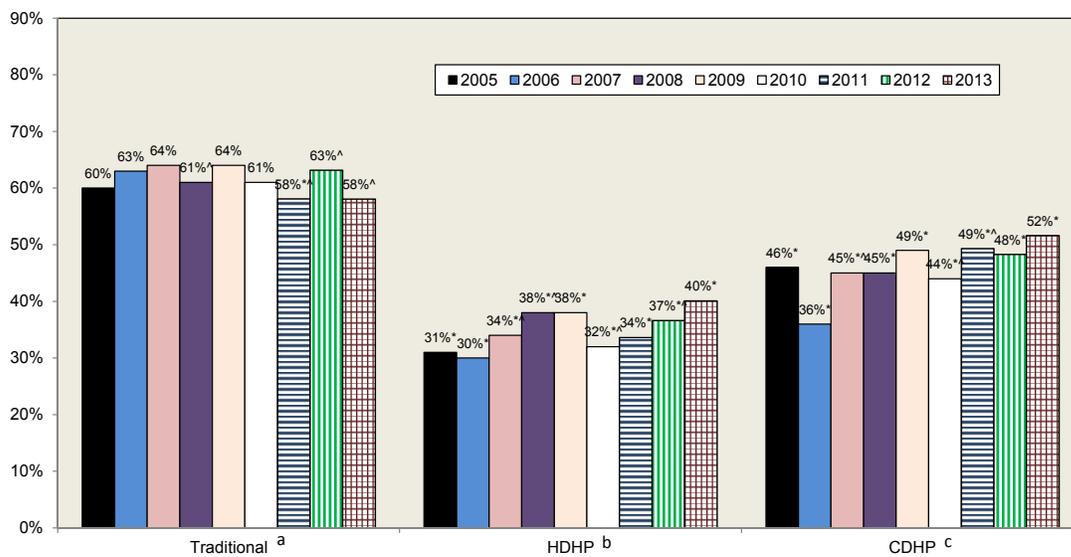[a] Traditional = Health plan with no deductible or <$1,000 (individual), <$2,000 (family).
[b] HDHP = High-deductible health plan with deductible $1,000+ (individual), $2,000+ (family), no account.
[c] CDHP = Consumer-driven health plan with deductible $1,000+ (individual), $2,000+ (family), with account.
* Difference between HDHP/CDHP and Traditional is statistically significant at p ≤ 0.05 or better.
^ Estimate is statistically different from the prior year shown at the p ≤ 0.05 or better.

Appendix – About the 2013 EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey

The Employee Benefit Research Institute (EBRI) and Greenwald & Associates created the EBRI/Greenwald & Associates Consumer Engagement in Health Care Survey (CEHCS) to examine issues surrounding consumer-directed health care, including the cost of insurance, the cost of care, satisfaction with health care, satisfaction with a health care plan, reasons for choosing a plan, and sources of health information. The 2013 CEHCS is comparable with findings from the 2005–2007 EBRI/Commonwealth Fund Consumerism in Health Care surveys, and the 2008–2012 CEHCS.

The 2013 survey was conducted within the United States between August 8 and August 20, 2013, through a 13-minute Internet survey. The national or base sample was drawn from Ipsos's online panel of Internet users who have agreed to participate in research surveys.[2] Two thousand adults ages 21–64 who had health insurance through an employer or purchased directly from a carrier were drawn randomly from the Ipsos sample for this base sample. This sample was stratified by gender, age, region, income, and race. The response rate was 37.2 percent (32 percent for the base sample or national sample, and 44 percent for the oversample). As a nonprobability sample, traditional survey margin of error estimates do not apply. However, had the survey used a probability sample, the margin of error for the national sample would have been ±2.2 percent.

The sample was divided into three groups: those with a consumer-driven health plan (CDHP), those with a high-deductible health plan (HDHP), and those with traditional health coverage. Individuals were assigned to the CDHP or HDHP group if they had a deductible of at least $1,000 for individual coverage or $2,000 for family coverage. To be assigned to the CDHP group, they must also have had an account, such as a health savings account (HSA) or health reimbursement arrangement (HRA), with a rollover provision that they could use to pay for medical expenses or the ability to take their account with them should they change jobs. Individuals with only a flexible spending account (FSA) were not included in the CDHP group.

Because the base sample (national sample) included only 180 individuals in a CDHP and 397 individuals with an HDHP, an oversample of individuals with a CDHP or HDHP was added. The oversample included 1,062 individuals with a CDHP. In addition to being stratified, the base sample was also weighted by gender, age, education, region, income, and race/ethnicity to reflect the actual proportions in the population ages 21–64 with private health insurance coverage.[3] The CDHP oversample was weighted by gender, age, income, and race/ethnicity. More information can be found in Fronstin (2013).

While panel Internet surveys are nonrandom, studies have demonstrated that such surveys, when carefully designed, obtain results comparable with random-digit-dial telephone surveys. Taylor (2003), for example, provided the results from a number of surveys that were conducted at the same time using the same questionnaires both via telephone and online. He found that the use of demographic weighting alone was sufficient to bring almost all of the results from the online survey close to the replies from the parallel telephone survey. He also found that in some cases, propensity weighting (meaning the propensity for a certain type of person to be online) reduced the remaining gaps, but in other cases it did not reduce the remaining gaps. Perhaps the most striking difference in demographics between telephone and online surveys was the under-representation of minorities in online samples.

Endnotes

[1] More information about the data can be found in the appendix and in Fronstin, "Satisfaction With Health Coverage and Care: Findings from the 2012 EBRI/MGA Consumer Engagement in Health Care Survey" (*EBRI Notes,* August, 2013).

[2] See http://www.i-say.com/

[3] In theory, a random sample of 2,000 yields a statistical precision of plus or minus 2.2 percentage points (with 95 percent confidence) of what the results would be if the entire population ages 21–64 with private health insurance coverage was surveyed with complete accuracy. There are also other possible sources of error in all surveys 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.

Contributory "Negligence?" The Impact of Future Contributions to Defined Contribution Plans on Retirement Income Adequacy for Gen Xers

By Jack VanDerhei, Ph.D., Employee Benefit Research Institute

Introduction

Measuring retirement security—or more precisely, retirement income adequacy—is an area of critical and growing concern for individuals, employers, regulators, and policymakers alike. The Employee Benefit Research Institute (EBRI) launched a major project to provide this type of assessment in the late 1990s on behalf of several states concerned as to whether their residents would have sufficient income, or when they might become financially indigent, once they reached retirement age. After conducting studies for Oregon, Kansas, and Massachusetts, EBRI developed a national model in 2003—EBRI's Retirement Security Projection Model® (RSPM).

In 2010, it was updated to incorporate the impact of simulating several significant environmental changes, including defined benefit (DB) plan freezes, automatic enrollment provisions for 401(k) plans, and the crises in the financial and housing markets.[1] EBRI has updated RSPM on an annual basis since then to incorporate changes in financial and real estate market conditions, as well as underlying demographic changes and changes in 401(k) participant behavior.

