

## **EBRI Retirement Security Projection Model® (RSPM) – Analyzing Policy and Design Proposals**

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

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### AT A GLANCE

At various times, policymakers have sought to improve the defined-contribution system by increasing the number of workers who have access to the system and by seeking ways to keep money in the system until workers retire. Conversely, motivated by budget concerns, they have also sought to reduce tax deferrals from the system by limiting pretax contributions through caps and other mechanisms.

Such policymaking can lead to unintended, and undesirable, consequences if it is not informed by sound research. The Employee Benefit Research Institute (EBRI) originally developed its Retirement Security Project Model® (RSPM) with the goal of providing just such insight for policymakers. Using assumptions based on actual, anonymized administrative data from tens of millions of 401(k) participants, RSPM® has been used to simulate the percentage of the population at risk of not having retirement income adequate to cover projected expenses under the current system since 2003. More critically, it can be used to examine the impact of potential changes to the 401(k) system—such as those proposed by policymakers.

In this *Issue Brief*, we will examine the impact of various retirement-reform proposals on all US households between the ages of 35 and 64 by first assessing the current, aggregate national-retirement deficit, and then examining the impact of the following potential initiatives:

- Auto Individual Retirement Account (IRA) programs, such as the one proposed under President Obama’s 2015 Budget.
- Programs expanding access to defined contribution plans, such as the Automatic Retirement Plan Act of 2017 (ARPA) proposal.
- A universal defined-contribution scenario.
- Auto-portability proposals.
- Proposed reductions in the 402(g) and/or 415(c) limits.

Note: RSPM® incorporates a definition of retirement income adequacy that is far more comprehensive than most models today. In RSPM®, a household is considered to “run short of money,” or to experience a retirement savings shortfall, if its resources in retirement are not sufficient to meet average deterministic retirement expenditures plus uncovered long-term care expenses from nursing homes and home health care.

Key findings from this RSPM® analysis are:

- It is projected that 57.4 percent of all US households – including those covered by employer-sponsored retirement plans and those who are not – will achieve retirement success and will *not* run short of money in retirement. But that means that nearly 43 percent of households will *not* achieve retirement success

according to the model, though some may fall short by relative small amounts.

- However the probability of a successful retirement depends to a great extent on whether employees are eligible to participate in a defined contribution (DC) plan. For example, among Gen Xers, those with no future years of eligibility are simulated to have only a 48 percent probability of not running short of money in retirement. In contrast, those who have 20 or more years of future eligibility (this may include years in which employees are eligible but choose not to participate) are simulated to have a 72 percent probability of achieving a successful retirement and not running short of money.
- This translates into an aggregate national retirement savings shortfall of \$4.1 trillion. The deficit averages nearly \$90,000 for workers ages 35-39 who currently do not have and are not projected to gain access to the defined-contribution system. In contrast, for those fortunate enough to spend much of their working lives eligible for participation in the defined-contribution system, the projected deficit is less than a quarter of that amount.
- Long-term care costs must be considered if an accurate picture of retirement income adequacy is to be gained. Failing to incorporate long-term care costs into the model significantly changes the probability of *not* running short of money in retirement—increasing it by nearly a quarter.
- Various reform scenarios could reduce the retirement deficit by as much as 802 billion, or 19.4 percent.
- Eliminating pre-retirement cashouts would enable an additional 20 percent of low-income workers currently ages 25–29 who will have more than 30 years of simulated eligibility for participation in a 401(k) plan to attain an 80 percent real replacement rate from Social Security, 401(k) plan balances and IRA rollover balances that originated in 401(k) plans. It should be noted, however, that these results do not consider any potential reduction in contributions on behalf of workers who might, knowing that monies would not be available for hardship situations, decide to reduce, or even cease contributing to these plans.
- Reducing current contribution limits could significantly reduce projected account balances for certain workers

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# **EBRI Retirement Security Projection Model®(RSPM) – Analyzing Policy and Design Proposals**

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## **Background**

This *Issue Brief* starts with a brief description of EBRI's Retirement Security Projection Model® and provides baseline information on the probability that US households headed by individuals currently ages 35-64 will have "adequate" retirement resources. While it is useful to know what percentage of households will be at risk of running short of money in retirement, from a public policy perspective it is perhaps even more important to be able to quantify the size of those deficits. The next section presents the aggregate present value of retirement deficits for those with inadequate retirement resources and provides additional analysis to show how those deficits vary with age and future years of eligibility to participate in defined contribution plans.

This, in turn, provides a basic framework to begin to analyze the relative effectiveness of various reform proposals. First, the aggregate impact of a federal auto-IRA proposal as well as the Automatic Retirement Plan Act of 2017 proposal are analyzed and compared with a universal defined-contribution scenario. Because any proposal based on individual accounts is likely to have a limited impact for those already on the verge of retirement, the aggregate analysis is broken out into age cohorts.

Auto-portability reform deals with the retirement deficit problem directly through plan design. Previous EBRI research on the impact of plan leakage is reviewed and the potential impact of a fully implemented auto-portability scenario is analyzed.

The final reform proposal analyzed in this *Issue Brief* deals with a possible reduction in the amount of money that can be contributed to a defined contribution plan on an annual basis: how much an individual participant may defer into a plan, either on a before-tax, Roth, or combined pre-tax and Roth basis (the Section 402(g) limit); and the total amount of employee and employer contributions that can be added to a defined contribution account in a year (one of the two Section 415 (c) limits).

## **EBRI's Retirement Security Projection Model®**

EBRI launched a major project to provide retirement income adequacy measurement in the late 1990s for three states concerned whether their residents would have sufficient income when 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). It was updated in 2010 to incorporate several significant changes, including the impacts of defined benefit (DB) plan freezes, automatic-enrollment provisions for 401(k) plans, and the 2007-2009 crises in the financial and housing markets.<sup>1</sup> Since then EBRI has continued to update RSPM® for changes in financial and real estate market conditions, as well as for underlying demographic changes and changes in 401(k) participant behavior (based on a database of the actual, anonymized account activity of tens of millions of 401(k) participants).

A primary objective 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 retirement 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 at risk run short of money in retirement, 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.

A previous EBRI publication<sup>2</sup> describes how households are tracked through retirement age and how their retirement income/wealth is simulated for the following components:

- Social Security.
- Defined contribution balances.
- IRA balances.
- Defined benefit annuities and/or lump-sum distributions.
- Net housing equity.

A household is considered to run short of money in this model if aggregate resources in retirement are not sufficient to meet average retirement expenditures, defined as a combination of deterministic expenses from the Consumer Expenditure Survey (as a function of income) and some health insurance and out-of-pocket, health-related expenses, plus stochastic expenses from nursing-home and home-health care (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.

