

Tax Reform Options: Promoting Retirement Security

by Jack VanDerhei, *Employee Benefit Research Institute*

TAX PROPOSALS: Currently, the combination of worker and employer contributions in a defined contribution plan is capped by the federal tax code at the lesser of \$49,000 per year or 100 percent of a worker's compensation (participants over age 50 can make additional "catch-up" contributions). As part of the effort to lower the federal deficit and reduce federal "tax expenditures," two major reform proposals have surfaced that would change current tax policy toward retirement savings:

- A plan that would end the existing tax deductions for 401(k) contributions and replace them with a flat-rate refundable credit that serves as a matching contribution into a retirement savings account.
- The so-called "20/20 cap," included by the National Commission on Fiscal Responsibility and Reform in their December 2010 report, "The Moment of Truth," which would limit the sum of employer and worker annual contributions to the lower of \$20,000 or 20 percent of income, the so-called "20/20 cap."

IMPACT OF PERMANENTLY MODIFYING THE EXCLUSION OF EMPLOYEE CONTRIBUTIONS FOR RETIREMENT SAVINGS PLANS FROM TAXABLE INCOME: If the current exclusion of worker contributions for retirement savings plans were ended in 2012 and the total match remains constant, the average reductions in 401(k) accounts at Social Security normal retirement age would range from a low of 11.2 percent for workers currently ages 26–35 in the highest-income groups, to a high of 24.2 percent for workers in that age range in the lowest-income group.

IMPACT OF "20/20 CAP": Earlier EBRI analysis of enacting the 20/20 cap starting in 2012 showed it would, as expected, most affect those with high income. However, EBRI also found the cap would cause a significant reduction in retirement savings by the lowest-income workers as well, and younger cohorts would experience larger reductions given their increased exposure to the proposal.

IMPORTANCE OF EMPLOYER-SPONSORED RETIREMENT PLANS AND AUTO-ENROLLMENT: A key factor in future retirement income security is whether a worker has access to a retirement plan at work. EBRI has found that voluntary enrollment in 401(k) plans under the current set of tax incentives has the potential to generate a sum that, when combined with Social Security benefits, would replace a sizeable portion of a worker's preretirement income, and that auto-enrollment could produce even larger retirement accumulations.

POTENTIAL INCREASE OF AMERICANS FACING INADEQUATE RETIREMENT INCOME: The potential increase of at-risk percentages resulting from (1) employer modifications to existing plans, and (2) a substantial portion of low-income households decreasing or eliminating future contributions to savings plans as a reaction to the proposed elimination of the exclusion of employee contributions for retirement savings plans from taxable income, needs to be analyzed carefully when considering the overall impact of proposals to change existing tax incentives for retirement savings.

Jack VanDerhei is research director of the Employee Benefit Research Institute. Much of this analysis was first presented at the Senate Finance Committee's hearing Sept. 15, 2011, on "Tax Reform Options: Promoting Retirement Security." This *Issue Brief* was written with assistance from the Institute's research and editorial staffs. Any views expressed in this report are those of the authors and should not be ascribed to the officers, trustees, or other sponsors of EBRI, EBRI-ERF, or their staffs. Neither EBRI nor EBRI-ERF lobbies or takes positions on specific policy proposals. EBRI invites comment on this research.

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Introduction

In 2010, EBRI¹ updated its Retirement Security Projection Model[®] (RSPM)² and determined that the overall retirement income adequacy for households currently ages 36–62 had substantially improved since 2003.³ Even with these improvements however, almost one-half of Baby Boomers⁴ and Gen Xers⁵ were determined to be at risk of not having sufficient retirement income to cover even basic expenses and uninsured health care costs.⁶ The results, not surprisingly, were even worse for low-income households, as 70 percent of households in the lowest one-third when ranked by preretirement income were classified as “at risk.” Moreover, 41 percent of those in the lowest preretirement income quartile are predicted to run short of money within 10 years of retirement.

In aggregate, the Retirement Savings Shortfalls (determined as a present value of retirement deficits at age 65) for these age cohorts (expressed in 2010 dollars) is \$4.55 trillion, for an overall average of \$47,732 per individual⁷ still assumed to be alive at age 65.⁸

The study was also able to document the degree to which eligibility for participation in qualified retirement plans (especially defined contribution plans) matters with respect to “at-risk” status. For example, the at-risk probability for Gen Xers varies from 60 percent for those with no future years of eligibility in a defined contribution plan to 20 percent for those with 20 or more years. In fact, it can be argued that much of the problem with retirement income adequacy in this country is one of whether a household is covered by an employer-sponsored retirement plan.

Components of Retirement Security

In addition to individual savings and, to an increasing extent, part-time work in retirement, the major components of retirement security in this country for several decades have been Social Security and employer-sponsored retirement plans.

Social Security

The importance of Social Security retirement benefits for today’s workers is shown in October 2010 Senate HELP testimony by EBRI:⁹ 91 percent of the lowest-income households would be at risk of inadequate retirement income if they had no Social Security retirement benefits, compared with 76 percent at risk with current Social Security benefits. The other three higher-income quartiles also benefit from Social Security: Comparing the at-risk percentages with and without Social Security retirement benefits, 24–26 percent of households in the other three higher income groups are saved from at-risk status by Social Security.

Unfortunately, the latest projections of Social Security suggest that trust fund reserves will be exhausted in 2036. EBRI recently provided analysis of a generic type of Social Security reform proposal that, in essence, would keep Social Security retirement benefits in their current statutory form until 2037, and at that point subject all Social Security retirement benefits to a permanent 24 percent reduction.¹⁰ As expected, the impact should be minimal for those currently on the verge of retirement—so the “at-risk” level for Early Boomers increases by only 0.3 percentage points. But Late Boomers will have a larger percentage of their expected Social Security benefits reduced as a result of this change, and their “at-risk” level increases by 1.6 percentage points under the baseline assumptions. Gen Xers will have even more years of their expected retirement affected by this change, and their increase in “at-risk” percentage is simulated to be 5.8 percentage points.

Defined Benefit Plans

According to EBRI estimates,¹¹ the percentage of private-sector workers participating in an employment-based defined benefit plan decreased from 38 percent in 1979 to 15 percent in 2008. Although much of this decrease took place by 1997,¹² there have been a number of recent developments¹³ that have made defined benefit sponsors in the private sector re-examine the costs and benefits of providing retirement benefits through the form of a qualified defined

benefit plan.¹⁴ However, these plans still cover millions of U.S. workers and have long been valued as an integral component of retirement income adequacy for their households.

EBRI used RSPM to evaluate the importance of defined benefit plans for households, assuming they retire at age 65, and showed the tremendous importance of defined benefit plans in achieving retirement income adequacy for Baby Boomers and Gen Xers. Overall, the presence of a defined benefit accrual at age 65 reduces the “at-risk” percentage by 11.6 percentage points. The defined benefit plan advantage (as measured by the gap between the two at-risk percentages) is particularly valuable for the lowest-income quartile but also has a strong impact on the middle class (the reduction in the at-risk percentage for the second and third income quartiles combined is 9.7 percentage points which corresponds to a 19.5 percent relative reduction).

Defined Contribution Plans

Given the phenomenal growth of defined contribution plans (especially those with a 401(k) feature) in the private sector in the last three decades, it appears that this form of employer-provided retirement plan will provide a substantial percentage of non-Social Security retirement wealth for Baby Boomers and Gen Xers. Unfortunately, the “success” of these plans are sometimes measured by metrics that are not at all relevant to the potential for defined contribution plans to provide a significant portion of a worker’s pre-retirement income. For example, some analysts will merely report the average balance in defined contribution plans (most commonly the 401(k) subset of this universe) and attempt to assess the value of these plans by determining the amount of annual income that this lump sum amount could be converted to at retirement age. Of course, this concept does not adjust for the fact that the vast majority of 401(k) participants are years, if not decades, away from retirement age. Moreover, even if one does look at the average balances for workers near retirement age, it is obviously not correct to look only at the 401(k) balance with the employee’s current employer.¹⁵

In an attempt to provide meaningful statistics on the 401(k) system, EBRI entered into a collaborative effort with the Investment Company Institute (ICI) in 1996 known as the EBRI/ICI Participant-Directed Retirement Plan Data Collection Project. As of Dec. 31, 2009,¹⁶ the database included statistical information about:

- 20.7 million 401(k) plan participants, in
- 51,852 employer-sponsored 401(k) plans, holding
- \$1.210 trillion in assets.

Since the inception of the project, average balances have been displayed as a function of both the participant’s age and tenure with the current employer to allow more meaningful assessment of the accumulation potential of these plans. For the last 10 years, average balances are also computed for a “consistent sample” of participants to control for the downward bias that would otherwise exist from individual retirement account (IRA) rollovers when 401(k) participants change jobs.