Throughout, EBRI has evaluated the retirement income adequacy for various demographic cohorts, notably the age cohorts of Early Boomers,[2] Late Boomers,[3] and Gen Xers,[4] the latter being the first generational cohort to have a full working career in a defined-contribution-centric retirement plan environment.

One of the major findings in each of the annual studies since 2010 was that the overall retirement income adequacy prospects for Gen Xers were approximately the same as Early Boomers and Late Boomers.[5] However, a number of recent studies suggest Gen Xers will fare much worse than the Boomers in terms of retirement income adequacy. For example, Pew (2013) used data from the Panel Study of Income Dynamics to estimate median replacement rates by age cohort (assuming retirement at age 65) and found that the values have decreased from 82 percent for early boomers to 59 percent for Late Boomers and 50 percent for Gen Xers.[6] Similarly, Munnell, Webb, and Golub-Sass (2012) used the National Retirement Risk Index (NRRI) model from the Center for Retirement Research (CRR) at Boston College to estimate 2010 "at risk" ratings at age 65 by age group. They estimated that 44 percent of households ages 50–59 at that time were "at risk," but the percentage increased to 55 percent for households ages 40–49 and 62 percent for those ages 30–39.

Modeling Differences

There are a number of possible explanations for these very different conclusions:

1. How the models account for expected retirement benefits from participation in a DB plan.

2. How (or if) the models account for the recent changes in many defined contribution (DC) plans to incorporate automatic enrollment features (including automatic escalation of contributions).

3. How the models project future employee and employer contributions to DC plans.

In view of the complexities—and uncertainty—associated with estimating future DB pension streams and the positive impact these can have on retirement income adequacy, the treatment of DB accruals is particularly problematic if the model simply assumes that a survey respondent has an informed estimate of his or her future benefit.

NRRI relies on data from the Survey of Consumer Finances (SCF) in which the survey respondents independently assess what their eventual DB payouts will be. Park (2011) analyzed the SCF respondents' self-reported, expected benefits from defined benefit pension plans and found that the average annual benefit accrual rates in 2004 and 2007 were estimated at 2.06 percent and 2.48 percent of final pay, respectively. These rates were higher than the average annual accrual rate of 1.59 percent reported by the U.S. Department of Labor's 2005 National Compensation Survey (NCS), which is based on official plan documents. This suggests that the 2004 and 2007 SCF respondents overestimated their expected pension benefits at retirement, unless they had more generous accrual formulas than plan participants in the 2005 NCS.

In contrast, RSPM bases the DB accruals on a time series of DB plan-type and generosity parameters coded from, among other things, summary-plan, description-type information on more than 1,000 large-salaried DB plans per year.

Plan Design Assumptions

The complexion and composition of retirement plan designs have undergone considerable change over the past 30 years with a well-chronicled decline in the number and generosity provisions of DB pension plans in the private sector and the rapid expansion of DC offerings, notably the 401(k) plan. Moreover, following enactment of the Pension Protection Act of 2006 (PPA), there has been a dramatic increase in the adoption of so-called "automatic" plan designs, notably automatic enrollment, contribution-rate acceleration, and the advent of qualified default investment alternatives (QDIAs), specifically the utilization of target-date funds (TDFs).[7]

In the midst of these dramatic shifts, the treatment of DC-plan design (especially 401(k) plans) varies dramatically among the retirement income adequacy models. For example, the NRRI model projects financial assets in 401(k) plans and other accounts "based on wealth-to-income patterns by age group from the 1983–2010 Federal Reserve Surveys of Consumer Finances (SCF)." In essence, the NRRI projections appear to rely on an outdated perspective of 401(k)-plan designs and savings trends.

In contrast, the RSPM has been completely revamped since the original 2003 model to account for the dramatic trends noted above: automatic enrollment (AE) in 401(k) plans, automatic escalation of contributions, and the increased utilization of TDFs, whether through QDIAs or through participant-directed investments.

How much difference might this make? Holden and VanDerhei (2005) demonstrated the large positive impact AE would likely have on employees eligible to participate in 401(k) plans, especially at the lower-income quartiles. VanDerhei (September 2007) used the PPA auto-enrollment safe harbors to show how much larger balances in AE 401(k) plans would likely be for eligible employees as a result of automatic escalation of employee contributions. VanDerhei and Copeland (2008) used a version of the RSPM to model the impact of automatic enrollment and automatic escalation of employee contributions for all workers (whether or not they were currently 401(k) participants or eligible nonparticipants).

Contribution Trends

The projection of future worker and employer contributions to DC plans is particularly important, particularly among younger workers who have longer participation windows, and for whom (particularly in their initial savings years) these contributions constitute a significant percentage of their account growth.

However, most publicly available data sets have only limited information on current employee contributions to DC plans, and employer contribution information (if available at all) typically is not divided into matching vs. nonelective contributions. Moreover, the matching formulas that provide incentives for employees to contribute to at least a

particular point are not generally available.[8] Unfortunately, this combination of circumstances typically leaves those constructing retirement income adequacy models with a limited number of options.

CRR's NRRI relies on wealth-to-income patterns dating back to 1983 (a time period in which DC plans have evolved from a secondary savings plan to the primary retirement plan in many cases, and 401(k) plans have changed for many eligible participants from voluntary enrollment to automatic enrollment).

While this approach indirectly takes into account the future contribution activity on a macro level, it does not attempt to perform the type of micro simulations reflecting eligibility, participation, contribution activity, asset allocation, and cashout behavior at job change like RSPM does. The 2013 Pew study chose a third option and "did not assume any new saving beyond the growth of existing private wealth and amounts in pension plans."[9]

In contrast, EBRI's RSPM is able to draw from parameters estimated from administrative data collected from a wide range of record keepers (in some cases all the way back to 1996). The model currently has detailed contribution information on 24 million individual participants from more than 60,000 plans.[10]

This *EBRI Notes* Article attempts to reconcile the RSPM results regarding retirement income adequacy and those published by Pew concerning the relative status of Gen Xers compared with Boomers. It begins with a brief overview of RSPM and then analyzes the impact of changing future DC assumptions on retirement income adequacy for Gen Xers.

The overall impact is provided as well as separate analyses looking at the impact by age, relative wage level, and future years of eligibility for participation in a DC plan. A brief summary highlights the key findings and provides a series of cautionary considerations with respect to relying on results from other retirement income adequacy models suggesting that retirement income adequacy may be significantly worse for Gen Xers than for Boomers.

It is important to note at the outset that modeling assumptions about contribution rates and plan design only have an impact on those individuals eligible for, and who ultimately participate in, a DC plan. Individuals without access to workplace retirement programs are likely to be found in the "at risk" population regardless of modeling assumptions.