The baseline version of the model that has been used for this analysis assumes all workers retire at age 65; that they immediately begin drawing benefits from Social Security and defined benefit plans (if any); and, to the extent that the sum of their expenses and uninsured medical expenses exceed the projected, after-tax annual income from those sources, that they immediately begin to withdraw money from their individual accounts (defined contribution and cash balance plans, as well as IRAs). If there is sufficient money to pay expenses without tapping into the household's tax-qualified individual accounts, those balances 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 defined-benefit payments are not sufficient to pay expenses, the household is designated as having run short of money at that point.

RSPM<sup>®</sup> produces two output metrics: the EBRI Retirement Readiness Rating<sup>™</sup> (RRR) and the Retirement Savings Shortfall (RSS).

- The RRR represents the percentage of simulated household life-paths that do *not* run short of money in retirement. In other words, the RRR is a measure of "retirement success."
- The RSS measures the present value of simulated retirement deficits at retirement age. The RSS, in this way, measures retirement savings shortfalls.

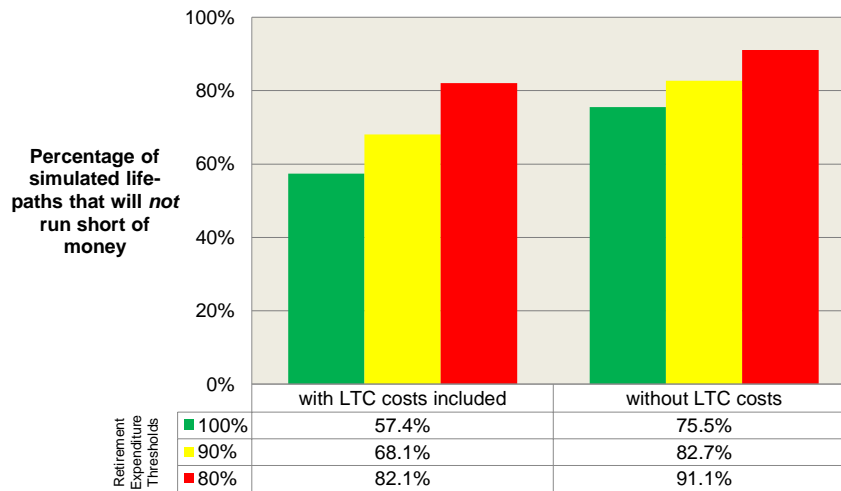
It is important to note that this measurement only includes households simulated to have a deficit. If a household is already simulated to have no deficits under a baseline scenario, policy changes that increase their account balances at retirement will *not* change either RRR or RSS.<sup>3</sup>

## Baseline values for RRR and RSS

**Baseline EBRI Retirement Readiness Rating<sup>™</sup>:** Figure 1 shows the RRRs with and without long-term care (LTC) costs taken into account for households headed by individuals currently ages 35-64 by various retirement expenditure thresholds.

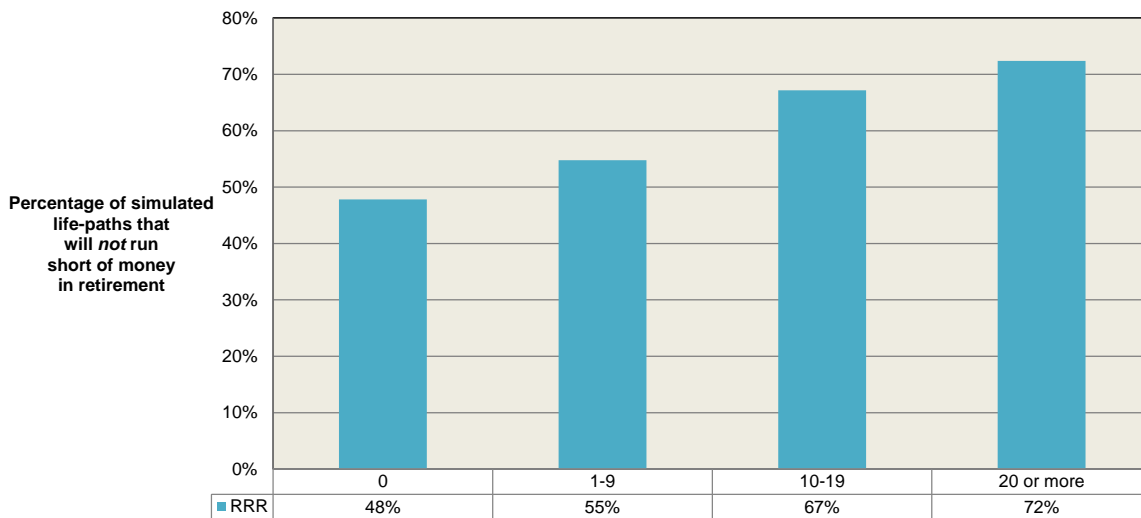
If one assumes that households will continue to be responsible for their LTC costs and that their deterministic retirement expenditures will be a full 100 percent of the average costs for retirees in their income- and family-status cohorts, more than half (57.4 percent) of the simulated households— including those covered by employer-sponsored retirement plans and those who are not -- will have sufficient retirement resources (in other words, to *not* run short of money in retirement). However, nearly 43 percent of households will not achieve retirement success according to the model.

Figure 1  
**2014 Retirement Readiness Ratings With and Without Long-term Care Costs for Households Headed by Individuals Ages 35-64, by Various Retirement Expenditure Thresholds**



Source: EBRI Retirement Security Projection Model® Version 1995

Figure 2  
**Impact of Future Years of Eligibility for a Defined Contribution Plan for Gen Xers on 2014 Retirement Readiness Ratings™**



Source: EBRI Retirement Security Projection Model® Version 1995.