However, even with these empirical techniques, it was difficult to obtain a true value of the 401(k) system’s potential to generate significant 401(k) accumulations given that employees reaching retirement age only had the possibility to be covered by a 401(k) plan for a portion of their career.¹⁷ In an attempt to control for these problems, EBRI and ICI produced a joint publication in 2002¹⁸ with simulation results showing that under a continuous coverage situation, 401(k) participants could expect to replace someplace between 51 and 69 percent (depending on income quartile) of their pre-retirement income, assuming the purchase of a (nominal) annuity at age 65.

When the 2002 study was performed, very few 401(k) sponsors had adopted any type of automatic enrollment (AE) provisions for their plans. In a 2005 follow-up study with ICI,¹⁹ EBRI looked at the potential change in 401(k)/IRA rollover accumulations as a result of changing the traditional voluntary enrollment (VE) 401(k) plans to AE plans. Although this analysis had the advantage of using a database of tens of millions of 401(k) participants going back in some cases to 1996, it was limited in knowing how workers would react to AE provisions, and thus simulated the likely

response using the results of academic studies.²⁰ The analysis found that the overall expected improvement in retirement accumulations—especially for the lower-income quartiles—were nothing less than spectacular.

A year after this study was released, Congress passed the Pension Protection Act of 2006 (PPA), which eased some of the administrative barriers to providing AE and for the first time setting up safe harbor provisions for automatic escalation of employee contributions. Although it was too soon to know how plan sponsors would react to this new legislation, EBRI published a study in 2007²¹ that showed how automatic escalation would make the AE results even more favorable under a number of different scenarios for both plan sponsor and worker behavior.

In 2008, EBRI included all the new PPA provisions in a study²² that compared potential accumulations under AE and VE for several different age groups. Again, it was found that certain (high-income) groups were likely to do better under voluntary rather than automatic enrollment, but overall, the AE results dominated.

By 2009, many of the 401(k) sponsors who previously had VE plans had shifted to AE plans and EBRI was able to track the changes in plan provisions for hundreds of the largest 401(k) plans. This information was used in an April 2010 *EBRI Issue Brief*²³ to show, once again, the significant impact of moving to AE plans (for those currently ages 25–29, the difference in the median accumulations would be approximately 2.39 times final salary in an AE plan relative to a VE plan).

Later in 2010, EBRI and DCIIA²⁴ teamed up to do an analysis that focused not on a comparison of VE and AE, but rather how to improve plan design and worker education to optimize the results under AE plans with automatic escalation of contributions. While it is difficult to determine the correct “target” for retirement savings, the analysis used what, by most financial planning standards, appears to be a quite generous target: an 80 percent real income replacement rate in retirement when 401(k) accumulations are combined with Social Security. The study found that with the proper choice of plan design and worker education, for employees simulated to have between 31 and 40 years of eligibility, the percentage of lowest-income quartile workers achieving the 80 percent threshold was 79 percent, and that of the highest-income quartile workers was 64 percent.

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

The Potential Impact of Tax Reform on Retirement Security

Prior to estimating the potential reductions in accumulations resulting from reduced 401(k) contributions, a set of baseline results first needs to be run to determine the likely values if the various tax reform options are not imposed on the current 401(k) system. The model used in this article is based on the 401(k) voluntary enrollment modules from the EBRI Retirement Security Projection Model[®] (RSPM) and is similar in many respects to the one used in Holden and VanDerhei (2002) in that it looks only at current 401(k) participants and does not attempt to include eligible nonparticipants²⁵ or workers who are currently not eligible.²⁶ However, unlike the 2002 model, this analysis assumes no job turnover, withdrawals, or loan defaults.²⁷

Figure 1 shows the median real replacement rates at age 67 from 401(k) balances exclusively for participants currently ages 25–29 by income quartiles.²⁸ The values vary from a low of 53 percent for the lowest-income quartile to a high of 77 percent for the highest-income quartile.²⁹ The simulated rates of return are explained in more detail in VanDerhei and Copeland (2010), but they are based on a stochastic process with a mean equity return of 8.9 percent and a mean fixed-income return of 6.3 percent (expressed in nominal terms).

20/20 Analysis

In December 2010, the National Commission on Fiscal Responsibility and Reform released their long-awaited document on federal debt reduction, "The Moment of Truth." Although their guiding principles and values (pages 13–14) specifically mention the need to keep America sound over the long run by implementing "policies today to ensure that future generations have retirement security, affordable health care, and financial freedom," the document puts forth a tax reform plan that would modify retirement plans by capping annual "tax-preferred contributions to [the] lower of \$20,000³⁰ or 20% of income" (page 31). This is often referred to as the "20/20 cap."

Even if one were to ignore the potential interaction of the proposed limitations with the present values of accruals under defined benefit plans and/or the existing tax preferences available to some IRA contributions, this alternative formulation of capping tax-preferred contributions would substantially reduce the current limits available under qualified defined contribution plans. Currently, the combination of employee and employer contributions is the lesser of a dollar limit of at least \$49,000 per year³¹ and a percentage limit of 100 percent of an employee's compensation.³²

VanDerhei (July, 2011) provides preliminary evidence of the impact of these "20/20 caps" on projected retirement accumulations under a set of assumptions explained in detail later. While this provides a first approximation of the potential impact of these constraints on workers, as well as the distribution of the impact by income, it does not tell the entire story. A follow-up study will also explore the likely impact of these constraints on retirement plan sponsor behavior and estimate the extent to which fewer employers would be willing to offer qualified defined contribution plans (especially among plans offered by small employers).³³

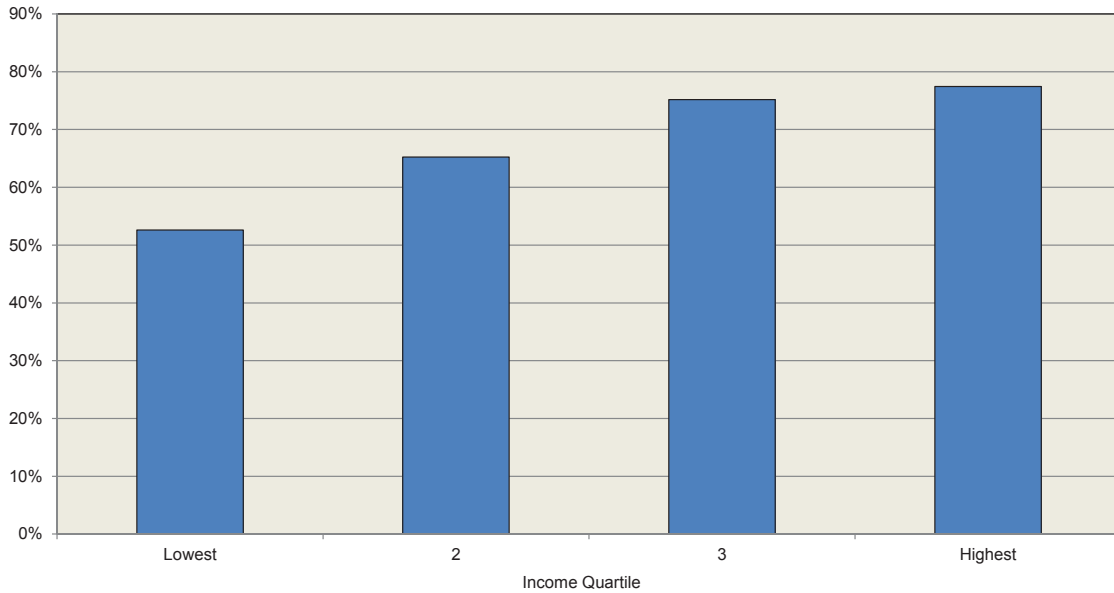
If the 20/20 caps are assumed to be imposed starting in 2012, the annual percentage reductions in 401(k) account balances at Social Security normal retirement age are displayed in Figure 2 by age and age-specific income quartiles for all 401(k) participants with salaries in excess of \$10,000 and tenure of at least two years.

Two points stand out immediately:

- With the exception of the earliest age cohort³⁴ (those currently 26–35), the average reduction for any income quartile decreases for older age cohorts. This is due to the fact that those closest to retirement age will have fewer years of future contributions subject to potential reduction as a result of the 20/20 caps.
- Within each of the four age cohorts, the highest-income quartile experiences the largest average percentage reduction from the 20/20 caps. This reaches a maximum value of 15.1 percent for the highest-income quartile for those currently ages 36–45 and falls to 8.6 percent for the highest-income quartile for those currently ages 56–65.