EBRI's Retirement Security Projection Model®

One of the basic objectives of RSPM is to simulate the percentage of the population at risk of not having retirement income adequate to cover average expenses and uninsured health care costs (including long-term-care costs) at age 65 or older throughout retirement in specific income and age groupings. RSPM also provides information on the distribution of the likely number of years before those deemed "at risk" run short of money, as well as the percentage of preretirement compensation they would need in terms of additional savings in order to have a 50, 70, or 90 percent probability of retirement income adequacy.

VanDerhei and Copeland (2010) describe how households are tracked through retirement age and how their retirement income/wealth is simulated for the following components:

- Social Security.

- DC balances.

- Individual retirement account (IRA) balances.

- DB annuities and/or lump-sum distributions.

- Net housing equity.

A household is considered to run short of money in this model if aggregate resources in retirement are not sufficient to meet the retirement expenditure threshold, defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function of age and income) and some health insurance and out-of-pocket, health-related expenses, plus stochastic expenses from nursing-home and home-health care (at least until the point such expenses are covered by Medicaid). This version of the model is constructed to simulate retirement income adequacy, as noted above. Alternative versions of the model allow similar analysis for replacement rates, standard-of-living calculations, and other ad-hoc thresholds.

Baseline Assumptions

The baseline version of the model used for this analysis assumes:

- All workers retire at age 65.

- They immediately begin drawing benefits from Social Security and DB plans (if any).

- To the extent that the sum of their expenses and uninsured medical expenses exceed the projected, after-tax, annual income from those sources, they immediately begin to withdraw money from their individual accounts (DC and cash-balance plans, as well as IRAs).

If there is sufficient money to pay expenses without tapping into the tax-qualified individual accounts, those residuals are assumed to be invested in a non-tax-advantaged account, where the investment income is taxed as ordinary income. Individual accounts are tracked until the point at which they are depleted. At that point, any net housing equity is assumed to be added to retirement savings in the form of a lump-sum distribution (not a reverse annuity mortgage (RAM)). If all the retirement savings are exhausted, and if the Social Security and DB payments are not sufficient to pay expenses, the individual is designated as having run short of money at that point.

One of the primary outputs of RSPM is the production of Retirement Readiness Ratings (RRRs) for various subgroups of the population. The EBRI Retirement Readiness Rating[TM] (EBRI RRR) is defined as the percentage of simulated life-paths that *do not* run short of money in retirement.

Impact of Changing Future Contributions to Defined Contribution Plans on Retirement Income Adequacy for Gen Xers
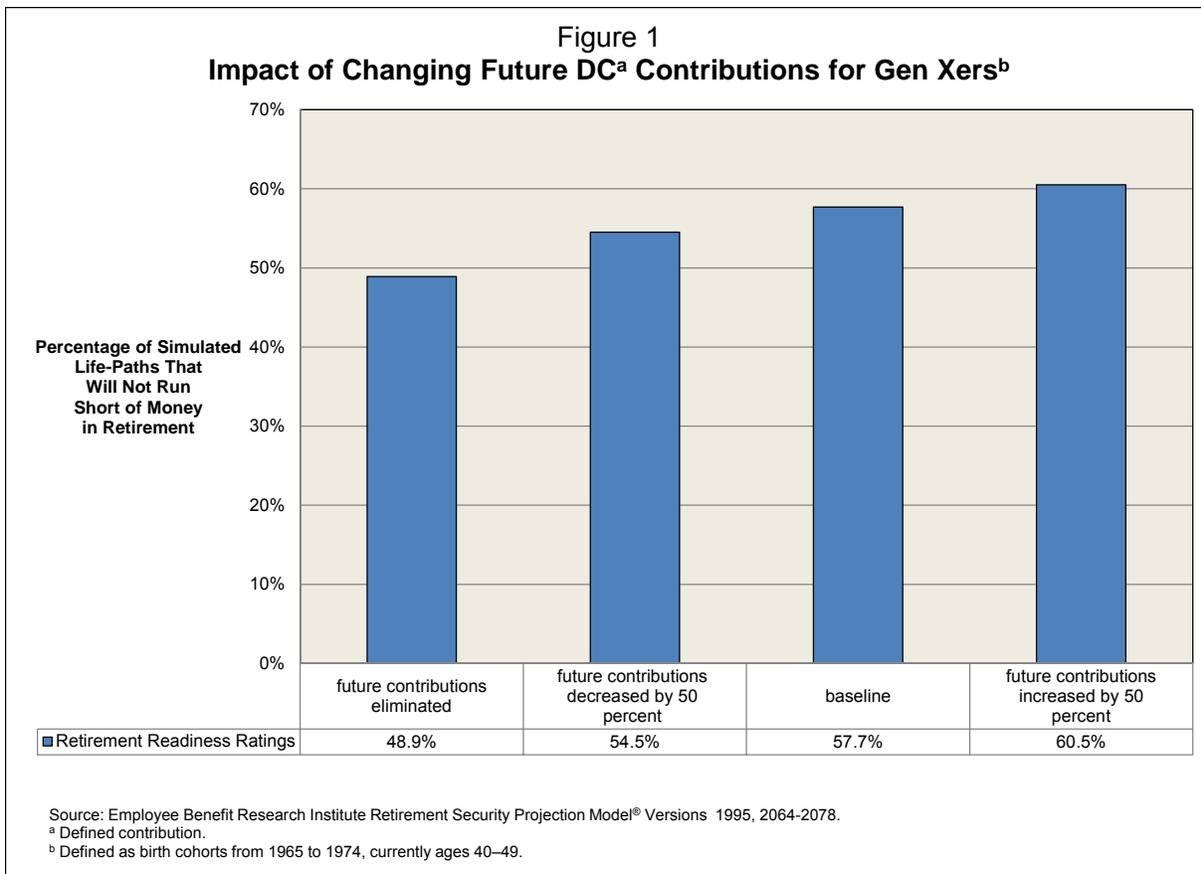
Figure 1 provides the overall RRRs for Gen Xers for the baseline contribution assumptions,[11] as well as three alternative scenarios:

- Future contributions to DC plans are completely eliminated.

- Future contributions to DC plans are reduced by 50 percent.

- Future contributions to DC plans are increased by 50 percent.

The baseline value of 57.7 percent is taken from Figure 1 of VanDerhei (February 2014) and indicates that, when considered as a single group, 57.7 percent of the simulated life-paths for Gen Xers[12] will not run short of money in retirement. (This combines the experience of both those with and without a DC balance). However, when future contributions to DC plans are completely ignored in RSPM, the RRR value falls by 8.8 percentage points, to 48.9 percent.

If the future contributions are reduced by 50 percent, the RRR value for this cohort is projected to decrease by 3.2 percentage points, to 54.5 percent. In contrast, if future contributions are assumed to be 50 percent higher than current projected levels, the RRR value increases by 2.8 percentage points, to 60.5 percent.