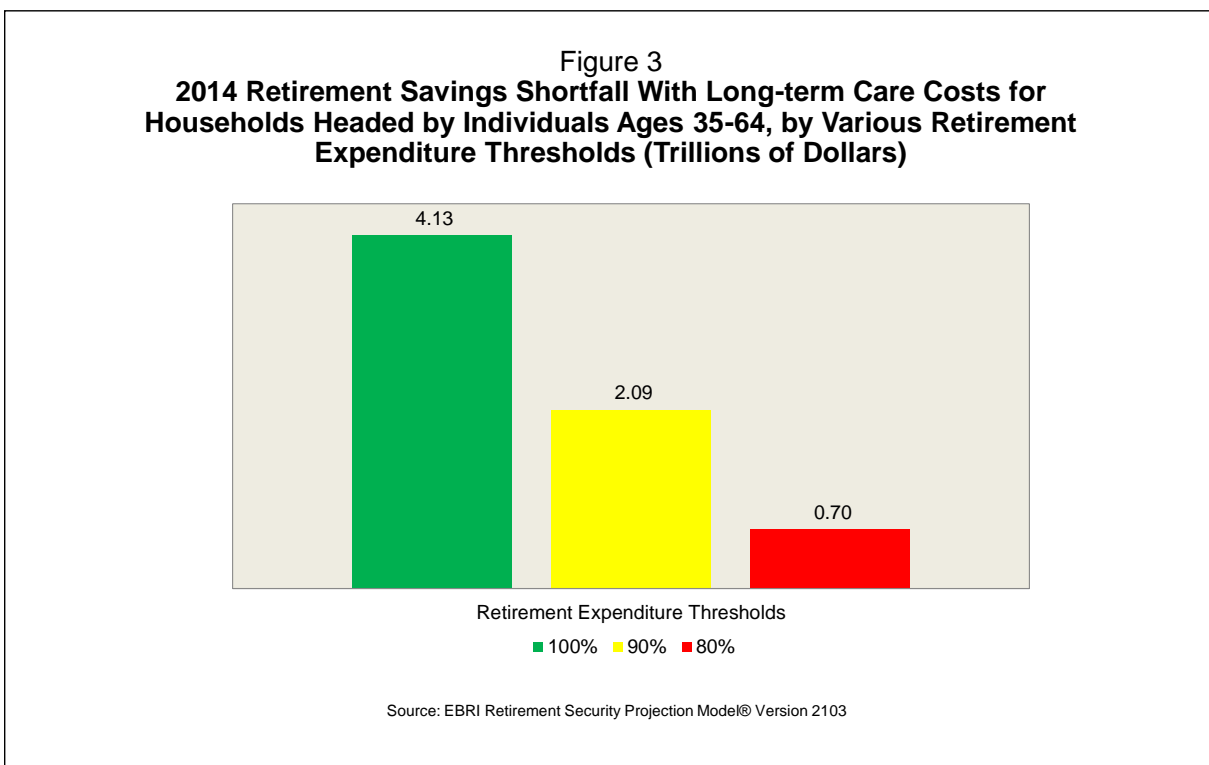
Note: The values in this figure represent the percentages of simulated life-paths that will not run short of money in retirement assuming that 100 percent of simulated retirement expenses are paid.

Realizing that some retirees may have the ability to cut back on some of the deterministic expenses if it appears they are beginning to run short of resources, we have also included a simulation assuming their deterministic expenses will be only 90 percent of the cohort-specific average. Said another way, we have adjusted our assumption such that individuals will need to fund only 90 percent of the projected expenses (other than nursing-home and home-health-care costs). In this case the RRR – the percentage of households projected to have sufficient retirement resources – increases to 68.1 percent. An alternative scenario in which retirees were assumed to only spend 80 percent of the cohort average for deterministic expenses was also run and the RRR increased to 82.1 percent.

To illustrate the impact of LTC costs on retirement income adequacy, the same three retirement expenditure thresholds were modeled a second time, but this time all LTC costs were suppressed/ignored. At the 100 percent threshold the RRR increased from 57.4 percent to 75.5 percent, or nearly a third. Said another way, if LTC costs are ignored, more than three-quarters of U.S. households headed by individuals between ages 35 and 64 are simulated to have sufficient retirement resources. Similar increases are observed at the 90 percent threshold (increase from 68.1 percent to 82.7 percent) and the 80 percent threshold (increase from 82.1 percent to 91.1 percent).

**Importance of Eligibility in an Employer-Sponsored Retirement Plan:** Figure 2 shows the positive impact of future years of eligibility (regardless of whether employees choose to participate, though there is a high likelihood of participating if eligible) in a defined contribution plan on the RRR values for Gen Xers.<sup>4</sup> For those with no future years of eligibility in a defined contribution plan, the RRR value is only 48 percent. This value increases to 55 percent for those with 1–9 future years of eligibility in a defined contribution plan. The RRR value increases to 67 percent for those with 10–19 future years of eligibility in a defined contribution plan, and reaches a maximum value of 72 percent for those with 20 or more future years of eligibility in a defined contribution plan.

**Baseline Aggregate Retirement Savings Shortfall:** Assuming retirement expenditures are a full 100 percent of the average costs for retirees in their age-, income- and family-status cohorts, the aggregate retirement deficit for households in this age cohort is \$4.13 trillion in 2014 dollars, as shown in Figure 3.





If the retirement expenditure threshold is reduced to 90 percent, the RSS value drops by almost 50 percent to \$2.09 trillion. Moving the threshold to 80 percent provides an even larger relative decrease with the RSS value falling to \$0.70 trillion.

The average RSS value for an individual will vary by a number of factors,<sup>5</sup> but from the standpoint of demonstrating the importance of access to an employer-sponsored retirement plan, perhaps one of the more important analyses involves years of future eligibility in a defined contribution plan.

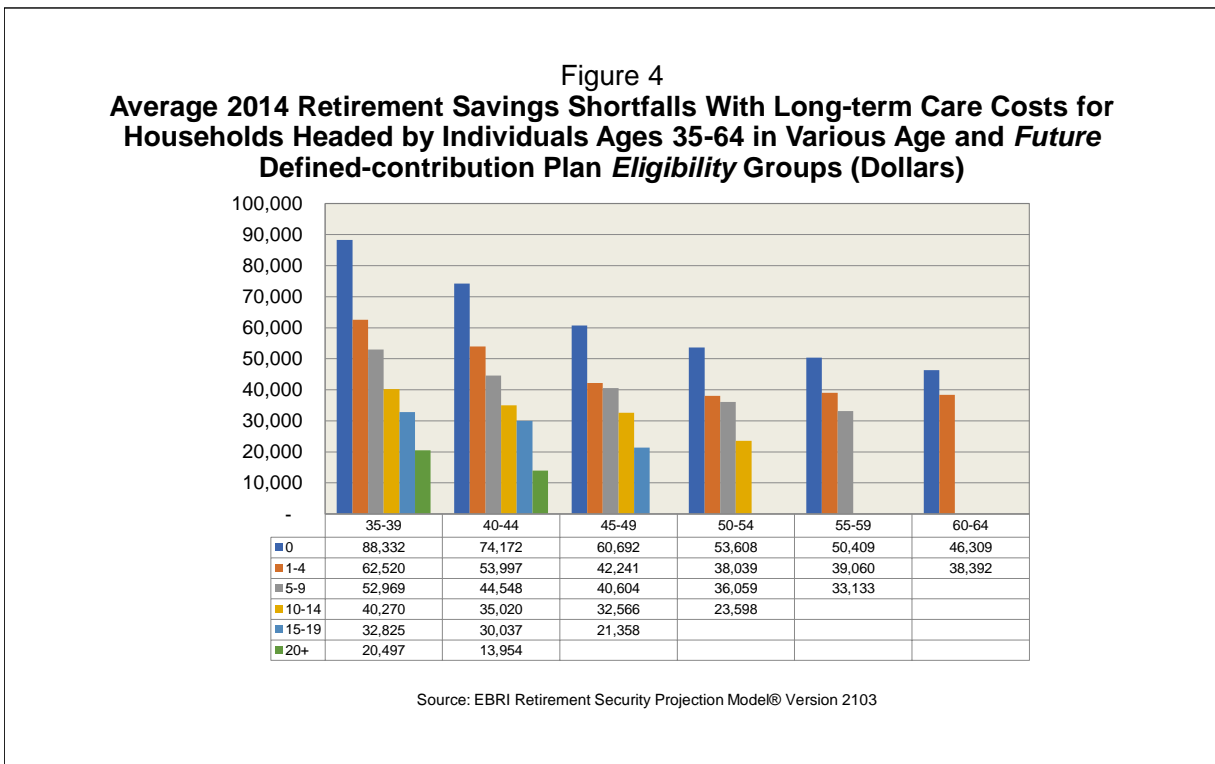
Figure 4 provides the average RSSs (assuming LTC Costs are considered) for households currently headed by individuals ages 35-64 in various age- and future-defined-contribution-eligibility groups.