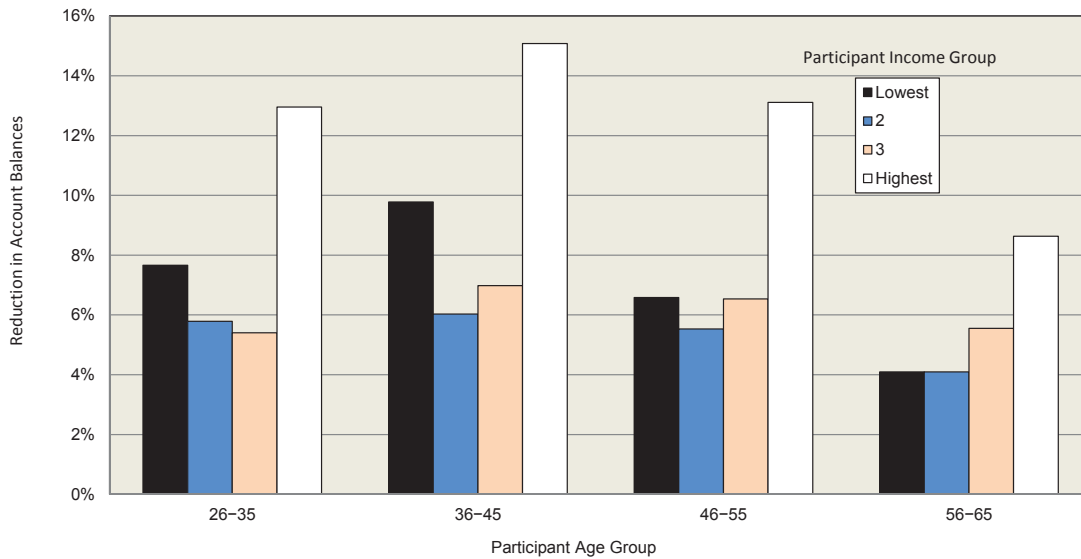
The finding that the highest-income quartile within each age cohort experiences the largest average percentage reduction is no surprise, given the increased likelihood that workers in this cohort either currently exceed the \$20,000 (indexed) limit when their contributions are combined with employer contributions or are predicted to do so in the future. However, for each age cohort other than the oldest one, the *lowest-income quartile* has the *second-highest average percentage reductions*. Although this may be due to several considerations,³⁵ it is almost always a result of their current or expected future contributions exceeding 20 percent of compensation when combined with employer contributions. Phrased another way, the 20/20 cap would, as expected, most affect the highest-income workers, but it also would cause a significant reduction in retirement accumulations for the lowest-income workers.

Figure 1
Median Real Replacement Rates at Age 67 From 401(k) Balances
for Participants Currently Ages 25–29, by Income Quartile



Source: EBRI Retirement Security Projection Model Version 110503c.
 The simulated rates of return for the baseline return scenario are the same as in VanDerhei and Copeland (July 2010). This version of the analysis models 401(k) participants who are not automatically enrolled and assumes no job turnover, withdrawals, or loan defaults. The full stochastic nature of the model will be included in a future analysis.

Figure 2
Average Percentage Reductions in 401(k) Account Balances at
Social Security NRA,^a by Imposing 20/20 Limits in 2012,
by Age and Age-specific Salary Quartiles



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

Replacing the Current Deduction for Contributions to Defined Contribution Plans With a Flat-rate Government Match

Gale (2011) updates previous analysis by Gale, Gruber, and Orszag (2006) and analyzes a plan that would change the treatment of retirement saving in three ways:

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

Gale (2011) reports estimates from the Tax Policy Center for both an 18 percent credit and a 30 percent credit. The paper includes a distributional analysis of the winners and losers under the two versions of the proposal; however, the underlying analysis holds retirement saving contributions constant (page 6). The author mentions that the proposal "could conceivably affect incentives for firms to offer 401(k)s or pensions" (page 7) but concludes that this seems unlikely. He also dismisses as likely overstated the concern that the matches provided in the proposal may discourage employer matches to 401(k) plans.

While these two papers provide an extremely interesting analysis of a proposal with profound public policy implications, it appears quite likely that some of the assumptions with respect to responses (or lack thereof) from employees and (more significantly) plan sponsors will be the subject of serious debate among those with first-hand knowledge of the decision-making process of employers who must decide whether or not to sponsor a defined contribution plan and, if they do so, how to best design the various plan parameters (including the match rate and match level) to meet their objectives.

Public policy consideration of this proposal will undoubtedly be subject to some type of a cost-benefit analysis beyond one that is assuming retirement saving contributions will remain constant. It is admittedly very difficult to determine how those employees not currently covered and/or participating in a defined contribution plan will react to this set of incentives, and EBRI will continue to work with data from sponsors that automatically enroll their employees in 401(k) plans to better assess some of the behavioral tendencies of this group.

Until this type of information is available, it will be quite difficult to accurately assess the "benefit" portion of the cost-benefit analysis suggested above. However, EBRI can measure what some of the likely "costs" will be in terms of reduced retirement benefits for those currently in the 401(k) system.

Results From the 2011 Retirement Confidence Survey

VanDerhei (March, 2011) provides an analysis of two new questions from the 21st wave of the Retirement Confidence Survey (RCS)³⁶ showing how workers³⁷ would likely react if they were no longer allowed to deduct retirement savings plan contributions from taxable income.

Although analysis based on financial economics suggests that higher-income employees would be the most likely to be negatively affected by a proposal to cut or eliminate the deductibility of 401(k) contributions (at least to the point they are constrained with respect to the annual funds available to contribute to a 401(k) plan),³⁸ behavioral economics has shown that the reaction of employees in situations similar to this are often at odds with what would have been predicted by an objective concerned simply with optimizing a financial strategy. In an attempt to better understand potential employee behavior with respect to a proposed elimination of deductions for 401(k) contributions, this year's RCS included two new questions. The first asked respondents how important is being able to deduct their retirement savings plan contributions from their taxable income in encouraging them to save for retirement. When confined to full-time workers (n=591), the weighted results were as follows:³⁹

Not at all important.....	4.3%
Not too important.....	5.0%
Somewhat important.....	27.8%
Very important.....	61.5%

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

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

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

Impact of the Proposal on 401(k) Balances at Retirement

For purposes of this analysis, the (filtered) RCS respondents are placed into one of three categories:⁴⁰

- Stop saving for retirement altogether.
- Reduce the amount you save.
- Continue to save what you do now.⁴¹

The respective probabilities are computed for each family income category, and the worker’s reaction to the proposal is added as a stochastic response based on the model described above for the 20/20 analysis.

Two assumptions need to be utilized before looking at the likely change in 401(k) balances as a result of the proposal:

- What is the appropriate percentage reduction for those in the second category above?
- What is the appropriate portion of the household salary represented by the salary of the 401(k) participant?

For purposes of the baseline results presented here, 50 percent is used for the first assumption and 100 percent is used for the second. The results will be sensitive to the values assumed for these two assumptions and additional sensitivity analysis is presented in Appendix B.

Figure 3 provides the average percentage reductions in 401(k) account balances at Social Security normal retirement age by permanently modifying the exclusion of employee contributions for retirement savings plans from taxable income in 2012 (by age and age-specific salary quartiles). As expected, the younger cohorts would experience larger

reductions given their increased exposure to the proposal. Focusing on those currently 26–35, the average percentage reductions vary from a low of 11.2 percent for the highest-income quartile to a high of 24.2 percent for the lowest-income quartile. As this analysis was intended to look exclusively at the impact of changing the exclusion of employee contributions from taxable income, it was assumed that the total matching contribution would remain constant.

In asking employers and providers how they thought employers would respond to the change in policy, it was suggested that they would allow the government to provide the match to keep people contributing and use their dollars to pay for the increasing cost of employee health insurance. Although EBRI is currently working on a survey to elicit potential employer response to this proposal, it may be instructive to model this scenario to assess the additional reduction in 401(k) retirement accumulations if employers were to drop their plan matches and 401(k) participants would instead have only the 18 percent or 30 percent match provided by the government.

Figure 4 also provides the average percentage reductions in 401(k) account balances at Social Security normal retirement age by permanently modifying the exclusion of employee contributions for retirement savings plans from taxable income in 2012 (by age and age-specific salary quartiles) but, unlike Figure 3, assumes that plan sponsors completely drop their plan match and that employees are left with only the government match of 30 percent.

Given that most 401(k) plan sponsors currently match at a rate greater than 30 percent, it is not surprising that the average reductions increase in Figure 4. For those currently ages 26–35, the average reduction varies from a low of 24.6 percent for the highest-income quartile to a high of 36.0 percent for the lowest-income quartile.

Figure 5 provides the same analysis as Figure 4, but this time the 18 percent government match is modeled. As expected, this increases the average percentage reductions even more. For those currently ages 26–35, the average reduction varies from a low of 30.6 percent for the highest-income quartile to a high of 41.4 percent for the lowest-income quartile.

Whereas Figures 4 and 5 assume that ALL current 401(k) plan sponsors completely drop their plan match (but not their plan), some might argue that plan sponsors may be more likely to keep their plans and retain the current match rates for the participants. Of course the actual result if this proposal were adopted would likely be somewhere between these two extreme positions but it may be useful to analyze what the likely impact on current 401(k) participants would be under the 18 and 30 percent government match scenarios assuming no changes in either plan sponsorship or the employer matching provisions.