It is important to note that the model explicitly assumes there are no offsetting behavioral modifications by either the workers or the plan sponsors as a result of these changes.[13]

Figure 1
Impact of Changing Future DC[a] Contributions for Gen Xers[b]

Percentage of Simulated Life-Paths That Will Not Run Short of Money in Retirement	future contributions eliminated	future contributions decreased by 50 percent	baseline	future contributions increased by 50 percent
■ Retirement Readiness Ratings	48.9%	54.5%	57.7%	60.5%

Source: Employee Benefit Research Institute Retirement Security Projection Model® Versions 1995, 2064-2078.
[a] Defined contribution.
[b] Defined as birth cohorts from 1965 to 1974, currently ages 40–49.

Impact by Preretirement Wage Quartile

Figure 2 presents the RRRs for Gen Xers by wage quartile for the baseline contribution assumptions as well as the three alternative scenarios mentioned above. The third row in the panel of Figure 2 provides the baseline results from the 2014 version of RSPM.[14] Roughly 1-in-5 (20.4 percent) of the simulated life-paths for entities in the lowest-income quartile have sufficient retirement resources to prevent them from running short of money in retirement. However, more than twice as many (53.5 percent) of those in the second-income quartile are projected to have enough, as are 70.1 percent of those in the third-income quartile, and 83.1 percent of those in the highest-income quartile.

In contrast, the first row in the panel of Figure 2 shows the RRR results if one assumes no future contributions to DC plans after 2014. In this case, the simulated life-paths for entities in the lowest-income quartile shown to have sufficient retirement resources to prevent them from running short of money in retirement decreases by 1.3 percentage points from the baseline value.

The pattern of decreases in RRR values when future contributions are ignored reflects higher-income workers' greater probability of eligibility and participation, their propensity to contribute at higher rates, and their smaller proportionate income replacement by Social Security relative to lower-income workers. It ranges from a decrease of 9.9 percentage points among those in the second quartile to a decrease of 12.4 percentage points in the third quartile and of 11.4 percentage points in the highest-wage quartile.

In sum, ignoring future contributions exaggerates the percentage of Gen-X workers simulated to run short of money in retirement by roughly 10 to 12 percentage points among all but the lowest-income group.

The second row in the panel of Figure 2 shows the RRR results if future contributions are decreased by 50 percent: In other words, if only one-half of the sum of worker and employer contributions predicted under the baseline assumptions are added to the participant's account after 2014. In this case, the simulated life-paths for entities in the lowest-income quartile shown to have sufficient retirement resources to prevent them from running short of money in retirement decreases by just 0.3 percentage points from the baseline value. The second income quartile has a decrease of 4.4 percentage points, while the third quartile decreases 4.6 percentage points, and the highest wage quartile decreases 3.5 percentage points.

In contrast, the bottom row in the panel of Figure 2 shows the RRR results if future contributions are *increased* by 50 percent. In this case, the simulated life-paths for entities in the lowest-income quartile shown to have sufficient retirement resources to prevent them from running short of money in retirement increase by 1.0 percentage point from the baseline value. The second quartile has an increase of 4.4 percentage points, while the third quartile increases 4.0 percentage points and the highest-wage quartile increases 2.5 percentage points.

Figure 3 provides a similar analysis to that in Figure 2, but this time only the youngest half of the Gen Xers are included (those born between 1970 and 1974). As expected, the impact of eliminating future contributions is typically more pronounced with the younger Gen Xers—who have a longer career (and contribution opportunity) remaining than does the entire cohort. In this case, the simulated life-paths for entities in the lowest-income quartile shown to have sufficient retirement resources to prevent them from running short of money in retirement decrease by 1.7 percentage points from the baseline value, while the third quartile decreases 13.5 percentage points, and the highest-wage quartile decreases 12.9 percentage points.[15]

Impact by Future Years of Eligibility for Defined Contribution Plan Participants

Figure 4 provides the results drawn from analyzing the impact of changing future DC contributions for Gen Xers as a function of future years of eligibility for DC plan participation.
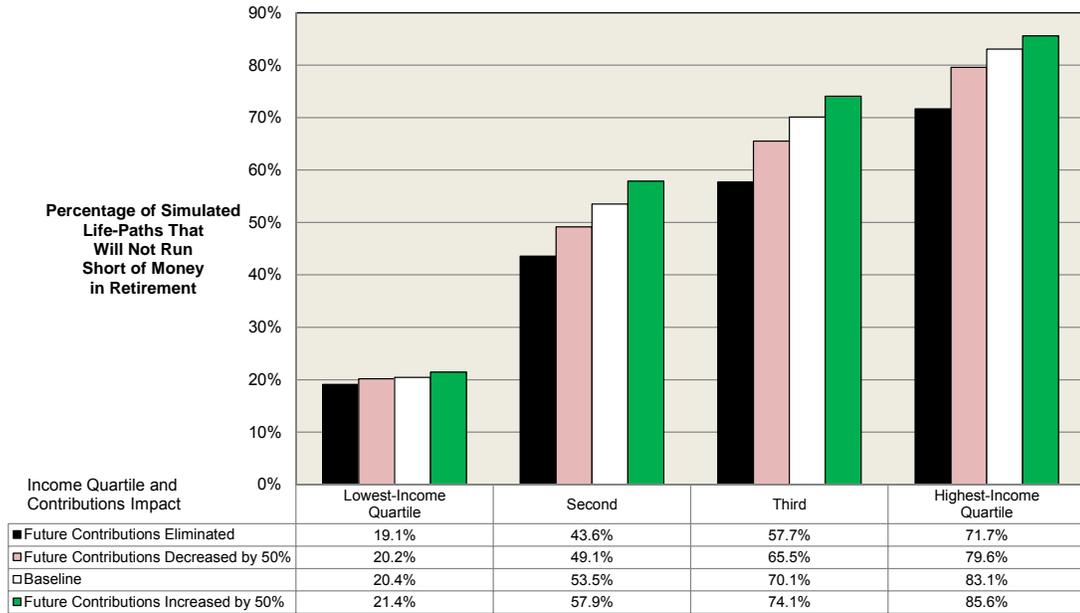
The baseline results (row 3 of the grid) show the expected impact of future years of eligibility if contributions to DC plans are not modified. In this case, Gen Xers with no future years of eligibility have an RRR of 39.7 percent. This number increases dramatically—to 60.6 percent—for Gen Xers with one to nine future years of eligibility. Those with 10–19 years have their probabilities of not running short of money in retirement increased to 73.2 percent, while those with 20 or more years have a probability of 85.5 percent.

The top row of the grid in Figure 4 shows the change in the RRRs if future contributions are ignored. While those with no years of future eligibility are unaffected by ignoring the impact of their non-existent contributions, the RRR values decrease by 7.0 percentage points for those with one to nine years of future eligibility. The decrease in RRR values is 17.3 percentage points for those with 10–19 years of future eligibility, while among those with 20 or more years of future eligibility, the decrease is 22.9 percentage points.

The second row of the grid in Figure 4 shows the change in the RRRs if future contributions are reduced by 50 percent. Again, there is no difference for those with zero years of future eligibility, but the RRR values decrease by 2.9 percentage points for those with one to nine years of future eligibility, by 6.5 percentage points for those with 10–19 years of future eligibility, and for those with 20 or more years of future eligibility, the decrease is 7.1 percentage points.