For the youngest age group modeled, those ages 35-39, the average retirement deficit for households with no future years of eligibility for a defined-contribution retirement plan is approximately \$88,000 per individual. In other words, this is the anticipated average shortfall for young workers who have no access to the defined-contribution system.

Average retirement deficits are lower for households with some access:

- For those with 1-4 years of eligibility, the average retirement deficit is approximately \$63,000.
- For those with 5-9 years of eligibility, it is approximately \$53,000.
- At 10-14 years of eligibility the average RSS drops to approximately \$40,000.
- At 15-19 years future eligibility, it declines to approximately \$33,000.

For those fortunate enough to have 20 or more years of future eligibility, the average deficit drops to approximately \$20,000. In other words, for workers who will spend much of their working life in the defined-contribution system, the projected deficit is less than a quarter of that for those who are simulated to have no access to participate in the defined-contribution system.



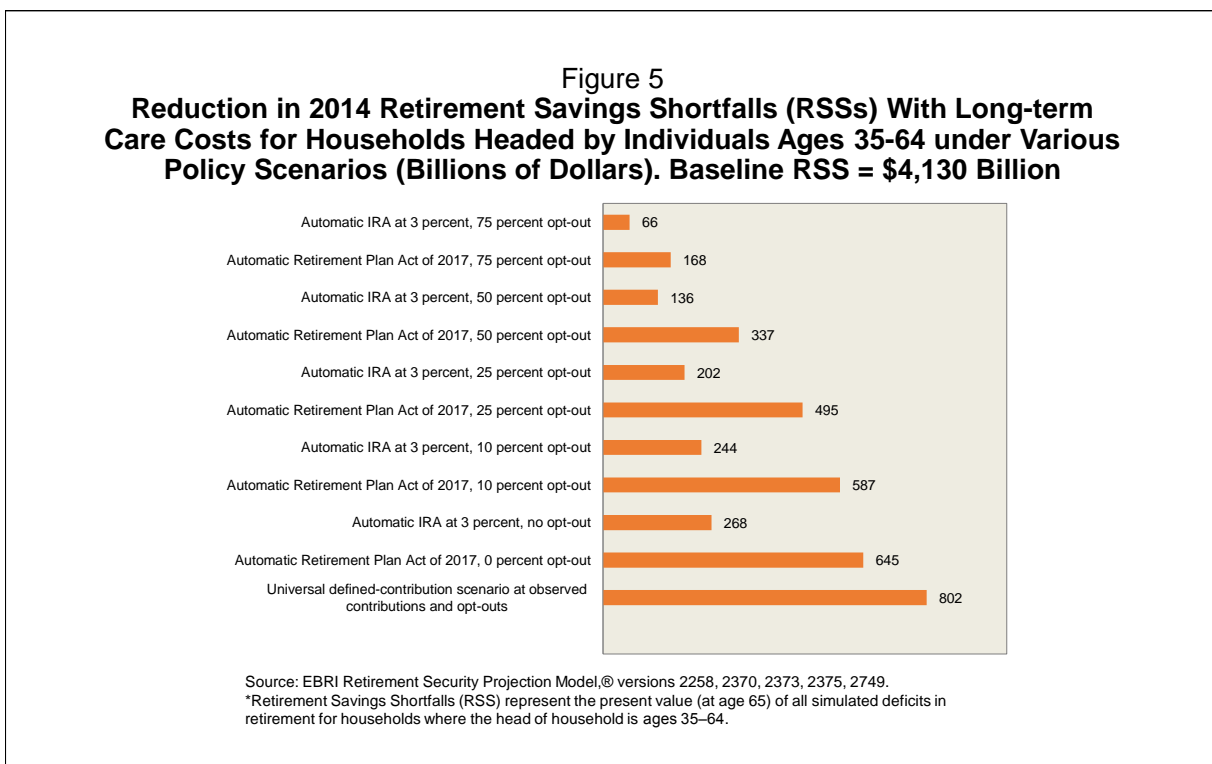
## How much will retirement-reform proposals reduce the retirement deficits?

Focusing on the aggregate national retirement deficit of \$4.13 trillion, RSPM<sup>®</sup> was used to simulate how various reform proposals would potentially impact this deficit.

**Auto IRA:** Previous EBRI research<sup>6</sup> analyzed the potential impact of a federal<sup>7</sup> auto-IRA approach in which all employers (regardless of size) who were not providing a defined benefit or defined contribution plan were required to provide an auto IRA where the employee was initially enrolled at a 3-percent deferral rate but had the opportunity to modify the rate or opt-out of the deferral. The analysis assumed that there were no employer contributions and that no current defined-contribution-plan sponsors decided to discontinue their current plan and shift to the auto IRA. Moreover, the analysis assumed employers with auto IRAs did not transition to a defined contribution plan.<sup>8</sup>

Figure 5 provides the reduction in RSSs (assuming LTC Costs are considered) for households headed by individuals currently ages 35-64 under various opt-out assumptions for the federal auto-IRA approach. The reductions are decreases relative to the baseline of \$4.13 trillion in Figure 3.

- If no opt-outs are assumed to occur in the auto-IRA proposal, the aggregate retirement deficits are simulated to decrease by \$268 billion or 6.5 percent.
- An opt-out rate of 10 percent results in a deficit reduction of \$244 billion (5.9 percent)
- A 25 percent opt-out rate results in a deficit reduction of \$202 billion (4.9 percent).<sup>9</sup>



**Expanding Access to the Existing DC System:** Several other reform proposals have focused on expanding access to existing defined contribution plans. Although the details behind the proposals have differed significantly, many of them have shared a common objective: to increase the percentage of the workforce eligible to participate in a defined contribution plan (such as the current 401(k) system). Figure 5 includes an analysis of the Automatic Retirement Plan Act of 2017 (ARPA) proposal under which all but the smallest employers would be required to offer plans. Generally, all employees who have attained age 21 would be required to be covered by the plan, including new, part-time workers.

The plans would be required to incorporate the following provisions, provided that certain existing plans would be grandfathered:

- Automatic enrollment at 6 percent.
- Automatic enrollment triennially at 6 percent.
- Automatic escalation at 1 percent per year up to 10 percent, i.e., 6 percent to 7 percent to 8 percent to 9 percent to 10 percent.