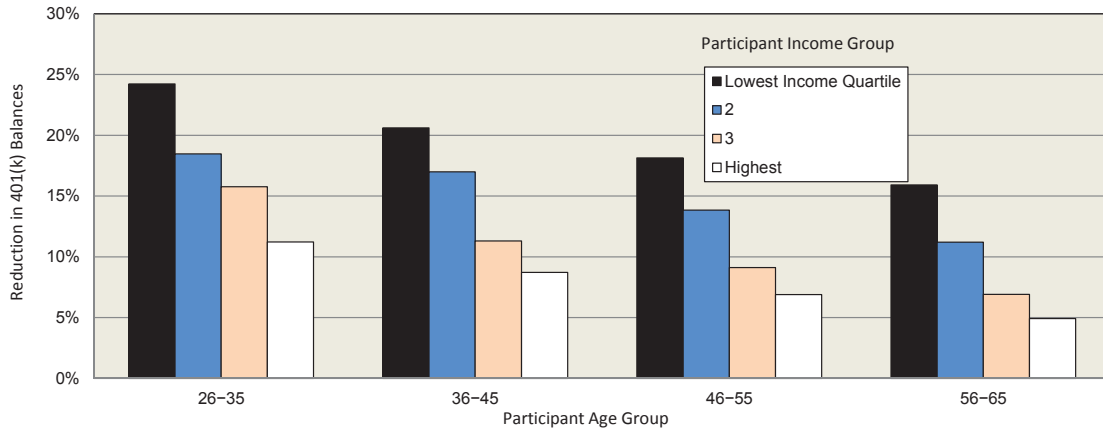
Figure 6 provides the average percentage reductions in 401(k) account balances at Social Security normal retirement age by permanently modifying the exclusion of employee contributions for retirement savings plans from taxable income in 2012 and assuming that no plan sponsors drop the plan nor do they change the match and that all employees receive a 18 percent match from the government. For those currently ages 26–35, the average reduction varies from a low of 2.1 percent for the highest-income quartile to a high of 16.1 percent for the lowest-income quartile.

Figure 7 provides the same analysis as Figure 6 however this time the government match is assumed to increase to 30 percent. For those currently ages 26–35, the highest-income quartile actually would experience an increase of 4.0 percent but all the other income quartiles would experience a decrease in the average 401(k) account balance with the lowest-income quartile experiencing a decrease of 10.8 percent.

At this point it may also be useful to analyze the potential impact of the proposal on 401(k) retirement balances even if there were no employee behavioral response to the change in the exclusion of employee contributions. Figure 8 analyzes only the financial (not behavioral⁴²) change in match rates (from what the employer had been providing to the 18 percent government match). In this case, for those currently ages 26–35, the average reduction varies from a low of 22.1 percent for the highest income quartile to a high of 23.1 percent for the lowest-income quartile.

Figure 3
Average Percentage Reductions in 401(k) Account Balances at Social Security NRA^a by Permanently Modifying the Exclusion of Employee Contributions for Retirement Savings Plans From Taxable Income in 2012 If the Total Match Remains Constant, by Age and Age-specific Salary Quartiles

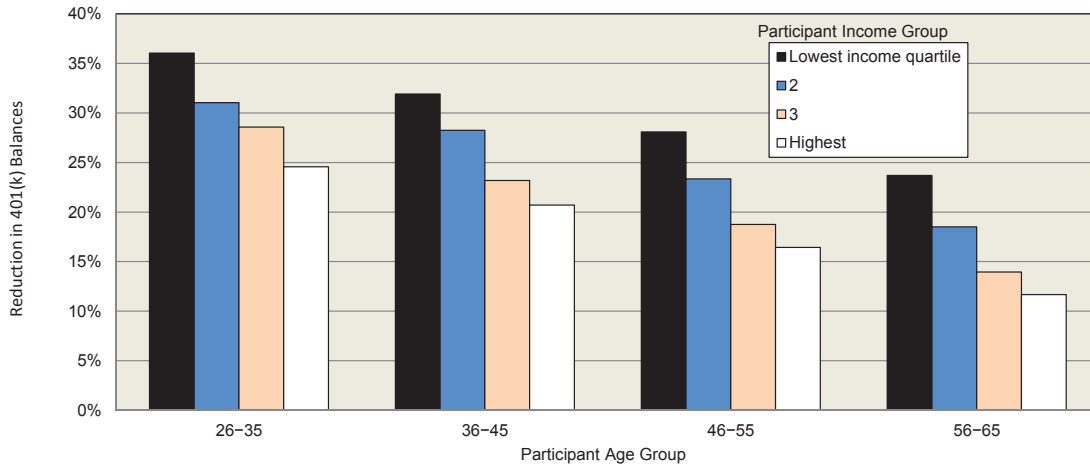
Assumptions for this run (see Appendix B for sensitivity analysis on these assumptions):
 (1) 401(k) participant's share of household income = 100%;
 (2) 401(k) participants who "reduce" contributions are assumed to reduce them by 50%.



Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 110910c2 and responses to the 2011 Retirement Confidence Survey.
^a Normal retirement age.
 NB: This simulation models only the financial impact of the expected reduction in 401(k) contributions for employees who are not automatically enrolled by modifying the exclusion of employee contributions for retirement savings plans from taxable income and does not attempt to assess behavioral modifications on the part of the plan sponsor nor the eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals, or loan defaults. The full stochastic nature of the model will be included in a future analysis.

Figure 4
Average Percentage Reductions in 401(k) Account Balances at Social Security NRA^a by Permanently Modifying the Exclusion of Employee Contributions for Retirement Savings Plans From Taxable Income in 2012 and Assuming That All Plan Sponsors Drop the Plan Match and All Employees Receive a 30% Match from the Government, by Age and Age-specific Salary Quartiles

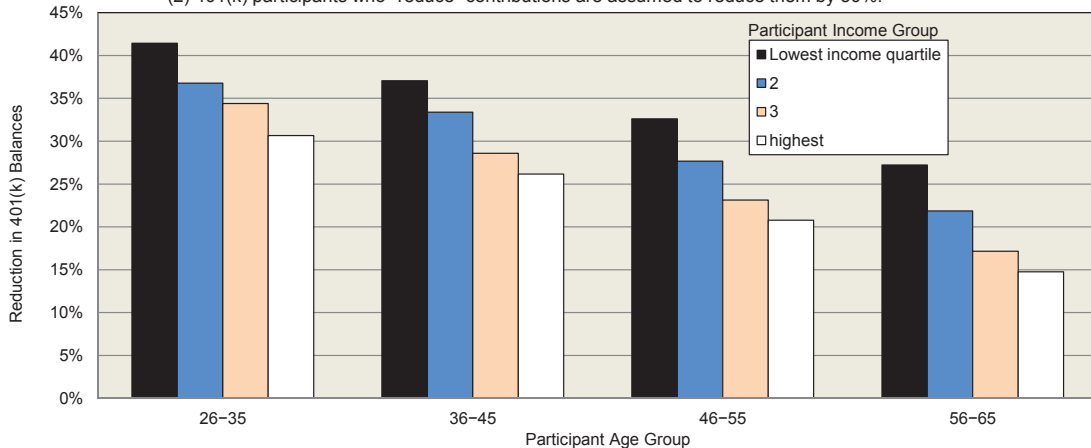
Assumptions for this run:
 (1) 401(k) participant's share of household income = 100%;
 (2) 401(k) participants who "reduce" contributions are assumed to reduce them by 50%



Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 110910c2a and responses to the 2011 Retirement Confidence Survey.
^a Normal retirement age.
 NB: This simulation only models the financial impact of the expected reduction in 401(k) contributions for employees who are not automatically enrolled by modifying the exclusion of employee contributions for retirement savings plans from taxable income and does not attempt to assess behavioral modifications on the part of the eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals, or loan defaults. The full stochastic nature of the model will be included in a future analysis.

Figure 5
Average Percentage Reductions in 401(k) Account Balances at Social Security NRA,^a
by Permanently Modifying the Exclusion of Employee Contributions for Retirement
Savings Plans From Taxable Income in 2012 and Assuming That All Plan Sponsors Drop
the Plan Match and All Employees Receive an 18% Match From the Government,
by Age and Age-specific Salary Quartiles

Assumptions for this run:
 (1) 401(k) participant's share of household income = 100%;
 (2) 401(k) participants who "reduce" contributions are assumed to reduce them by 50%.