The bottom row of the grid in Figure 4 shows the change in the RRRs if future contributions are assumed to be higher by 50 percent. The RRR values increase by 3.6 percentage points for those with one to nine years of future eligibility. The RRR values increase by 4.9 percentage points for those with 10–19 years of future eligibility, and for those with 20 or more years of future eligibility, the increase is 4.8 percentage points.

Figure 2
Impact of Changing Future DC[a] Contributions
for Gen Xers,[b] by Income Quartile

Percentage of Simulated Life-Paths That Will Not Run Short of Money in Retirement

Income Quartile and Contributions Impact	Lowest-Income Quartile	Second	Third	Highest-Income Quartile
■Future Contributions Eliminated	19.1%	43.6%	57.7%	71.7%
▨Future Contributions Decreased by 50%	20.2%	49.1%	65.5%	79.6%
□Baseline	20.4%	53.5%	70.1%	83.1%
■Future Contributions Increased by 50%	21.4%	57.9%	74.1%	85.6%

Source: Employee Benefit Research Institute Retirement Security Projection Model® Versions 1995, 2064–2078.
[a] Defined contribution.
[b] Õ^}^¦aœ¾} Å/ß ¾efined as birth cohorts from 1965 to 1974, currently ages 40–49.

Figure 3
Impact of Changing Future DC[a] Contributions
for YOUNGER Gen Xers,[b] by Income Quartile

Percentage of Simulated Life-Paths That Will Not Run Short of Money in Retirement

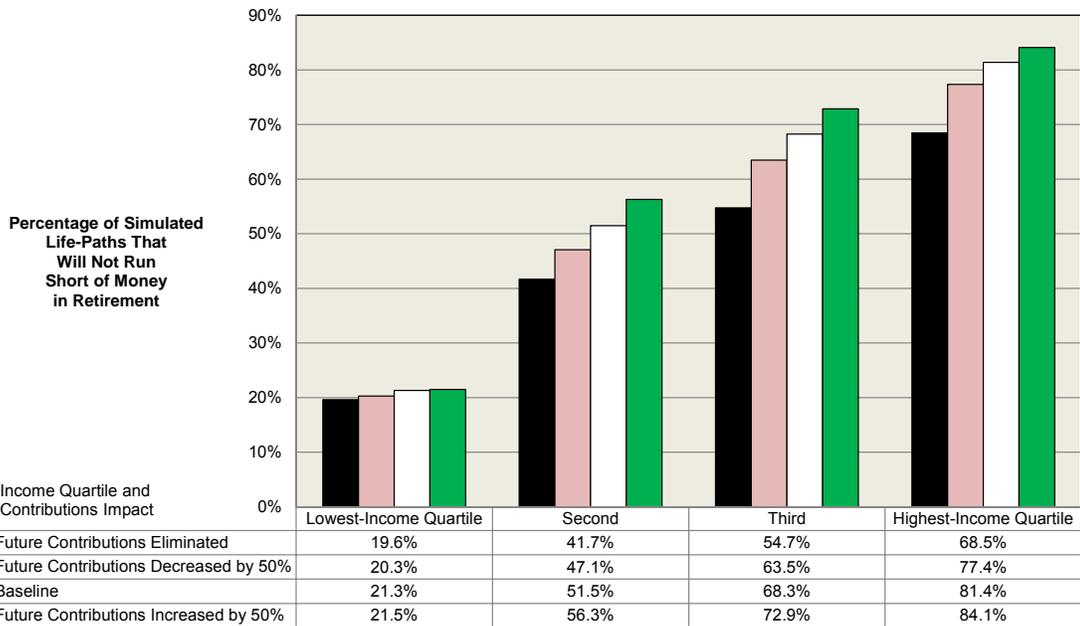| Income Quartile and Contributions Impact	Lowest-Income Quartile	Second	Third	Highest-Income Quartile
■Future Contributions Eliminated	19.6%	41.7%	54.7%	68.5%
▨Future Contributions Decreased by 50%	20.3%	47.1%	63.5%	77.4%
□Baseline	21.3%	51.5%	68.3%	81.4%
■Future Contributions Increased by 50%	21.5%	56.3%	72.9%	84.1%

Source: Employee Benefit Research Institute Retirement Security Projection Model® Versions 1995, 2064–2078.
[a] Defined contributon.
[b] Defined as birth cohorts from 1965 to 1974, currently ages 40–49.

Impact by Preretirement Wage Quartile and Future Years of Eligibility for Defined Contribution Plan Participants

Figure 5 provides the results of analyzing the impact of changing future DC contributions for Gen Xers as a function of both preretirement wage quartile and future years of eligibility for DC plan participation.

The baseline results (row 3 of the grid) show the expected impact of future years of eligibility if contributions to DC plans are not modified, as taken from Figure 3 of VanDerhei (February 2014). Focusing on those likely to be most affected by a change in assumptions regarding future contributions to DC plans—those with 20 or more years of future eligibility—the model again finds that the largest negative impact would be for those in the three highest preretirement wage quartiles. For example, comparing the baseline RRR value for those in the lowest-wage quartile with 20 or more years of eligibility (35.9 percent who would not run short of money) with the RRR value for the same cohort under the assumption that all future contributions are ignored (27.4 percent) results in a decrease in those who would not run short of money in retirement of 8.5 percentage points.

However, when the same calculation is undertaken for the second-wage quartile with 20 or more years of eligibility, the decrease is 24.9 percentage points. It increases further to 27 percentage points for the third-wage quartile and 20.6 percentage points for the highest-wage quartile.

Comparing the second and third rows of the grid in Figure 5 shows the impact on RRR values of decreasing future contributions by half. Again, focusing on those with 20 or more years of future eligibility, the model finds that the largest negative impact would be on those in the three highest preretirement wage quartiles. For those in the lowest-wage quartile with 20 or more years of future eligibility, the change would reduce the number who would have enough money in retirement by 3.0 percentage points, with larger impacts among the other wage quartiles: for the second-wage quartile 9.7 percentage points, 9.2 percentage points for the third-wage quartile, and 4.9 percentage points for the highest-wage quartile.