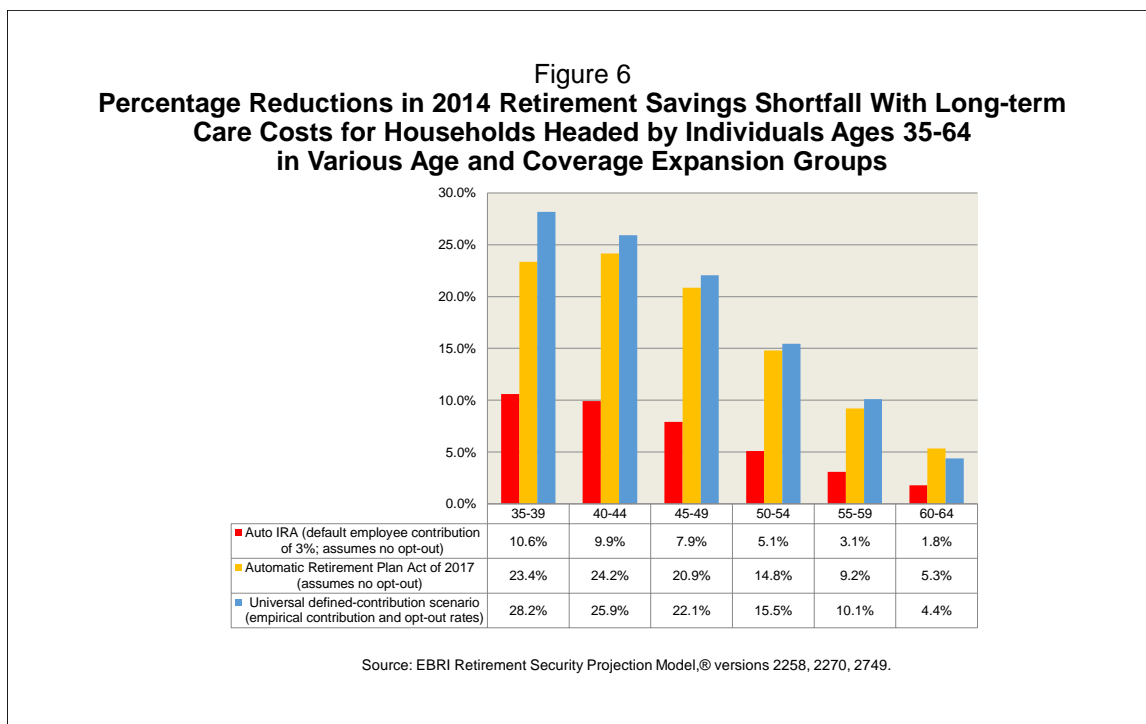
Given the higher automatic enrollment rates (6 percent vs. 3 percent) compared with the auto-IRA proposal, as well as the automatic escalation up to 10 percent of compensation, one would expect that the ARPA scenarios would reduce the retirement deficit significantly more than the automatic IRA proposal for any given level of opt-out.<sup>10</sup> And indeed, if we assume no opt-out, ARPA would reduce the deficit by \$645 billion (15.6 percent).

**Universal Defined-contribution System:** Figure 5 also includes a universal defined-contribution scenario that assumes all employers not currently offering defined benefit and/or defined contribution plans start sponsoring a defined contribution plan immediately. Rather than simplistically presuming a single stylized defined contribution plan for employers regardless of size, this analysis assumes employers will choose a type of plan and a set of generosity parameters similar to employers in their size range. Unlike the auto-IRA and ARPA analyses, the universal defined-contribution scenario is based on observed contribution rates and demonstrated opt-out behavior when simulating employee behavior.

Not surprisingly, this scenario produces an even greater reduction in the retirement deficit: \$802 billion, or 19.4 percent of the aggregate \$4.13 trillion deficit from the baseline.

While that is a significant impact on the aggregate shortfall, it is important to recognize that any policy initiative would have limited impact for those already on the verge of retirement. However, such initiatives would have correspondingly much greater impact on younger age cohorts.

Figure 6 provides the percentage reductions in RSS (assuming LTC Costs are taken into account) for households headed by individuals currently ages 35-64 in various age groups.



For those already ages 55-59, the reduction in retirement deficits would be:

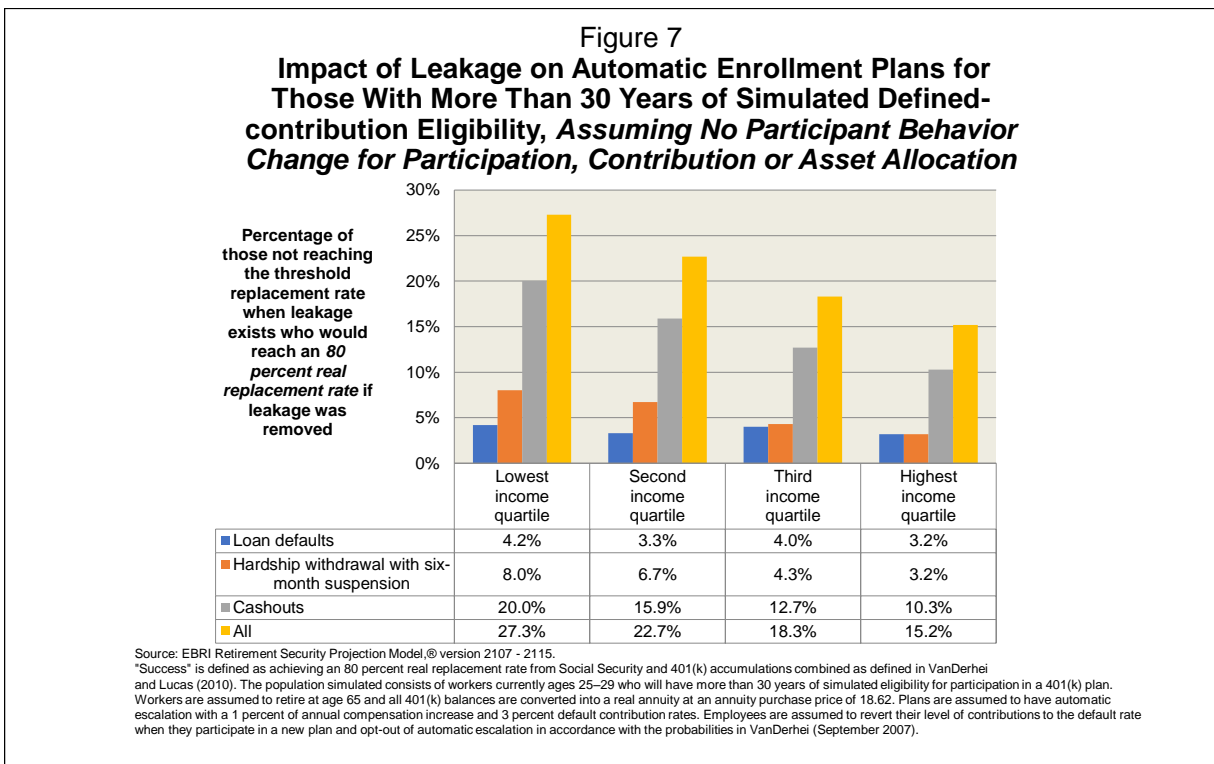
- 10.1 percent under the universal defined-contribution scenario (with empirical contribution and opt-out behavior).
- 9.2 percent for ARPA (assuming no opt-outs).
- Just 3.1 percent under the auto IRA (assuming no opt-outs).

