



The Inefficiencies of Existing Retirement Savings Incentives

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America's middle class faces a growing retirement crisis. More than half of all working-age households are expected to be at risk of having to cut back their standard of living—often making painful adjustments—when they retire.¹ There are several reasons for the ever-larger looming crisis, but people's inability to save enough money is a key obstacle to achieving more retirement security. On average, Americans need to save between 10 percent and 20 percent of their salaries each year outside of Social Security to ensure a secure retirement.² Yet nearly one-third of working-age Americans have no retirement savings or pension,³ and less than half of all private-sector workers participated in a retirement plan at work in 2013, the last year for which data are available.⁴

The growing retirement crisis results, in part, from inefficient savings incentives embedded in the U.S. tax code. Households that need the most help saving for retirement receive the least assistance from the multitude of savings incentives. The federal government and several state governments use the tax code to encourage people to save. These savings incentives typically come in the form of tax advantages and vary by type of savings, such as individual retirement accounts, or IRAs; 401(k) plans; or Roth IRAs.

These tax incentives, however, fall short of allowing workers to secure adequate retirement savings. First, existing savings incentives can be overwhelming and incredibly complex. People need to understand which savings plans are available; how much they and their employer can contribute to the various plans; how long to keep their money in tax-advantaged savings; and how their decisions interact with current and future tax rates for personal income and capital income.

Second, savings incentives often benefit higher-income earners more than middle- and lower-income earners. Higher-income earners face higher tax rates and thus enjoy greater tax breaks from existing savings incentives; they can better take advantage of maximum contributions to multiple retirement plans because they have more income. Higher-income earners are more likely than lower-income earners to have a retirement plan through their employer—which come with more savings incentives than other retirement plans. Higher-income earners also earn a higher net of tax rate of return and

pay lower fees, so even if a high- and low-income earner save exactly the same amount of money, the higher earner will accumulate more retirement assets.⁵ All of these factors end up boosting savings the most for higher-income earners, who arguably need the least assistance to save for retirement.

Third, even as the savings incentives fail to prepare households adequately for retirement, the public loses out on increasingly large amounts of tax revenue that otherwise would have been collected without these tax breaks. Federal and state governments forgo a substantial amount of tax revenue to create incentives meant to help people save for retirement but in reality produce little additional savings. The federal government alone annually forgoes more than \$100 billion in personal income tax revenue due to retirement savings incentives.⁶ And state governments with income taxes further lose out on substantial tax revenue—about \$20 billion, according to one estimate from researchers at The New School—as they generally offer the same tax breaks on state income taxes as the federal government.⁷

To be clear, savings incentives are not a bad idea. In the United States, however, the existing tax structure has failed to adequately prepare most people for retirement. This issue brief will illustrate the link between the retirement crisis and savings incentives and further examine several key elements within this relationship:

- Existing retirement savings incentives are inefficient, as they are unnecessarily complex and skewed in favor of higher-income earners.
- These savings incentives exacerbate inequities in a system that heavily relies on employer-based retirement benefits such as 401(k) plans, as access to employer-based plans is unevenly distributed and as such plans offer greater tax advantages than non-employer plans such as IRAs.
- Lower-income earners receive less of a benefit from existing savings incentives than higher-income earners.
- With little help available from retirement savings incentives, a growing share of households is inadequately prepared for retirement.
- Inadequate retirement savings are unevenly distributed. The retirement savings shortfall is especially pronounced among lower-income households, communities of color, and single women.

This issue brief highlights the need for policymakers to address the reality of the growing retirement crisis. Amid inaction, a growing number of Americans will spend their golden years in poverty.⁸ More retirees will struggle to pay their bills, rely more and more on help from relatives and friends, and simultaneously increase demand on public

safety net programs.⁹ Tax reform could play an integral part in addressing the looming shortfall in retirement savings, largely by simplifying savings incentives and better targeting incentives to those who truly need help preparing for retirement.