Comparing the bottom and third rows of the grid in Figure 5 reveals the impact on RRR values of increasing future contributions by 50 percent. Focusing on those with 20 or more years of future eligibility, for those in the lowest-wage quartile, the RRR values (the number projected not to run short of money in retirement) increase by 7.4 percentage points. The increase for the second-wage quartile is 8.7 percentage points, 5.1 percentage points for the third-wage quartile, and 2.7 percentage points for the highest-wage quartile.
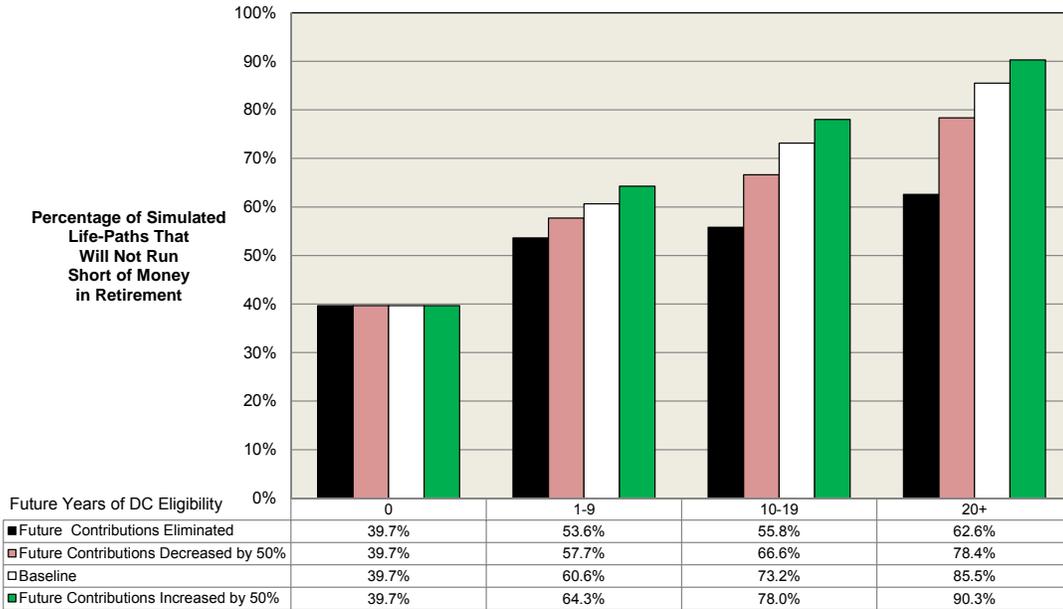
Summary and Conclusions

As mentioned previously, studies by both CRR and Pew have indicated that retirement readiness of Gen Xers is much worse than Boomers. In fact, the Pew study actually shows a decrease in the median replacement rate at age 65 of 32 percentage points when Early Boomers are compared to Gen Xers, and 9 percentage points when the status of Late Boomers is compared to that of Gen Xers.

It is difficult to directly compare the replacement rate calculations in the Pew study with the RRR values produced by RSPM;[16] however, when the RRR values were simulated assuming no future contributions to DC plans (and no offsetting behavioral modification by employees or employers), the overall RRR value decreased by 8.8 percentage points (a decrease of 15.3 percent) for Gen Xers. Obviously, the financial impact of ignoring future contributions to DC plans will vary with age, income and the future years of eligibility for participation in a DC plan.

The impact of each of these factors was examined, and RSPM results show reductions in RRR values as large as 34.9 percent for those with 20 or more years of eligibility when broken out by preretirement wage quartile.

While these numbers are instructive with respect to the types of biases that may be introduced into retirement income adequacy models that completely ignore future contributions, it is more difficult to speculate as to the errors

Figure 4
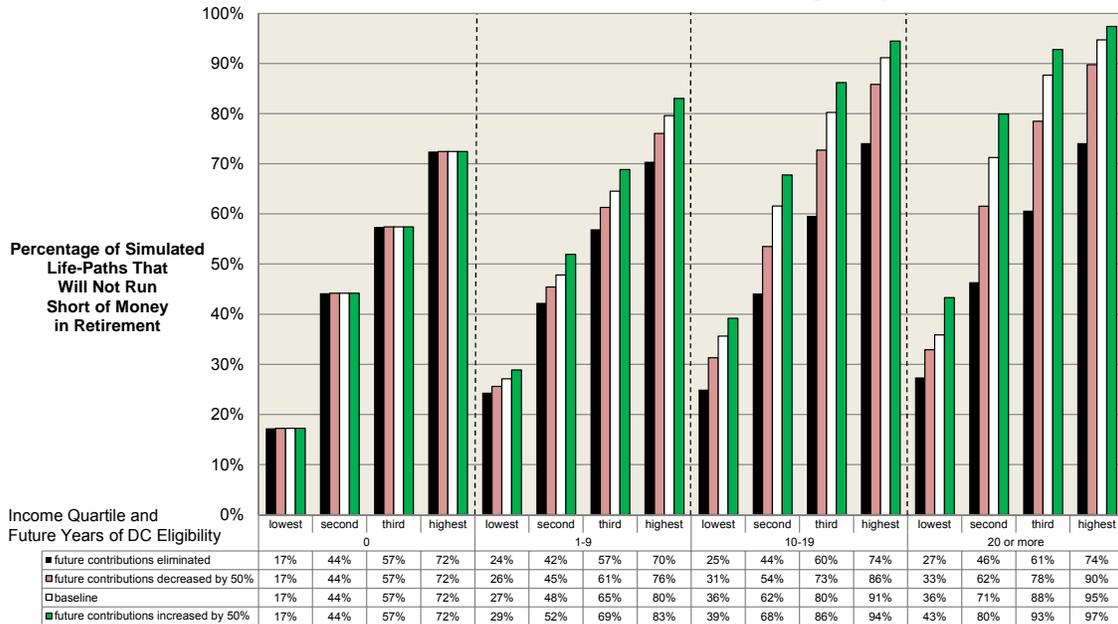## Impact of Changing Future DCᵃ Contributions for Gen Xers,ᵇ by Years of Future DC Eligibility

Percentage of Simulated Life-Paths That Will Not Run Short of Money in Retirement

Future Years of DC Eligibility	0	1-9	10-19	20+
■ Future Contributions Eliminated	39.7%	53.6%	55.8%	62.6%
■ Future Contributions Decreased by 50%	39.7%	57.7%	66.6%	78.4%
□ Baseline	39.7%	60.6%	73.2%	85.5%
■ Future Contributions Increased by 50%	39.7%	64.3%	78.0%	90.3%

Source: Employee Benefit Research Institute Retirement Security Projection Model® Versions 2064–2078.
ᵃ Defined contribution.
ᵇ Defined as birth cohorts from 1965 to 1974, currently ages 40–49.