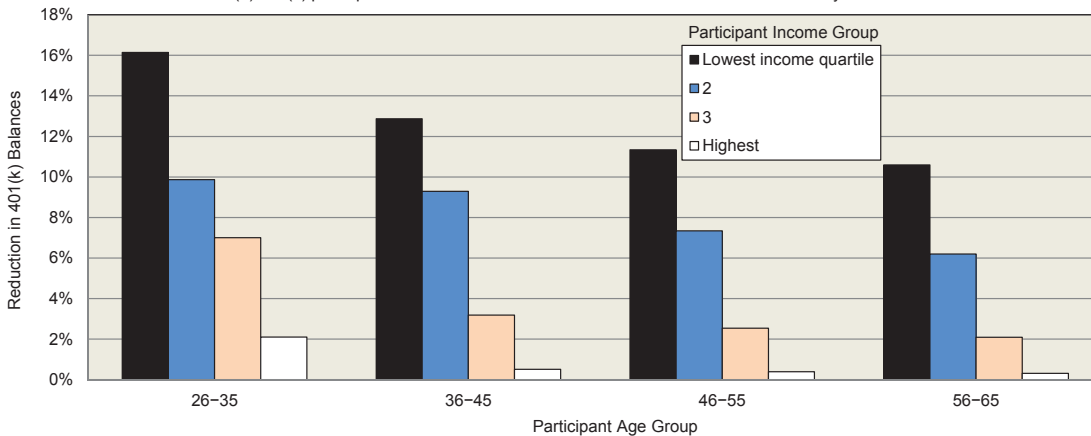
Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 110910c2b and responses to the 2011 Retirement Confidence Survey.

^a Normal retirement age.

NB: This simulation only models the financial impact of the expected reduction in 401(k) contributions for employees who are not automatically enrolled by modifying the exclusion of employee contributions for retirement savings plans from taxable income and does not attempt to assess behavioral modifications on the part of the eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals, or loan defaults. The full stochastic nature of the model will be included in a future analysis.

Figure 6
Average Percentage Reductions in 401(k) Account Balances at Social Security
Normal Retirement Age by Permanently Modifying the Exclusion of Employee
Contributions for Retirement Savings Plans From Taxable Income in 2012 and
Assuming that NO Plan Sponsors Drop the Plan Match and All Employees Receive
an 18% Match from the Government, by Age and Age-specific Salary Quartiles

Assumptions for this run:
 (1) 401(k) participant's share of household income = 100%;
 (2) 401(k) participants who "reduce" contributions are assumed to reduce them by 50%.



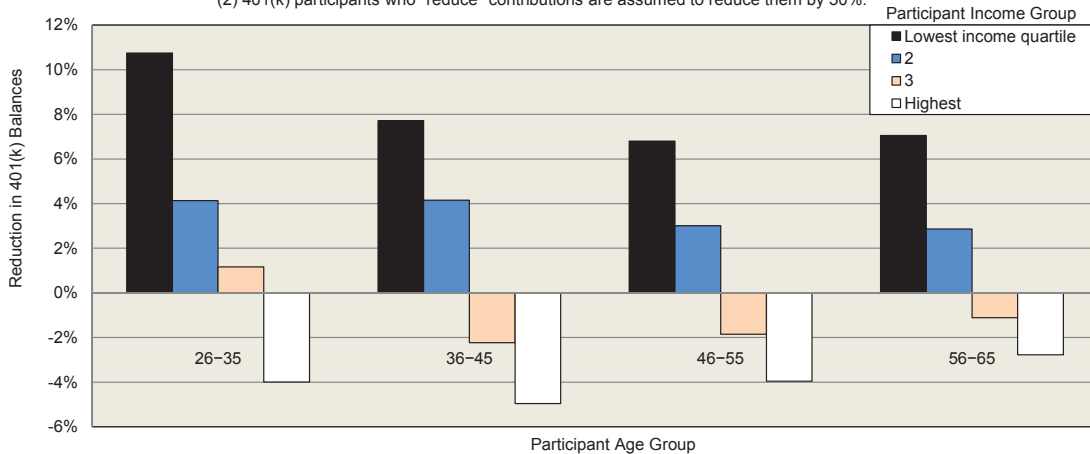
Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 110910c2d and responses to the 2011 Retirement Confidence Survey.

^a Normal retirement age.

NB: This simulation only models the financial impact of the expected reduction in 401(k) contributions for employees who are not automatically enrolled by modifying the exclusion of employee contributions for retirement savings plans from taxable income and does not attempt to assess behavioral modifications on the part of the eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals, or loan defaults. The full stochastic nature of the model will be included in a future analysis.

Figure 7
Average Percentage Reductions in 401(k) Account Balances at Social Security NRA,^a by Permanently Modifying the Exclusion of Employee Contributions for Retirement Savings Plans From Taxable Income in 2012 and Assuming that NO Plan Sponsors Drop the Plan Match and All Employees Receive a 30% Match from the Government, by Age and Age-specific Salary Quartiles

Assumptions for this run:
 (1) 401(k) participant's share of household income = 100%;
 (2) 401(k) participants who "reduce" contributions are assumed to reduce them by 50%.



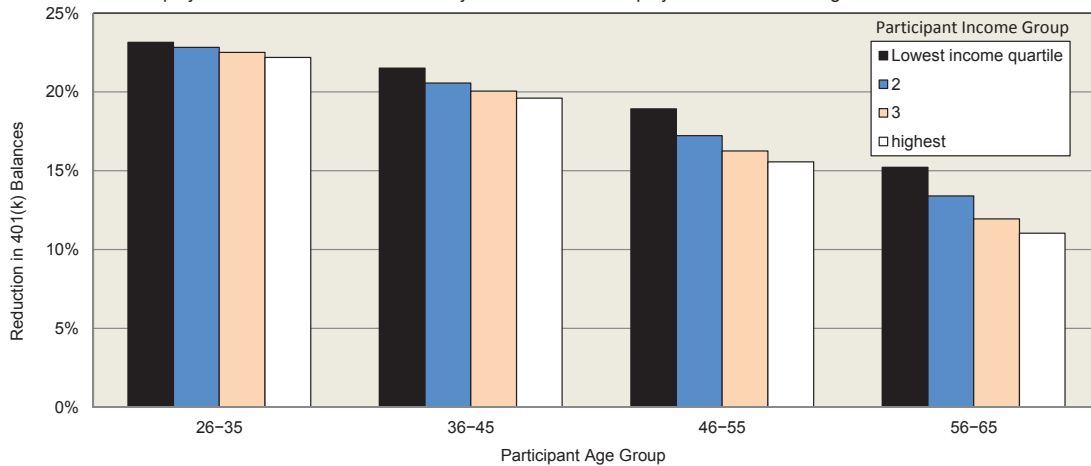
Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 110910c2c and responses to the 2011 Retirement Confidence Survey.

^a Normal retirement age.

NB: This simulation only models the financial impact of the expected reduction in 401(k) contributions for employees who are not automatically enrolled by modifying the exclusion of employee contributions for retirement savings plans from taxable income and does not attempt to assess behavioral modifications on the part of the eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals, or loan defaults. The full stochastic nature of the model will be included in a future analysis.

Figure 8
Average Percentage Reductions in 401(k) Account Balances at Social Security NRA,^a by Permanently Modifying the Exclusion of Employee Contributions for Retirement Savings Plans From Taxable Income in 2012 and Assuming That ALL Plan Sponsors Drop the Plan Match and All Employees Receive an 18% Match From the Government, by Age and Age-specific Salary Quartiles

Assumes no employee behavioral modifications: Only the difference in employer contributions vs. government matches is tracked.



Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 110910c2b 1and responses to the 2011 Retirement Confidence Survey.

^a Normal retirement age.

NB: This simulation only models the financial impact of the expected reduction in 401(k) contributions for employees who are not automatically enrolled by modifying the exclusion of employee contributions for retirement savings plans from taxable income and does not attempt to assess behavioral modifications on the part of the eligible nonparticipants. The simulated rates of return are the same as in VanDerhei and Copeland (July 2010). This version of the analysis assumes no job turnover, withdrawals, or loan defaults. The full stochastic nature of the model will be included in a future analysis.

Caveats With Respect to Automatic Enrollment

The previous results assumed none of the 401(k) participants were automatically enrolled in the retirement plan; instead, workers' escalation of contributions after the first year are driven primarily by age and income characteristics as opposed to tenure with the current employer, as they would be in auto-enrollment plans (especially those with automatic escalation of employee contributions).

The exclusion of auto-enrollment plans in this analysis was necessary given the current modeling assumption of no job change. It would be very difficult to provide a valid analysis of the average percentage reductions in 401(k) balance under auto-enrollment because very little, if any, information currently exists that can be used to track what automatically enrolled participants with automatic escalation of contributions would do upon job change. For example, if participants have already been escalated to 8 percent of compensation and upon job change are automatically enrolled into another 401(k) plan, would they "remember" where they had been, or decrease contributions to the default rate of the new plan?

As additional information becomes available with respect to employees' behavioral responses for auto-enrollment, EBRI will update this analysis to provide a more robust model.

Future Work

In addition to the expansion of the model used for the two analyses above to include 401(k) plans with automatic enrollment, EBRI plans to continue to conduct research in this area as public policy agendas dictate. While Gale (2011) includes a distribution of federal tax change by cash income percentile in 2011, it would be extremely useful to expand this analysis to include both employee and employer reactions to the proposal and to simulate the employees over time in an attempt to project future balances at retirement age.