For the youngest age cohort simulated (those currently ages 35-39), the reductions in retirement deficits would be significantly larger:

- 28.2 percent reduction under the universal defined-contribution scenario.
- 23.4 percent under ARPA.
- 10.6 percent under auto IRA.

### Impact of auto-portability on retirement deficits

Policymakers have also been concerned about the toll that loans, withdrawals, and cashouts can take on the ability for defined contribution plans to fund an adequate retirement. EBRI has previously modeled how this so-called leakage from automatic enrollment 401(k) plans<sup>11</sup> can impact the ability of participants to achieve various replacement rate levels.<sup>12</sup>



In Figure 7, the percentage of workers who would reach an 80 percent real replacement rate is shown, assuming leakage is removed from automatic-enrollment defined contribution plans. In other words, if loan defaults, hardship withdrawals and cashouts were eliminated from the system, how many more workers could achieve “retirement success” by this measure?

This impact is assessed by simulating projected Social Security benefits as well as future 401(k) balances and IRA rollovers from 401(k) plans. The simulated population consists of workers currently ages 25-29 who will have more

than 30 years of eligibility for participation in a 401(k) plan. The 80 percent real replacement rate is based on Social Security benefits plus annuitized 401(k) and IRA rollover balances.<sup>13</sup>

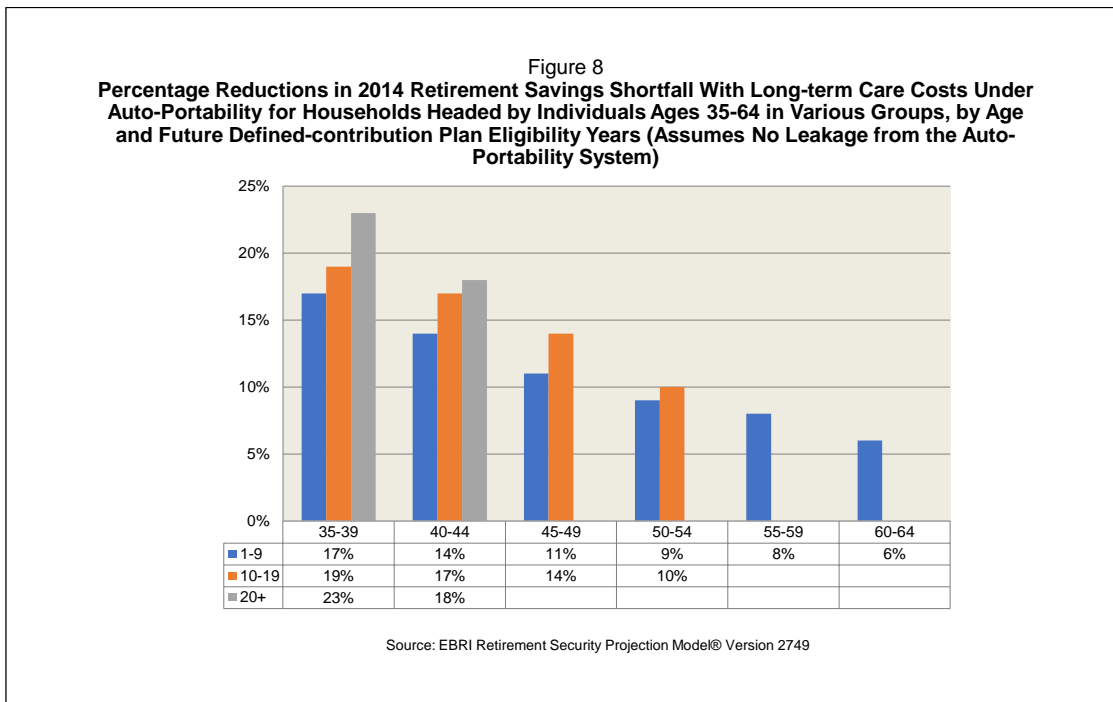
Figure 7 shows that removing all leakage could result in as many as 27.3 percent more participants achieving “retirement success” for the lowest income quartile. For the highest income quartile, 15.2 percent more achieve “retirement success.”<sup>14</sup>

Within each income quartile in Figure 7 the overall impact of leakage is decomposed into its component parts for loan defaults, hardship withdrawals (with an attendant six month suspension in contributions) and cashouts. In each income quartile, the impact of cashouts is significantly greater than the other two components combined. For the lowest income quartile, the elimination of cashouts by themselves would be enough to boost the account balances of 20 percent of those not attaining an 80 percent real replacement rate to an amount sufficient for them to attain the threshold. In other words, Figure 7 suggests that from a policy perspective, a focus on reducing cashouts would be much more impactful than reducing loans or hardship withdrawals. It should be noted, however, that these results do not consider any potential reduction in contributions on behalf of workers who might, knowing that monies would not be available for hardship situations, decide to reduce, or even cease contributing to these plans.

**Auto-Portability System:** Although the research shown in Figure 7 is useful in quantifying the relative impact of the various leakage components, it suffers from the limitation that it, like many other retirement readiness models, assumes that a specific, threshold real-replacement-rate would apply to *all* participants. In contrast, Figure 8 provides the percentage reductions in RSS (with LTC costs taken into account) for households in various groups by age and future defined contribution plan eligibility years assuming that a full auto-portability system was established.<sup>15</sup>