Figure 5
Impact of Changing Future DCᵃ Contributions for Gen Xers,ᵇ by Income Quartile and Years of Future DC Eligibility

Percentage of Simulated Life-Paths That Will Not Run Short of Money in Retirement

Income Quartile and Future Years of DC Eligibility	0				1-9				10-19				20 or more			
	lowest	second	third	highest	lowest	second	third	highest	lowest	second	third	highest	lowest	second	third	highest
■ future contributions eliminated	17%	44%	57%	72%	24%	42%	57%	70%	25%	44%	60%	74%	27%	46%	61%	74%
■ future contributions decreased by 50%	17%	44%	57%	72%	26%	45%	61%	76%	31%	54%	73%	86%	33%	62%	78%	90%
□ baseline	17%	44%	57%	72%	27%	48%	65%	80%	36%	62%	80%	91%	36%	71%	88%	95%
■ future contributions increased by 50%	17%	44%	57%	72%	29%	52%	69%	83%	39%	68%	86%	94%	43%	80%	93%	97%

Source: Employee Benefit Research Institute Retirement Security Projection Model® Versions 2064–2078.
ᵃ Defined contributon.
ᵇ Defined as birth cohorts from 1965 to 1974, currently ages 40–49.

introduced by models that implicitly attempt to account for these cash flows without actually explicitly modeling them (for example, CRR's NRRI model). As a result, this *EBRI Notes* analysis also includes an admittedly arbitrary decrease in contributions of 50 percent. While this obviously results in smaller decreases in RRR values than completely ignoring the impact of future contributions does, the percent decrease is still 5.3 percent overall and the EBRI analysis finds reductions in RRR values as large as 13.7 percent for those with 20 or more years of eligibility when broken out by preretirement wage quartile.

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

- EBRI's Retirement Security Projection Model[®] (RSPM) grew out of a multi-year project to analyze the future economic well-being of the retired population at the state level. The Employee Benefit Research Institute (EBRI) and the Milbank Memorial Fund, working with the office of the governor of Oregon, set out in the late 1990s to see if this situation could be evaluated for the state. The resulting analysis (VanDerhei and Copeland, September 2001) focused primarily on simulated retirement wealth with a comparison to ad hoc thresholds for retirement expenditures.

- The April 2001 *EBRI Issue Brief* (VanDerhei and Copeland, April 2001) highlighted the changes in private pension plan participation for defined benefit (DB) and defined contribution (DC) plans and used the model to quantify how much the importance of individual-account plans was expected to increase because of these changes.

- With the assistance of the Kansas Insurance Department, EBRI was able to create the EBRI Retirement Readiness Rating[TM] (RRR) based on a full stochastic, decumulation model that took into account the household's longevity risk, post-retirement investment risk, and exposure to long-term nursing-home and home-health-care risks. The first state-level RSPM results were presented to the Kansas' Long-Term Care Services Task Force on July 11, 2002 (VanDerhei and Copeland, July 2002), and the results of the Massachusetts study were presented on Dec. 1, 2002 (VanDerhei and Copeland, December 2002).

- RSPM was expanded to a national model—the first national, micro-simulation, retirement-income-adequacy model, built in part from administrative 401(k) data. The initial results were presented at the EBRI December 2003 Policy Forum (VanDerhei and Copeland, 2003).

- The basic model was subsequently modified for testimony for the Senate Special Committee on Aging to quantify the beneficial impact of a mandatory contribution of 5 percent of compensation. (VanDerhei, January 2004).

- The model was enhanced to allow an analysis of the impact of annuitizing defined contribution and individual retirement account (IRA) balances at retirement age (VanDerhei and Copeland, 2004).

- Additional refinements were introduced to evaluate the impact of purchasing long-term care insurance on retirement income adequacy (VanDerhei, 2005).

- The model was used to evaluate the impact of DB freezes on participants by simulating the minimum employer-contribution rate that would be needed to financially indemnify the employees for the reduction in their expected retirement income under various rate-of-return assumptions (VanDerhei, March 2006).

- Later that year, an updated version of the model was developed to enhance the EBRI interactive Ballpark E$timate[®] by providing Monte Carlo simulations of the replacement rates needed for specific probabilities of retirement income adequacy under alternative-risk-management treatments (VanDerhei, September 2006).

- RSPM was significantly enhanced for the May 2008 EBRI Policy Forum by allowing automatic enrollment of 401(k) participants with the potential for automatic escalation of contributions to be included (VanDerhei and Copeland, 2008).

- Additional modifications were added for a Pension Research Council presentation that involved a "winners/losers" analysis of DB freezes and the enhanced employer contributions provided to defined contribution plans at the time the DB plans were frozen (Copeland and VanDerhei, 2010).

- Also in 2009, a new subroutine was added to allow simulations of various styles of target-date funds for a comparison with participant-directed investments (VanDerhei, June 2009).

- In April 2010, the model was completely re-parameterized with 401(k)-plan design parameters for sponsors that had adopted automatic-enrollment provisions (VanDerhei, April 2010).

- A completely updated version of the national model was produced for the May 2010 EBRI Policy Forum and used in the July 2010 *EBRI Issue Brief* (VanDerhei and Copeland, 2010).

- The new model was used to analyze how eligibility for participation in a defined contribution plan impacts retirement income adequacy in September 2010 (VanDerhei, September 2010), and was later used to compute Retirement Savings Shortfalls (RSS) for Baby Boomers and Generation Xers in October 2010 (VanDerhei, October 2010a).

- In October testimony before the Senate Health, Education, Labor and Pensions Committee on "The Wobbly Stool: Retirement (In)security in America," the model was used to analyze the relative importance of employer-provided retirement benefits and Social Security (VanDerhei, October 2010b).

- The November 2010 *EBRI Issue Brief* expanded upon earlier work by EBRI to provide the first results of a new simulation model that estimated the impact of changing 401(k) plan design variables and assumptions on retirement income adequacy. Until recently however, there was extremely limited evidence on the impact of automatic contribution escalation (VanDerhei and Lucas, 2010).

- In February 2011, the model was used to analyze the impact of the 2008–2009 crisis in the financial and real estate markets on retirement income adequacy (VanDerhei, February 2011).

- An April 2011 article introduced a new method of analyzing the results from RSPM (VanDerhei, April 2011). Rather than simply computing an overall percentage of the simulated life-paths in a particular cohort that would not have sufficient retirement income to pay for the simulated expenses, the new method computed the percentage of households that would meet that requirement more than a specified percentage of times in the simulation.

- As explored in the June 2011 *EBRI Issue Brief,* RSPM allowed retirement income adequacy to be assessed at retirement ages later than 65 (VanDerhei and Copeland, June 2011).

- In a July 2011 *EBRI Notes* article (VanDerhei, July 2011), RSPM was used to provide preliminary evidence of the impact of the "20/20 caps" on projected retirement accumulations proposed by the National Commission on Fiscal Responsibility and Reform.

- The August 2011 *EBRI Notes* article (VanDerhei, August 2011) used RSPM to analyze the impact of DB plans in achieving retirement income adequacy for Baby Boomers and Gen Xers.

- In September, it was used to support testimony before the Senate Finance Committee (VanDerhei, September 2011) in analyzing the potential impact of various types of tax-reform options on retirement income. This was expanded in the November 2011 *EBRI Issue Brief* (VanDerhei, November 2011).

- A March 2012 *EBRI Notes* article (VanDerhei, March 2012) used new survey results to update the analysis of the potential impact of various types of tax-reform options on retirement income.

- The May 2012 *EBRI Notes* article (VanDerhei, May 2012) provided 2012 updates for the previously published RRRs as well as the RSS.

- The June 2012 *EBRI Notes* article (VanDerhei, June 2012) introduced severity categories in the RSS projections for Gen Xers.