While it is possible to analytically evaluate the change in incentives for an employer to sponsor a qualified plan and/or continue a match at the current level (if at all) as a result of 20/20 or the Gale proposal, it would be helpful (if not essential) to supplement this with a detailed set of surveys and/or focus group studies to increase the understanding of the employer's likely reaction to these changes before attempting to quantify the potential changes in retirement income resulting from such a massive shift in incentives.

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

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

Many of EBRI's previous simulation projects (see Appendix A for a brief chronology) will be directly applicable to such additional research and we will continue to provide cost/benefit assessments of these types of proposals in the future.

Conclusions

In 2010, EBRI documented a significant reduction in the percentage of households "at risk" for inadequate retirement income between 2003 and 2010, based in large part on the advent of auto-enrollment in 401(k) plans; however, for the one-third of the households with the lowest-indexed⁴³ pre-retirement income, the at-risk percentages, while much smaller (they were 80 percent in 2003) are still extremely high (70 percent in 2010). Of course, when one limits the

analysis to those who are simulated to be saving in the future, the numbers improve substantially: among Gen Xers without any future eligibility for participation in a defined contribution plan, the at-risk percentage is 60 percent, but it drops all the way to 20 percent for those with 20 or more years of future eligibility.⁴⁴

Given that the financial fate of future generations of retirees appears to be so strongly tied to whether they are eligible to participate in employer-sponsored retirement plans,⁴⁵ the logic of modifying (either completely or marginally) the incentive structure of employees and/or employers for defined contribution plans at this time needs to be thoroughly examined. EBRI studies⁴⁶ have documented that defined contribution plans (and the IRA rollovers they produce) are the component of retirement security that appears to be generating the most non-Social Security retirement wealth for Baby Boomers and Gen Xers. However, the potential increase of at-risk percentages resulting from (1) employer modifications to existing plans, and (2) a substantial portion of low-income households decreasing or eliminating future contributions to savings plans as a reaction to the proposed elimination of the exclusion of employee contributions for retirement savings plans from taxable income, needs to be analyzed carefully when considering the overall impact of such proposals.

References

- Choi, James J., David Laibson, Brigitte C. Madrian, and Andrew Metrick, "Saving For Retirement on the Path of Least Resistance." Originally prepared for Tax Policy and the Economy 2001, updated draft: July 19, 2004; and "For Better or For Worse: Default Effects and 401(k) Savings Behavior," *Pension Research Council Working Paper*, PRC WP 2002-2 (Philadelphia, PA: Pension Research Council, The Wharton School, University of Pennsylvania, Nov. 9, 2001).
- Copeland, Craig. "Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2009. *EBRI Issue Brief*, no. 348 (Employee Benefit Research Institute, Oct. 2010).
- Copeland, Craig, and Jack VanDerhei. "The Declining Role of Private Defined Benefit Pension Plans: Who Is Affected, and How." In Robert L. Clark and Olivia Mitchell, eds., *Reorienting Retirement Risk Management*. Oxford University Press for the Pension Research Council, 2010: 122–136.
- Gale, William G. "Tax Reform Options: Promoting Retirement Security," Testimony Submitted to the United States Senate Committee on Finance Hearing, Sept. 15, 2011, online at <http://finance.senate.gov/imo/media/doc/Testimony%20of%20William%20Gale.pdf>
- Gale, William G., Jonathan Gruber, and Peter R. Orszag. "Improving Opportunities and Incentives for Savings by Middle- and Lower-Income Households." The Hamilton Project, *Discussion Paper* 2006-02. The Brookings Institution, 2006.
- Holden, Sarah, and Jack VanDerhei. "Can 401(k) Accumulations Generate Significant Income for Future Retirees?" *EBRI Issue Brief*, no. 251 (Employee Benefit Research Institute, November 2002); and *ICI Perspective*, vol. 81, no. 3 (Investment Company Institute, November 2002).
- _____. "The Influence of Automatic Enrollment, Catch-Up, and IRA Contributions on 401(k) Accumulations at Retirement." *EBRI Issue Brief*, no 283 (Employee Benefit Research Institute, July 2005); and *ICI Perspective*, vol.11, no.23 (Investment Company Institute, July 2002).
- Iwry, Mark J. and David C. John. "Pursuing Universal Retirement Security Through Automatic IRAs." Retirement Security Project. The Brookings Institution, 2006.
- Miller, Judy A. "Tax Reform Options: Promoting Retirement Security." Testimony Submitted on behalf of the American Society of Pension Professionals and Actuaries. Senate Finance Committee Hearing, Sept. 15, 2011.

- Olsen, Kelly, and Jack VanDerhei. "Defined Contribution Plan Dominance Grows Across Sectors and Employer Sizes, While Mega Defined Benefit Plans Remain Strong: Where We Are and Where We Are Going." *In Retirement Prospects in a Defined Contribution World*. Washington, DC: Employee Benefit Research Institute, 1997: pp. 55–92
- VanDerhei, Jack. Testimony for the U.S. Senate Special Committee on Aging Hearing on Retirement Planning: "Do We Have a Crisis in America? Results From the EBRI-ERF Retirement Security Projection Model," Jan. 27, 2004 (T-141).
- _____. "Projections of Future Retirement Income Security: Impact of Long-Term Care Insurance." American Society on Aging/National Council on Aging joint conference, March 2005.
- _____. "Defined Benefit Plan Freezes: Who's Affected, How Much, and Replacing Lost Accruals." *EBRI Issue Brief*, no. 291 (Employee Benefit Research Institute, March 2006).
- _____. "Measuring Retirement Income Adequacy: Calculating Realistic Income Replacement Rates." *EBRI Issue Brief*, no. 297 (Employee Benefit Research Institute, September 2006).
- _____. "Retirement Income Adequacy After PPA and FAS 158: Part One—Plan Sponsors' Reactions." *EBRI Issue Brief*, no. 337 (Employee Benefit Research Institute, July 2007).
- _____. "The Expected Impact of Automatic Escalation of 401(k) Contributions on Retirement Income." *EBRI Notes*, no. 9, (Employee Benefit Research Institute, September 2007): 1–8.
- _____. "How Would Target-Date Funds Likely Impact Future 401(k) Contributions." Testimony before the joint DOL/SEC Hearing, Target Date Fund Public Hearing, June 2009 T-160).
- _____. "The Impact of Automatic Enrollment in 401(k) Plans on Future Retirement Accumulations: A Simulation Study Based on Plan Design Modifications of Large Plan Sponsors." *EBRI Issue Brief*, no. 341 (Employee Benefit Research Institute, April 2010).
- _____. "Retirement Income Adequacy for Today's Workers: How Certain, How Much Will It Cost, and How Does Eligibility for Participation in a Defined Contribution Plan Help?" *EBRI Notes*, no. 9 (Employee Benefit Research Institute, Sept. 2010): 13–20.
- _____. "Retirement Savings Shortfalls for Today's Workers." *EBRI Notes*, no. 10 (Employee Benefit Research Institute, Oct. 2010a): 2–9.
- _____. Testimony before the Senate Health, Education, Labor and Pensions Committee, on "The Wobbly Stool: Retirement (In)security in America" (T-166). Oct. 7, 2010b.
- _____. "A Post-Crisis Assessment of Retirement Income Adequacy for Baby Boomers and Gen Xers." *EBRI Issue Brief*, no. 354 (Employee Benefit Research Institute, February 2011).
- _____. "The Impact of Modifying the Exclusion of Employee Contributions for Retirement Savings Plans From Taxable Income: Results from the 2011 Retirement Confidence Survey." *EBRI Notes*, no. 3 (Employee Benefit Research Institute, March 2011).
- _____. "Retirement Income Adequacy: Alternative Thresholds and the Importance of Future Eligibility in Defined Contribution Retirement Plans." *EBRI Notes*, no. 4 (Employee Benefit Research Institute, April 2011): 10–19.
- _____. "Capping Tax-Preferred Retirement Contributions: Preliminary Evidence of the Impact of the National Commission on Fiscal Responsibility and Reform Recommendations." *EBRI Notes*, no. 7 (Employee Benefit Research Institute, July 2011): 2–6.
- _____. "The Importance of Defined Benefit Plans for Retirement Income Adequacy." *EBRI Notes*, no. 8 (Employee Benefit Research Institute, August 2011): 7–16.