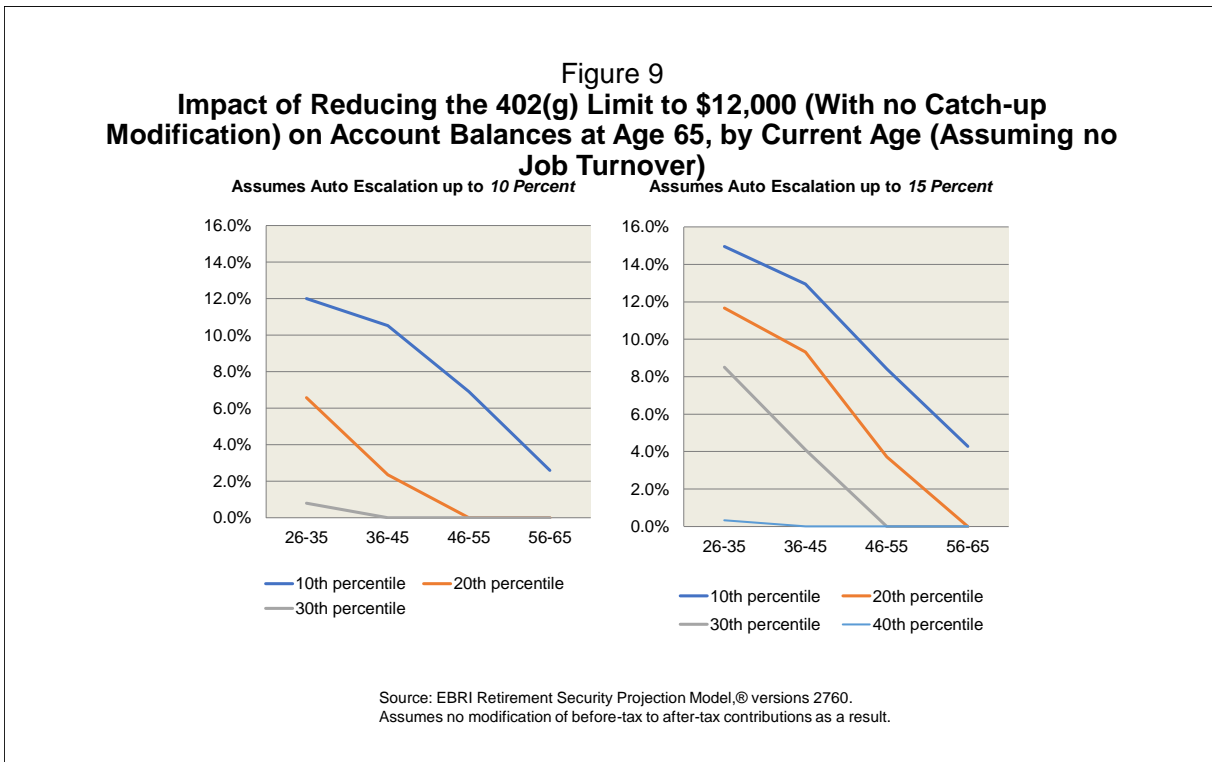
In such a system, an inactive participant’s retirement account from a former employer’s retirement plan would be automatically combined with their active account in a new employer’s plan. Similar to the analysis in Figure 6, the impact of full implementation of this concept (regardless of the level of the account balance at the time of job change) would be significantly larger for younger cohorts who would, of course, have more time to benefit from the cessation of cashouts. Focusing on participants ages 35-39, the RSS would decline by:

- 17 percent for those with 1-9 years of future eligibility in a defined contribution plan.
- 19 percent for those with 10-19 years of future eligibility.
- 23 percent for those with 20 or more years of future eligibility.



## Impact of reducing defined contribution plan limits

Proposals to reform retirement plans have often included reductions in the 402(g) and/or 415(c) limits. However, analysis of such reforms typically focus on changes in tax revenue and ignore the potential impact on participant account balances.



**Reducing the 402(g) Limit:** Figure 9 shows the impact of reducing the 402(g) limit – the amount of elective deferrals a plan participant can annually contribute to a DC plan (currently \$18,500) – to \$12,000<sup>16</sup> on simulated account balances at age 65, assuming the plan participant is automatically escalated to either a 10- or 15-percent deferral rate and that there is no job turnover. The analysis finds that for those in plans with auto escalation up to 10 percent of pay, reducing the 402(g) limit in this way decreases projected account balances by:

- At least 12 percent for 1-in-10 participants currently ages 26-35.
- At least 6.6 percent for 1-in-5 participants in that age cohort.

For participants in plans that auto escalate to 15 percent of pay, the decrease to projected account balances becomes:

- At least 15 percent for 1-in-10 participants currently ages 26-35.
- At least 11.7 percent for 1-in-5 participants in that age cohort.

As expected, the proposed modification would have a smaller impact on older age cohorts.

**Reducing the 415(c) Limit:** Figure 10 shows a similar analysis, but assumes that the 415(c) limit – the total amount that can be annually contributed to a DC plan (currently \$55,000) – is reduced to \$30,000<sup>17</sup> on simulated account balances at age 65. Again, it is further assumed that the plan participant is automatically escalated to either a 10- or 15-percent deferral rate and that there is no job turnover. The projected decrease in plan balances under this scenario for those in plans that automatically escalate deferral rates to 10 percent of pay is:

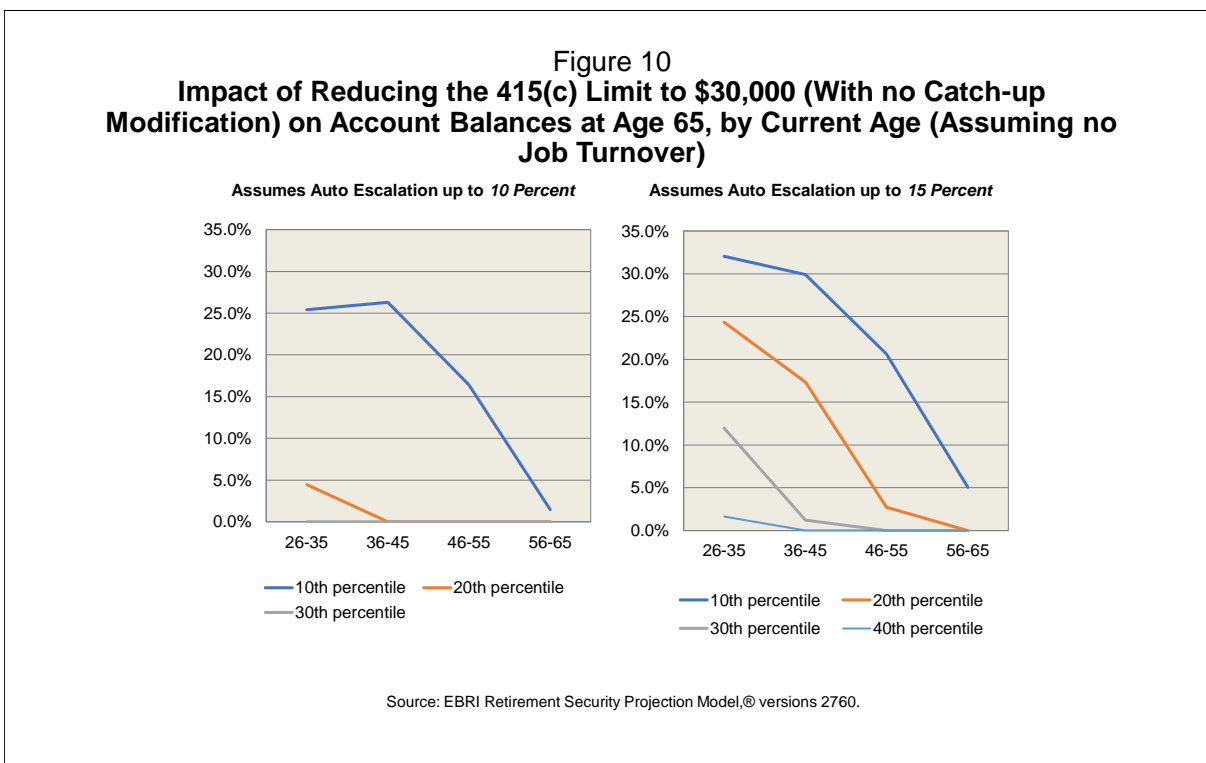
- At least 25.4 percent for 1-in-10 participants currently ages 26-35.