- The August 2012 *EBRI Notes* article (VanDerhei, August 2012) provided additional evidence on whether deferring retirement to age 70 would provide retirement income adequacy for the vast majority of Baby Boomers and Gen Xers.

- The September 2012 *EBRI Notes* article (VanDerhei, September 2012) analyzed the impact of increasing the default-contribution rate for automatic enrollment 401(k) plans with automatic escalation of contributions.

- The November 2012 *EBRI Notes* article (VanDerhei, November 2012) reclassified the RRRs to provide additional information on those substantially above the threshold; close to the threshold; and substantially below the threshold.

- The March 2013 *EBRI Notes* article (VanDerhei and Adams, March 2013) used a modified version of RSPM to assess the probability that respondent households would not run short of money in retirement if they did, in fact, accumulate the amount they said would be required in the 2013 Retirement Confidence Survey.

- The June 2013 *EBRI Issue Brief* (VanDerhei, June 2013a) used RSPM to provide a direct comparison of the likely benefits under specific types of DC and DB retirement plans.

- The June 2013 *EBRI Notes* article (VanDerhei, June 2013b) used RSPM to show that 25–27 percent of Baby Boomers and Gen Xers who would have had adequate retirement income under return assumptions based on historical averages were simulated to end up running short of money in retirement if today's historically low interest rates were assumed to be a permanent condition.

- The August 2013 *EBRI Issue Brief* (VanDerhei, August 2013) used RSPM to analyze the Obama administration's fiscal year (FY) 2014 budget proposal to include a cap on tax-deferred retirement savings that would limit the amounts accumulated in specified retirement accounts to that necessary to provide the maximum annuity permitted for a tax-qualified DB plan under current law.

- The December 2013 *EBRI Notes* article (VanDerhei, December 2013) used RSPM to expand the analysis in the June 2013 *Issue Brief*. Rather than trying to reflect the real-world variation in DB accruals, the baseline analysis in the previous analysis used the median accrual rate in the sample (1.5 percent of final compensation per year of participation) as the stylized value for the baseline counterfactual simulations. The new research computed the actual final-average DB accrual that would be required to provide an equal amount of retirement income at age 65 as would be produced by the annuitized value of the projected sum of the 401(k) and IRA rollover balances.

- The January 2014 *EBRI Notes* article (VanDerhei, January 2014) used RSPM to model the likelihood that 401(k) participants currently ages 25–29 would have sufficient 401(k) accumulations that, when combined with Social Security benefits, could replace 60, 70 or 80 percent of their preretirement income on an inflation-adjusted basis.

- The February 2014 *EBRI Issue Brief* (VanDerhei, February 2014) focused on how the probability of not running short of money in retirement varies with respect to longevity, investment return, and potential long-term health care costs in retirement (e.g., nursing home costs).

- The June 2014 *EBRI Notes* article (VanDerhei, June 2014a) provides new results showing how many years into retirement Baby Boomer and Gen Xer households are simulated to run short of money, by preretirement income quartile.

- The simulation results for the June 2014 ERISA Advisory Council testimony (VanDerhei, June 2014b) suggest that, assuming no participant behavior change for participation, contribution or asset allocation resulting from

reduced access to 401(k) balances, retirement balances from 401(k) plans, and IRA rollovers originating in 401(k) plans, may be increased substantially for young employees with thirty or more years of eligibility if cashouts at job turnover, hardship withdrawals (and the accompanying suspension of contributions) and plan loan defaults were substantially reduced or eliminated.

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Endnotes

[1] A brief chronology of RSPM is provided in Appendix A.

[2] Individuals born between 1948–1954.

[3] Individuals born between 1955–1964.

[4] Individuals born between 1965–1974.

[5] The 2014 version of RSPM produced an EBRI Retirement Readiness Rating[TM] (RRR) of 56.7 percent for Early Boomers, 58.5 percent for Late Boomers, and 57.7 percent for Gen Xers. See VanDerhei (February 2014) for more detail.

[6] The cohorts were defined as follows in Pew (2013): early boomers born between 1946 and 1955; late boomers born between 1956 and 1965; and Gen Xers born between 1966 and 1975.

[7] At year-end 2012, more than 50 percent of large Vanguard plans had an automatic enrollment feature, compared with about 40 percent in 2007 (Utkus and Young, 2014)

[8] For example, one would expect that employees would generally contribute a larger percentage of their compensation if the employer matched 50 percent on the first six percent of compensation as opposed to 100 percent on the first three percent of compensation. For early results of this phenomena, see Yakoboski and VanDerhei (1996).

[9] Gist and Hatch (2014).

[10] See VanDerhei, Holden, Alonso and Bass (December 2013) for details of the year-end 2012 data.

[11] It is important to note that the current analysis only looks at the scenario in which 100 percent of the average deterministic costs in retirement are assumed for consumption purposes as well as 100 percent of the stochastic expenses (e.g., nursing home and home health care expenses). For an example of how the RRR values change if only 80 or 90 percent of average deterministic costs are assumed, see VanDerhei (June 2014).

[12] Defined as birth cohorts from 1965 to 1974.

[13] It should be noted that this analysis is *not* attempting to estimate the change in retirement income adequacy if future contributions were actually eliminated. Instead, it is attempting to estimate the bias introduced by models that ignore this future cash flow.

[14] Note that these results are slightly different than those appearing in Figure 2 of VanDerhei (February 2014). The previous analysis looked at the impact of preretirement wage quartile for all Boomers and Gen Xers, whereas the current analysis is limited to Gen Xers. While the RRRs for the second and third wage quartiles are approximately the same, the RRR value for the lowest-income quartile for Gen Xers (20.4 percent) is considerably larger than the RRR value for all Boomers and Gen Xers combined (16.8 percent). This is in large part due to the assumption that automatic enrollment will continue to increase the participation rates of lower income workers in the future.

[15] The second quartile of the younger Gen Xers has essentially the same decrease (9.8 percentage points) as the entire Gen Xer cohort (9.9 percentage points).

[16] EBRI specifically chose not to rely on a replacement-rate target as a measure of success in RSPM, for several reasons:

- Because very few households annuitize all (or even most) of their individual accounts in retirement, a replacement-rate focus would overlook the potential risk of outliving their income (longevity risk).

- While the annuity purchase price relied upon in a replacement-rate target does depend on an implicit assumption with respect to (at least some) future market returns, it does not typically account for the potential investment risk associated with "risky" asset allocations (investment risk).

- Previous EBRI research (VanDerhei, June 2012) has demonstrated that one of the biggest financial obstacles in terms of maintaining retirement income adequacy for households who might otherwise have sufficient financial resources at retirement age is the risk of long-term care costs for a prolonged period. As with the annuitization experience cited above, in the real world few retirees have long-term care insurance policies in place that would cover the potentially catastrophic financial impact of this exposure. Therefore, any attempt to simply add the cost of long-term care insurance into a replacement-rate methodology will vastly underestimate the potential severity of this exposure.

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