Savings incentives in the tax code

Existing retirement savings incentives reduce taxable income for federal and state income tax calculations.¹⁰ Although employee and employer contributions to traditional retirement savings plans such as 401(k) plans and IRAs¹¹ are part of an employee's income, they are typically not subject to federal and state personal income taxes until money is distributed from such plans. The taxable amount of personal income is reduced overall when contributions are made to these plans, creating an incentive to save. The money in a tax-advantaged retirement savings account then accumulates without households paying personal income tax on earnings. Personal income taxes are due, however, when people eventually withdraw money from their retirement savings to spend in retirement.¹²

Households can liquidate some of their retirement savings accounts before retirement, within limits. Current rules for 401(k) plans, for instance, allow for so-called hardship withdrawals, which include medical emergencies, prevention of eviction or foreclosure, tuition payments, purchase of a primary residence, funeral expenses, and some expenses for repairs on a primary residence. However, hardship withdrawals can be taken only while still working for an employer.¹³ The employee has to pay income taxes and, typically, a 10 percent excise tax on any hardship withdrawal.¹⁴ People can also prematurely withdraw money from an IRA, as long as they pay the associated income and, often, excise taxes.¹⁵ In short, the tax code includes financial hurdles to withdrawing money from retirement accounts prematurely.

Households may alternatively access some of their retirement savings by taking out a loan from their retirement savings accounts. They could, for instance, borrow from their own 401(k) plans. There are limitations similar to those imposed on hardship withdrawals, though there are no immediate tax penalties for taking such loans. Loans from 401(k) plans are consequently more prevalent than withdrawals.¹⁶ An employee still has to work for an employer to take out a loan from his or her own 401(k) plan, however, and typically has to repay a loan within 90 days after losing a job. Otherwise, tax penalties—income taxes plus a 10 percent excise tax—apply.¹⁷

Limited access to retirement savings prior to retirement is a mixed blessing. Having some access to savings prior to retirement may increase savings for some people, since it increases flexibility. At the same time, however, studies have shown that preretirement withdrawals can lead to retirement savings depletion.¹⁸

Complexity of existing incentives slows savings

Retirement savings incentives are often complex and confusing to the extent that even households who would like to take advantage of them may be deterred from doing so. Retirement savings incentives alone form a complex web of different options and varying incentives that is difficult for most households to navigate.¹⁹ To maximize all available retirement savings incentives, for instance, people need to have extensive knowledge of the separate tax treatments of varying retirement savings plans. To receive the maximum tax benefits, people ideally must determine:

- Whether their employer offers a retirement benefit at work such as a 401(k) plan or a defined benefit, or DB, pension and whether and how much money they and their employer can contribute to such plans
- How much money they will need to save for things other than retirement—such as emergencies, health care, and their children’s education—to avoid prematurely withdrawing money from retirement savings accounts and facing tax penalties
- Which retirement savings outside the employer-based system are available to them, such as IRAs
- How to compare their marginal tax rates in the current tax year with the estimated tax rates for the rest of their careers and in retirement to determine which savings options are more advantageous from a tax perspective
- How they want to spend their savings in retirement to get the maximum tax benefits from savings incentives—for instance, how much money they want to withdraw regularly and how much money they would like to leave to their children

Giving households some choice of savings options is not in and of itself a flaw of savings incentives. Behavioral economics, however, has shown that overwhelming consumers with excessive choices is effectively the same as providing no choice at all. Multiple studies show that too many choices in key decisions can overwhelm and frustrate consumers, resulting in consumers relying on heuristics—educated guesses—when making complex choices²⁰ or making no choice at all.²¹ People may even abstain from choosing anything out of a fear of making a choice that could end up damaging the financial well-being of the household, such as limiting access to savings in an emergency.²² Many people are simply unaware of or misunderstand the complicated tax rules under which they could access their retirement savings before retirement.

Existing savings incentives skew toward higher-income earners

Retirement savings incentives offer less assistance to lower-income households than to higher-income ones. As a result, households that presumably need more help to save for retirement get less support from the tax code than those households that are already able to adequately prepare for retirement.

The link between income and the value of retirement savings incentives is complex. This section discusses some of these complexities and provides some illustrative calculations to show how existing savings incentives are skewed toward higher-income earners.