- VanDerhei, Jack, and Craig Copeland. "Oregon Future Retirement Income Assessment Project." A project of the EBRI Education and Research Fund and the Milbank Memorial Fund, 2001a.
- _____. "A Behavioral Model for Predicting Employee Contributions to 401(k) Plans." *North American Actuarial Journal*, 2001b.
- _____. "The Future of Retirement Income: The Changing Face of Private Retirement Plans." *The Future of Social Insurance: Incremental Action or Fundamental Reform*. National Academy of Social Insurance 2002a: (pp. 121–147).
- _____. "Kansas Future Retirement Income Assessment Project." A project of the EBRI Education and Research Fund and the Milbank Memorial Fund, July 16, 2002.
- _____. "Massachusetts Future Retirement Income Assessment Project." A project of the EBRI Education and Research Fund and the Milbank Memorial Fund, December 1, 2002.
- _____. "Can America Afford Tomorrow's Retirees: Results From the EBRI-ERF Retirement Security Projection Model." *EBRI Issue Brief*, no. 263 (Employee Benefit Research Institute, November 2003).
- _____. "ERISA At 30: The Decline of Private-Sector Defined Benefit Promises and Annuity Payments: What Will It Mean?" *EBRI Issue Brief*, no. 269 (Employee Benefit Research Institute, May 2004).
- _____. "The Impact of PPA on Retirement Income for 401(k) Participants." *EBRI Issue Brief*, no. 318 (Employee Benefit Research Institute, June 2008).
- _____. "The EBRI Retirement Readiness Rating:TM Retirement Income Preparation and Future Prospects." *EBRI Issue Brief*, no. 344 (Employee Benefit Research Institute, July 2010).
- _____. "The Impact of Deferring Retirement Age on Retirement Income Adequacy." *EBRI Issue Brief*, no. 358 (Employee Benefit Research Institute, June 2011).
- VanDerhei, Jack, and Lori Lucas. "The Impact of Auto-enrollment and Automatic Contribution Escalation on Retirement Income Adequacy." *EBRI Issue Brief*, no. 349 (Employee Benefit Research Institute, November 2010); and *DCIIA Research Report* (November 2010).
- VanDerhei, Jack, Sarah Holden, and Luis Alonso. "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2008." *EBRI Issue Brief*, no. 335 (Employee Benefit Research Institute, October 2009); and *ICI Research Perspective*, vol. 15, no. 2 (Investment Company Institute, October 2009).

Appendix A: A Brief Chronology of RSPM

The original version of Retirement Security Projection Model[®] (RSPM) was used to analyze the future economic well-being of the retired population at the state level. The Employee Benefit Research Institute and the Milbank Memorial Fund, working with the governor of Oregon, set out to see if this situation could be addressed for Oregon. The analysis⁴⁷ focused primarily on simulated retirement wealth with a comparison to ad hoc thresholds for retirement expenditures, but the results made it clear that major decisions lie ahead if the state's population is to have adequate resources in retirement.

Subsequent to the release of the Oregon study, it was decided that the approach could be carried to other states as well. Kansas and Massachusetts were chosen as the next states for analysis. Results of the Kansas study were presented to the state's Long-Term Care Services Task Force on July 11, 2002,⁴⁸ and the results of the Massachusetts study were presented on Dec. 1, 2002.⁴⁹ With the assistance of the Kansas Insurance Department, EBRI was able to create Retirement Readiness Ratings based on a full stochastic decumulation model that took into account the household's longevity risk, post-retirement investment risk, and exposure to potentially catastrophic nursing home and home health care risks. This was followed by the expansion of RSPM, as well as the Retirement Readiness Ratings produced by it, to a national model and the presentation of the first micro-simulation retirement income adequacy model built in part from administrative 401(k) data at the EBRI December 2003 policy forum.⁵⁰ The basic model was then modified for Senate Aging testimony in 2004 to quantify the beneficial impact of a mandatory contribution of 5 percent of compensation.⁵¹

The first major modification of the model occurred for the EBRI May 2004 policy forum. In an analysis to determine the impact of annuitizing defined contribution and IRA balances at retirement age, VanDerhei and Copeland (2004) were able to demonstrate that for a household seeking a 75 percent probability of retirement income adequacy, the additional savings that would otherwise need to be set aside each year until retirement to achieve this objective would decrease by a median amount of 30 percent. Additional refinements were introduced in 2005 to evaluate the impact of purchasing long-term care insurance on retirement income adequacy.⁵²

The model was next used in March of 2006 to evaluate the impact of defined benefit freezes on participants by simulating the minimum employer contribution rate that would be needed to financially indemnify the employees for the reduction in their expected retirement income under various rate-of-return assumptions.⁵³ Later that year, an updated version of the model was developed to enhance the EBRI interactive Ballpark Estimate[®] worksheet by providing Monte Carlo simulations of the necessary replacement rates needed for specific probabilities of retirement income adequacy under alternative risk management treatments.⁵⁴

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.⁵⁵ Additional modifications were added in 2009 for a Pension Research Council presentation that involved a winners/losers analysis of defined benefit freezes and the enhanced defined contribution employer contributions provided as a quid pro quo.⁵⁶

A new subroutine was added to the model to allow simulations of various styles of target-date funds for a comparison with participant-directed investments in 2009.⁵⁷ In April 2010, the model was completely reparameterized with 401(k) plan design parameters for sponsors that have adopted automatic enrollment provisions.⁵⁸ A completely updated version of the national model was produced for the May 2010 EBRI policy forum and used in the July 2010 *Issue Brief*.⁵⁹

The new model was used to analyze how eligibility for participation in a defined contribution plan impacts retirement income adequacy in September 2010.⁶⁰ It was also used to compute Retirement Savings Shortfalls for Boomers and Gen Xers in October 2010.⁶¹

In October 2010 testimony before the Senate Health, Education, Labor and Pensions Committee, on "The Wobbly Stool: Retirement (In)security in America," the model was used to analyze the relative importance of employer-provided retirement benefits and Social Security.⁶²

In February 2011, the model was used to analyze the impact of the 2008/9 crisis in the financial and real estate markets on retirement income adequacy.⁶³

An April 2011 article introduced a new method of analyzing the results from the RSPM.⁶⁴ 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.

The June 2011 *Issue Brief* allowed retirement income adequacy to be assessed at retirement ages later than 65.⁶⁵

The July 2011 *Notes* article⁶⁶ provides preliminary evidence of the impact of the “20/20 caps” proposed by the National Commission on Fiscal Responsibility and Reform on projected retirement accumulations.

The August 2011 *Notes* article⁶⁷ evaluated the importance of defined benefit plans for households assuming they retire at age 65 and showed the tremendous importance of defined benefit plans in achieving retirement income adequacy for Baby Boomers and Gen Xers.

Finally, the September 2011 Senate Finance testimony⁶⁸ analyzed the potential impact of various types of tax reform options on retirement income adequacy.

Appendix B

Appendix B							
Sensitivity Analysis on Baseline Assumptions for Fig. 3							
Average Percentage Reductions in 401(k) Account Balances at Social Security NRA, ^a by							
Permanently Modifying the Exclusion of Employee Contributions for Retirement Savings Plans							
From Quartiles Taxable Income in 2012, by Age-specific Salary							
Age Group	Percentage Reduction	25%	25%	50%	50%	75%	75%
	Percentage of Family Income	50%	100%	50%	100%	50%	100%
26-35	Lowest income quartile	13.1%	15.4%	18.9%	24.2%	24.8%	33.1%
26-35	2	8.9%	12.0%	13.2%	18.5%	17.5%	25.0%
26-35	3	6.1%	11.6%	9.9%	15.8%	13.8%	19.9%
26-35	Highest	5.8%	7.2%	9.9%	11.2%	14.0%	15.2%
36-45	Lowest income quartile	11.6%	12.9%	16.9%	20.6%	22.1%	28.3%
36-45	2	6.3%	11.9%	9.8%	17.0%	13.2%	22.1%
36-45	3	5.3%	8.1%	9.0%	11.3%	12.6%	14.6%
36-45	Highest	5.2%	5.3%	8.8%	8.7%	12.4%	12.2%
46-55	Lowest income quartile	10.1%	11.3%	14.7%	18.1%	19.4%	24.9%
46-55	2	5.1%	9.8%	8.1%	13.8%	11.0%	17.9%
46-55	3	4.3%	6.4%	7.3%	9.1%	10.3%	11.9%
46-55	Highest	4.1%	4.1%	7.0%	6.9%	9.8%	9.7%
56-65	Lowest income quartile	8.6%	10.1%	12.6%	15.9%	16.5%	21.7%
56-65	2	4.7%	7.4%	7.1%	11.2%	9.5%	15.0%
56-65	3	3.1%	5.1%	5.3%	6.9%	7.4%	8.8%
56-65	Highest	3.0%	3.0%	5.0%	4.9%	7.0%	6.9%

Source: Author's calculations based on results from EBRI Retirement Security Projection Model Version 110910c2a-j.

^a Normal retirement age.

Endnotes

¹ VanDerhei and Copeland (2010).

² A brief chronology of RSPM is included in Appendix A.

³ This improvement took place despite the financial and real estate market crisis of 2008/2009. For evidence on the impact of the recession on retirement income adequacy, see VanDerhei (February 2011).

⁴ The post-World War II demographic wave of children born between 1948–1964.

⁵ Americans born between 1965–1974 and currently between the ages of 36–45).