- At least 4.5 percent for 1-in-5 participants in this age cohort.

Assuming participants are in plans that auto escalate to 15 percent of pay instead, the decrease in account balances at age 65 becomes:

- At least 32.0 percent for 1-in-10 participants currently ages 26-35.
- At least 24.3 percent for 1-in-5 participants in this age cohort.
- At least 12 percent for those in the 30<sup>th</sup> percentile in this age cohort.

Similar to the 402(g) modifications, the proposed modification would have a smaller impact on older age cohorts.



## Summary

The purpose of this *Issue Brief* is to examine the impact of various retirement-reform proposals on all US households – both those covered by employer-sponsored retirement plans and those who are not. The Employee Benefit Research Institute (EBRI) projects a baseline estimate (assuming no change in the current retirement system) that 57.4 percent of US household headed by individuals between the ages of 35 and 64 will achieve retirement success (viz., they will *not* run short of money in retirement). If long-term care costs are suppressed/ignored this value increases to 75.5 percent.

It is important to understand that these percentages apply to all US households in that age cohort and that those with eligibility to participate in an employer-sponsored retirement plan are typically in a much better position. For example, among Gen Xers, those with no future years of eligibility to participate in a defined contribution retirement plan are simulated to have only a 48 percent probability of not running short of money in retirement. In contrast, those who have 20 or more years of future eligibility (this may include years in which employees are eligible but choose not to participate) are simulated to have a 72 percent probability of not running short of money.

This *Issue Brief* analyzes the potential impact of several proposals on the current aggregate national retirement savings shortfall of \$4.13 trillion. An automatic Individual Retirement Account (IRA) with a 3 percent employee

deferral would reduce the shortfall by \$268 billion if there were no employee optouts but only by \$202 billion if there was a 25-percent employee opt-out rate. The Automatic Retirement Plan Act of 2017 would reduce the shortfall by \$645 billion if there were no employee optouts but only by \$495 billion if there was a 25-percent employee opt-out rate. In contrast, a universal defined-contribution system would decrease the shortfall by \$802 billion if employers who do not currently sponsor a retirement plan would adopt a plan similar to those currently offered by plan sponsors with a similar number of employees (assuming empirically observed opt-out and contribution rates).

Although these proposals would have a substantial impact on younger cohorts, there would be limited relief for those on the verge of retirement. Assuming no optouts, the shortfalls for those currently ages 35-39 would be decreased by 10.6 percent under an Auto IRA and 23.4 percent under the Automatic Retirement Plan Act of 2017. Shortfalls would be decreased by 28.2 percent for this cohort under a universal defined contribution system (with empirically derived contribution and opt-out rates). However, none of these three approaches would decrease shortfalls by more than 5.3 percent for those in the cohort ages 60-64.

The three major forms of leakage in the defined contribution system (cashouts, hardship distributions, and loan defaults) were analyzed in terms of their potential impact on workers currently ages 25-29 who are simulated to have more than 30 years of eligibility to participate in a 401(k) plan. The impact of the leakage was measured using a different type of analysis by simulating the percentage of workers who would have had an 80 percent real replacement rate (when combined with Social Security and IRA rollovers) had it not been for the simulated leakage. The percentage of workers impacted by the three types of leakage combined varied from 15 percent for the highest income quartile to 27 percent for the lowest income quartile. Of course, removing these forms of leakage from the defined contribution system may produce behavioral responses (e.g., lower participation and contribution rates especially among the lower income groups) that would at least partially offset these improvements.

Of the three forms of leakage analyzed, cashouts were by far the most destructive (resulting in at least two-thirds of the total impact regardless of income quartile). A recent proposal that would help mitigate this loss would be auto-portability. We found that auto-portability would reduce retirement shortages for those currently ages 35-39 from 17 to 23 percent depending on the number of future years of eligibility to participate in a defined contribution plan.

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## Endnotes

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<sup>1</sup> A brief chronology of RSPM® is provided in Appendix A of VanDerhei (February 2015).

<sup>2</sup> VanDerhei and Copeland (July 2010).

<sup>3</sup> EBRI will be adding a new output metric to deal with this limitation: the Net Retirement Savings Surplus (NRSS) will be the difference between the present value (at retirement age) of surpluses remaining when no household members are alive for those households who do not run short of money in retirement minus the present value (at retirement age) of retirement savings shortfalls for those households who do run short of money in retirement.

<sup>4</sup> Only Gen Xers are shown in this portion of the analysis given their longer future working careers until age 65.

<sup>5</sup> VanDerhei (February 2015) provides an analysis of RSS by: age cohort, marital status, gender, years of future eligibility for participation in defined contribution plans, with and without nursing-home or home-health-care costs, relative longevity quartile, and pro-rata reductions in Social Security retirement benefits (starting in 2033).

<sup>6</sup> VanDerhei (June 2015).

<sup>7</sup> This type of arrangement was included in the 2015 version of the Obama administration's budget, proposing that employers with more than 10 employees that do not currently offer an employment-based retirement plan would be required to automatically enroll their workers in an IRA. A similar program had been introduced by Sen. Sheldon Whitehouse (D-RI), and Rep. Richard Neal (D-MA) in their proposed Automatic IRA Act earlier that year (H.R. 506 in the House, S. 245 in the Senate).

<sup>8</sup> However, Figure 9 of VanDerhei (June 2015) demonstrates the impact of increasing conditional probability of participation in a defined contribution plan to one if already in an auto-IRA.

<sup>9</sup> An opt-out rate of 50 percent would result in a deficit reduction of \$136 billion (3.3 percent) and a 75 percent opt-out rate would result in a deficit reduction of \$66 billion (1.6 percent).

<sup>10</sup> A caveat needs to be included in any type of comparison between these two proposals given that, everything else equal, the opt-out rate is likely to be larger at a 6 percent initial deferral than one at 3 percent.

<sup>11</sup> See Holden and VanDerhei (2002) for a similar analysis of voluntary enrollment plans.

<sup>12</sup> VanDerhei (June 2014). Employees are assumed to revert their level of contributions to the default rate when they participate in a new plan and opt-out of automatic escalation in accordance with the probabilities used in VanDerhei (September 2007).

<sup>13</sup> Workers are assumed to retire at age 65 and all 401(k) balances are assumed to be converted into a real annuity at an annuity purchase price of 18.62. Plans are assumed to have automatic escalation with a 1 percent of annual compensation increase and 3 percent default contribution rates. See VanDerhei (June 2014) for alternative results for thresholds of 60, 70 and 90 percent.

<sup>14</sup> The analysis assumes no participant behavior change for participation, contribution or asset allocation

<sup>15</sup> The analysis assumes no leakage from the auto-portability system.

<sup>16</sup> The catchup provisions are not modified.

<sup>17</sup> The catchup provisions are not modified.

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