Consider the mechanism used to encourage contributions to a retirement savings account. Households deduct their retirement savings contributions from their current taxable income, thus reducing the amount of income subject to taxation. The federal tax code is progressive: Higher-income earners pay higher marginal taxes—the taxes due on their last dollar earned—than lower-income earners. Because higher-income earners face higher marginal income taxes than lower-income earners, they have a stronger incentive than lower-income earners to reduce their taxable income with a tax deduction.²³

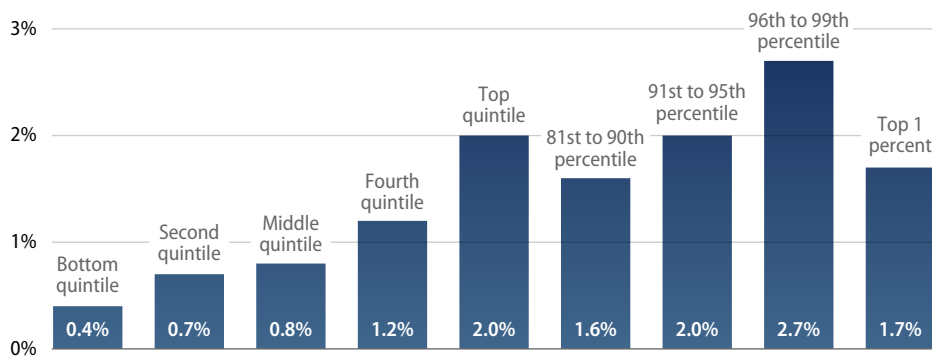
The highest tax bracket—for those annually making more than \$406,750 individually or \$457,600 jointly in 2014—is 39.6 percent.²⁴ Earners in this tax bracket would lower what they owe on their federal income taxes by 39.6 cents for each dollar contributed to an eligible 401(k) or IRA. Lower-income earners, by comparison, may face a marginal tax rate of 10 percent and thus save only 10 cents in current-year income taxes for each dollar they contribute to a retirement savings account. Moreover, people do not pay personal income taxes on earnings in their savings until the money is withdrawn. Higher-income earners again benefit more from this tax advantage than lower-income earners because they face higher marginal tax rates, so they save more money before they withdraw their savings.

Existing savings incentives disproportionately favor higher-income earners. Figure 1 illustrates the unequal distribution of tax incentives. It shows the estimated amount of net pension contributions and earnings on retirement accounts as a share of after-tax income, by income percentile in 2013. The data show that the contemporaneous tax benefit as a share of income increases as incomes increase.

Higher-income earners benefit significantly more from these savings incentives than lower-income earners, relative to their incomes. Households in the top fifth of the income distribution, on average, receive savings incentives equal to an estimated 3.1 percent of their income, almost twice as much as the 1.8 percent for households in the second-highest fifth of the income distribution.²⁵ Meanwhile, households in the lowest fifth of the income distribution receive only a fraction of those benefits, with an average of 0.4 percent of average tax income.

FIGURE 1
Net pension contributions and earnings as a share of after-tax income

By income percentile in 2013



Source: Congressional Budget Office, "The Distribution of Major Tax Expenditures in the Individual Tax System" (2013), table 2, available at http://www.cbo.gov/sites/default/files/43768_DistributionTaxExpenditures.pdf. All figures are in percent of income.

The picture gets less straightforward when looking at a household's entire financial life span—from saving and investing to ultimately withdrawing their money. Accounting for some real-life aspects of retirement savings shows that higher-income earners may benefit even more from these savings incentives than suggested by a simple comparison of marginal tax rates at the time of contributions to retirement plans.

Let's start with the basic tax complication. Households are supposed to pay taxes in the future, when they withdraw their savings. Because households are supposed to but often do not—for instance, because they experience a decline in marginal tax rates when they retire—eventually pay taxes on the money in their retirement savings, tax experts refer to these savings incentives as tax deferrals, rather than tax breaks or tax shelters.²⁶ But even after accounting for the fact that people eventually could pay taxes on their savings, high-income earners still benefit more from tax incentives than lower-income ones, as the simulations below show.