⁶ These results assume retirement at age 65. For evidence on the impact of deferring retirement age beyond that age 65 see VanDerhei and Copeland (2011).

⁷ Household deficits for married couples are divided equally between the two spouses.

⁸ VanDerhei (October 2010a).

⁹ VanDerhei (October 2010b).

¹⁰ VanDerhei and Copeland (2010).

¹¹ www.ebri.org/publications/benfaq/index.cfm?fa=retfaq14, last accessed July 26, 2011.

¹² For a historical review of causes of this decline see Olsen and VanDerhei (1997).

¹³ See VanDerhei (July 2007) for a summary of the responses of defined benefit sponsors to the implementation of the new funding requirements under the Pension Protection Act of 2006 as well as the potential pension expense volatility under new FASB requirements.

¹⁴ This does not necessarily imply that many existing defined benefit sponsors have or will terminate their existing defined benefit plans. Instead the process of freezing these plans for current and/or new workers has increased substantially in recent years. For more information on the impact of plan freezes on workers, see VanDerhei (March 2006). For an analysis of whether “frozen” workers have been financially indemnified via enhanced employer contribution to defined contribution plans, see Copeland and VanDerhei (2010).

¹⁵ For example, an employee age 60 may have very recently changed jobs and rolled over a substantial account balance from his previous employer to an IRA.

¹⁶ Year-end 2010 data are currently being analyzed and the annual update should be available soon.

¹⁷ The proposed regulations for 401(k) plans were published in November 1981 and much of the growth in these plans took place in the next few years.

¹⁸ Holden and VanDerhei (2002).

¹⁹ Holden and VanDerhei (2005).

²⁰ Choi, Laibson, Madrian, and Metrick (2002).

²¹ VanDerhei (September 2007).

²² VanDerhei and Copeland (2008).

²³ VanDerhei (April 2010).

²⁴ VanDerhei and Lucas (2010).

²⁵ See Holden and VanDerhei (2005).

²⁶ See VanDerhei and Copeland (2008).

²⁷ The full stochastic nature of the model will be included in future analysis.

²⁸ It is important to note that the annuitized accumulations in this analysis are from 401(k) contributions exclusively and do not include projected Social Security retirement benefits. This is in contrast to other EBRI research (e.g., VanDerhei and Lucas, November 2010) that includes both components. However, in the previous analysis, all workers were simulated and job change was allowed.

²⁹ These estimates compare quite favorably to those in Holden and VanDerhei (2002) when the difference between nominal and real replacement rates are considered. However, this is to be expected given the assumptions listed above (especially the lack of job turnover and therefore the suppression of cashouts prior to retirement).

³⁰ Presumably, the \$20,000 figure would be indexed for inflation in the future similar to current treatment of IRC Sec. 415(c) limits.

³¹ Employees age 50 or over may be allowed to contribute up to an additional \$5,500 per year.

³² Sec. 415(c) of the Internal Revenue Code.

³³ See testimony for this hearing by Judy Miller, ASPPA (2011) for an example of this analysis, online at <http://finance.senate.gov/hearings/hearing/?id=ba387157-5056-a032-5252-c7bf71fc6c90>

³⁴ The reason that the youngest age cohort does not follow this trend is due to their relatively lower current wages than older cohorts after adjusting for historic age/wage profiles.

³⁵ Although additional analysis needs to be performed before assessing relative importance of these factors, it appears that this result is caused by at least two factors. First, the definition of income quartile in RSPM is determined in a manner similar to the average indexed monthly earnings computation for Social Security with the following modifications: (a) All earned income is included up to the age of retirement (i.e., there is no maximum taxable wage base constraint and the calculation terminates at retirement age); (b) Instead of indexing for changes in average national wages, the model indexes based on assumed after-tax rate of return based on asset allocations that are a function of the individual's age in each year; and (c) Percentile distributions are established based on population statistics for each age cohort. Therefore, it is possible that an individual whose preretirement income ranks in the lowest quartile over their remaining work history may indeed end up with an income that would rank higher than the bottom quarter in one or more specific years. Second, the impact of the 20 percent limitation for the lowest-income quartile may fall disproportionately on the part-time workers. For example, a worker who enters the work force part time whose spouse already has a full-time job may be in a better situation to attempt to maximize retirement contributions on his/her income. Although EBRI is in the process of attempting to model the impact on part-timers on a longitudinal basis, the current analysis filtered out any 401(k) participants with annual income of less than \$10,000 as well as those with less than two years of tenure.

³⁶ These findings are part of the 21st annual Retirement Confidence Survey (RCS), a survey that gauges the views and attitudes of working-age and retired Americans regarding retirement, their preparations for retirement, their confidence with regard to various aspects of retirement, and related issues. The survey was conducted in January 2011 through 20-minute telephone interviews with 1,258 individuals (1,004 workers and 254 retirees) age 25 and older in the United States. Random digit dialing was used to obtain a representative cross section of the U.S. population. To further increase representation, a cell phone supplement was added to the sample. Starting with the 2001 wave of the RCS, all data are weighted by age, sex, and education to reflect the actual proportions in the adult population. Data for waves of the RCS conducted before 2001 have been weighted to allow for consistent comparisons; consequently, some data in the 2011 RCS may differ slightly with data published in previous waves of the RCS. Data presented in tables in this report may not total to 100 due to rounding and/or missing categories. In theory, the weighted sample of 1,258 yields a statistical precision of plus or minus 3 percentage points (with 95 percent certainty) of what the results would be if all Americans age 25 and older were surveyed with complete accuracy. There are other possible sources of error in all surveys, however, that may be more serious than theoretical calculations of sampling error. These include refusals to be interviewed and other forms of nonresponse, the effects of question wording and question order, and screening. While attempts are made to minimize these factors, it is impossible to quantify the errors that may result from them. The RCS was co-sponsored by the Employee Benefit Research Institute (EBRI), a private, nonprofit, nonpartisan public policy research organization, and Mathew Greenwald & Associates, Inc., a Washington, DC, based market research firm. The 2011 RCS data collection was funded by grants from more than two dozen public and private organizations, with staff time donated by EBRI and Greenwald. RCS materials and a list of underwriters may be accessed at the EBRI Web site: www.ebri.org/rcs

For more detail, see Helman, Copeland, and VanDerhei (March 2011, online at www.ebri.org/surveys/rcs/2011/).

³⁷ In the RCS, *retiree* refers to individuals who are retired or who are age 65 or older and not employed full time.

Worker refers to all individuals who are not defined as retirees, regardless of employment status.

³⁸ Actually, the constraints would need to be compared to the 402(g) limit as well as any plan-specific constraints on tax contributions (primarily for the Highly Compensated Employees).

³⁹ 1.4 percent responded that they did not know.

⁴⁰ EBRI plans to expand this analysis with a complete set of sensitivity analyses in the near future.

⁴¹ Future analysis will attempt to include a fourth category for those who would increase the amount they save for retirement in response to this proposal.

⁴² The fact that this preliminary analysis was conducted without an employee reaction to the change in match rates in no way should be interpreted that EBRI does not believe that a reduced employer match may have significant consequences on employee contribution behavior. VanDerhei and Copeland (2001b) estimated a behavioral model that is able to control for the tendency of employers to substitute between the amount they match per dollar of employee contribution and the maximum percentage of compensation they are willing to match. EBRI intends to update that research and attempt to apply it for more formal evaluation of this proposal in the future.

⁴³ See endnote 17 of VanDerhei and Copeland (July 2010) for more detail.

⁴⁴ VanDerhei (September 2010) also demonstrates that eligibility for a defined contribution retirement plan has a significant positive impact on reducing the additional compensation most families need to achieve the desired level of retirement income adequacy.

⁴⁵ See VanDerhei (August 2011) for evidence of the importance of participating in a defined benefit plan.

⁴⁶ VanDerhei and Copeland (2002a).

⁴⁷ VanDerhei and Copeland (2001).

⁴⁸ VanDerhei and Copeland (July 2002).

⁴⁹ VanDerhei and Copeland (December 2002).

⁵⁰ VanDerhei and Copeland (2003)

⁵¹ VanDerhei (January 2004).

⁵² VanDerhei (2005).

⁵³ VanDerhei (March 2006).

⁵⁴ VanDerhei (September 2006)

⁵⁵ VanDerhei and Copeland (2008).

⁵⁶ Copeland and VanDerhei (2010).

⁵⁷ VanDerhei (2009).

⁵⁸ VanDerhei (April 2010).

⁵⁹ VanDerhei and Copeland (2010).

⁶⁰ VanDerhei (September 2010).

⁶¹ VanDerhei (October 2010a).

⁶² VanDerhei (October 2010b).

⁶³ VanDerhei (February 2011).

⁶⁴ VanDerhei (April 2011).

⁶⁵ VanDerhei and Copeland (June 2011).

⁶⁶ VanDerhei (July 2011).

⁶⁷ VanDerhei (August 2011).

⁶⁸ VanDerhei (September 2011).

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