The logic of the tax deferral argument goes as follows: Because the tax code treats withdrawals as personal income, tax payments upon withdrawal will vary with personal income tax rates in the same way that the initial tax benefits varied with income. Higher-income earners will pay higher income taxes in the future than lower-income earners when they withdraw their funds because the tax code is progressive, with higher marginal tax rates for higher incomes than for lower incomes. Future tax payments upon withdrawal will partially offset the initial tax benefits. Due to the progressiveness of personal income taxes, the offsetting effect upon withdrawal is larger for higher-income earners than for lower-income earners. High-income earners, therefore, receive larger tax benefits upfront but also pay higher taxes in the future.

This is not to say that there are no tax benefits and tax revenue lost when both initial tax benefits and future tax payments are counted. Additionally, the net tax benefits—tax benefits minus tax payments—are typically much larger for higher-income earners than for lower-income ones, as the calculations below illustrate. The main benefit is that households can generate investment earnings on a larger investment than would be the case without initial tax incentives. Households benefit from the power of compounded interest on a larger initial investment by deferring taxes. Higher-income earners still get more value from this tax-free compounded interest effect. Compared with lower-income earners, they get to keep and invest more money that otherwise would have gone to the government.

Real-world circumstances magnify tax benefits for higher-income earners

Higher-income earners can also benefit from tax deferral due to important real-life aspects of saving for retirement. These circumstances exacerbate the inequalities already inherent to the existing savings incentives.²⁷

More opportunities to save

The tax benefits are greater if households have more opportunities to save on a tax-advantaged basis. Having such an opportunity often depends on whether one has access to a retirement plan—such as a 401(k) plan—at work, since such plans allow for more annual contributions than nonemployer-based retirement savings plans such as IRAs. Higher-income earners are more likely to have access to an employer-sponsored retirement savings plan than lower-income earners.²⁸ Higher-income earners are also more likely to take advantage of additional retirement savings plans, such as IRAs, due to additional sources of income, including self-employment.²⁹

Greater potential for decline in marginal tax rates

A household's marginal tax rates can decline for two reasons: (1) when people retire because their income decreases; and (2) because older households are able to enjoy additional tax breaks not available to younger households.³⁰ Lower future marginal tax rates mean lower future tax payments, thereby generating fewer offsets to balance out the initial tax benefits and greater overall tax benefits over one's lifetime. Households with high incomes will have high marginal tax rates when they contribute to their savings accounts and during their careers when they invest their savings. Importantly, though, higher initial marginal tax rates set for higher-income earners have more room to fall than lower initial marginal tax rates set for lower-income earners. Due to the increased potential for changes in income level, and therefore, in marginal tax rate, higher-income earners may have a larger tax benefit over time than lower-income households.

Earlier opportunities for saving

Third, the benefit from tax deferrals in retirement savings accounts depends to some degree on tax-free compounding of interest—earnings on investments built up over time without being subject to taxation. The longer interest compounds, the larger the net benefit to the household. Higher-income earners may start to save earlier and withdraw savings later in life than would be the case for lower-income households,³¹ simply because they have more income and hence more flexibility to save for both retirement and other goals, such as emergencies, a down payment on a home, and children's education.

Tax-advantaged inheritance

Lastly, the net tax benefits—tax benefits minus tax payments—from saving in a tax-advantaged retirement account increase when not all money is withdrawn from a retirement savings account and then passed on to heirs.³² Higher-income households are more likely than lower-income households to leave money for their heirs in their IRAs.³³

Illustrating the workings of existing savings incentives

A few simplified calculations for a range of hypothetical households with different income levels, accounting for these real-life circumstances, illustrate the link between the benefits of savings incentives and income distribution. The calculations here focus on two types of retirement savings plans: an IRA and a 401(k) plan.

Assumptions and metrics

To make the calculations manageable, a few assumptions are necessary. First, as the baseline scenario, a household contributes \$5,500 annually to an IRA—the maximum allowable amount in 2015.³⁴ The hypothetical households invest this contribution for 25 years before withdrawing all of the contributions and the returns earned on them and paying personal income taxes on these withdrawals.³⁵ The simulations eventually vary the investment time horizon.

Second, the value of the tax incentives depends on a household's marginal tax rates at three different points in time. These include the household's marginal tax rate when it makes the contribution. This constitutes a tax benefit because the contribution is not subject to federal income taxes. The value of the tax incentive also includes the marginal tax rate during the investment period as another tax benefit, since the income earned on the investments is not taxed during that time. Finally, because withdrawals are subject to

income tax, it includes the marginal tax rate when the money is withdrawn as an offsetting tax burden, since all three marginal tax rates—at contribution, during investment, and upon withdrawal—are set equal to 25 percent at the beginning. The calculations later change some of these marginal rates in the simulations.

Third, the value of the tax incentives depends to some degree on the rate of return that the household can earn on its contributions. Here it is assumed that the household can earn a nominal rate of return of 6 percent on average for the 25 years during which the money is invested. This assumption is made across all of the following simulations.

The calculations below use two separate measures to make the calculations somewhat intuitive while allowing comparisons between households with different characteristics. The first measure, in nominal dollars, shows the total dollars in tax benefits that a household receives from contributing to a retirement savings account on a tax-advantaged basis. Nominal dollars are the amount of money invested in a retirement savings account—on which the interest earned is untaxed—minus the taxes that are due at the end of the 25-year period when all money is withdrawn.³⁶

The second measure is something called the net present value of the deferral benefit.³⁷ This measure allows for a proper comparison between households with different marginal tax rates at separate points in time and varying investment horizons, so that the investment horizon is no longer constant at 25 years. The net present value calculation adds the tax benefits of deducting the tax contribution from income taxes and the tax benefits from not paying federal income taxes on the contributions during the investment period and then subtracts the income taxes paid on the withdrawal when the entire contributions—plus the accumulated rates of return—are withdrawn. It adjusts each tax benefit and tax burden by a process called discounting, which makes future benefits and payments comparable to today's tax benefits. All amounts are then comparable to each other, regardless of how short or how long the time periods during which taxes have been deferred.

These adjusted amounts of tax benefits and tax burdens are the amounts that the household would have to set aside—or, in the case of tax burdens, receive—today that would amount, together with the expected interest rate—the discount rate—to the future dollar amounts calculated as nominal tax benefits and tax burdens. The calculations here assume that the discount rate is equal to 6 percent.³⁸ The sum of the two adjusted tax benefits, minus the future tax burden, shows the total value of deferring taxes into the future.

Simulation results

Table 1 shows some of these key assumptions and then presents the simulation results. The first panel in Table 1 shows the nominal values, and the second panel shows the net present values under a range of scenarios.

The nominal value calculations in Table 1 show that the tax benefit of deferral increases with marginal tax rates. The first three examples assume that the household maxes out on their contributions to an IRA. A low-income earner with a marginal tax rate of 10 percent receives a tax benefit of \$2,810 over 25 years, not accounting for the discount rate, for saving \$5,500 in 2015. A middle-income earner with a tax rate of 25 percent, meanwhile, receives a net tax benefit of \$5,306, or almost twice as much as a low-income earner. A high-income earner with a marginal tax rate of 39.6 percent receives a benefit of \$6,168, or 119 percent more than the low-income household.

The nominal value calculations in Table 1 further show that high-income earners can receive multiple times the benefit that low-income earners receive because they often have more opportunities to save in tax-advantaged retirement accounts and because their marginal tax rates have more room to fall as they retire. Both larger contribution amounts and declining marginal tax rates increase the net tax benefits of deferring tax payments into the future for high-income earners. A high-income earning household deferring \$18,000 in 2015—the maximum employee contribution to a 401(k) plan³⁹—and who initially has a marginal tax rate of 39.6 percent that falls to 25 percent in retirement can receive a tax benefit of \$21,132 on an initial deferral. Such a high-income household will receive seven and a half times the tax benefit that a low-income household will receive.

It bears repeating that high-income earners receive this additional benefit not just because they can save more due to higher incomes but also because they have more opportunities to receive tax benefits based on increased access to employer-sponsored retirement plans and a higher chance of lower marginal tax rates in the future.

The bottom panel of calculations in Table 1 shows the net present value numbers for the same scenarios, in addition to one more simulation that assumes a longer investment period of 35 years instead of 25 years. As in the first panel, the tax benefit increases with income because of greater tax benefits to deferring each dollar. These benefits are due to more tax-advantaged opportunities to save money for retirement, as well as the possibility of declining marginal tax rates. The additional calculation also shows that investing for an additional decade further increases the tax benefits. A high-income earner with a marginal tax rate investing for 35 years receives a benefit of \$1,819 instead of \$1,437 after 25 years—an increase of 26.5 percent. This additional benefit is due to compounding interest over time; higher-income households generally have more time to invest because they are more likely to have additional savings to cover other expenses.

TABLE 1

Simulated net tax benefits of tax deferral under varying assumptions

	Tax rate at deferral	Tax rate at withdrawal	Deferral benefit per every \$1 invested; net present value calculation only	Total tax deferral benefit	Ratio of total benefit to baseline benefit; net present value calculation only
Nominal dollars					
Baseline scenario: \$5,500 deferred	25.0%	25.0%	N/A	\$5,306	N/A
Low-income earner: \$5,500 deferred	10.0%	10.0%	N/A	\$2,811	N/A
High-income earner: \$5,500 deferred	39.6%	39.6%	N/A	\$6,168	N/A
High-income earner: \$18,000 deferred	39.6%	39.6%	N/A	\$20,187	N/A
High-income earner: \$18,000 deferred, marginal tax rate declines	39.6%	25.0%	N/A	\$21,132	N/A
Net present value dollars					
Baseline scenario: \$5,500 deferred	25.0%	25.0%	22.5%	\$1,236	N/A
Low-income earner: \$5,500 deferred	10.0%	10.0%	11.9%	\$655	53.0%
High-income earner: \$5,500 deferred	39.6%	39.6%	26.1%	\$1,437	116.2%
High-income earner: \$18,000 deferred	39.6%	39.6%	26.1%	\$4,704	380.4%
High-income earner: \$5,500 deferred, marginal tax rate declines	39.6%	25.0%	40.7%	\$2,240	181.2%
High-income earner: \$5,500 deferred, 35-year deferral period	39.6%	39.6%	33.1%	\$1,819	147.2%

Notes: Benefits from tax deferral are calculated as net present value. The discount rate is equal to the government interest rate, which is set equal to 6 percent nominally. All tax rates are marginal tax rates. The deferral period is 25 years, unless otherwise stated. "N/A" stands for not applicable.

Source: Author's calculations based on Peter Brady, "The Tax Benefits and Revenue Costs of Tax Deferral" (Washington: Investment Company Institute, 2012), available at https://www.ici.org/pdf/ppr_12_tax_benefits.pdf.

The lessons from these simulations are clear. First, households must navigate a complicated system of rules to maximize their tax benefits. They need to understand which savings plans they have available, how much they can contribute, how long to keep their money in a tax-advantaged asset, and how their decisions interact with current and future tax rates for personal income and capital income. Second, higher-income earners can benefit much more from savings incentives because they are more likely to have access to retirement savings plans, since they are more likely to work for employers that offer retirement savings plans and more likely to have multiple streams of income. Higher-income earners also pay higher tax rates and often wait longer before withdrawing their money.⁴⁰

Current savings incentives are ineffective and inefficient

It would be one thing if incentives benefited high-income earners the most but succeeded in reducing retirement insecurity overall. Unfortunately, that has not been the case. The overwhelming evidence suggests that a substantial share of households is

already inadequately prepared for retirement, even though the federal government is forgoing increasing amounts of tax revenue to incentivize households to save for retirement. Without substantial reform, an ever-larger share of American households will be inadequately prepared and will not be able to pay for its living standard in retirement.

Increasing numbers of Americans are not prepared for retirement

Researchers interested in understanding whether households are on track to save enough money for retirement ultimately want to link individual savings in the present to the income that people will need in the future. Economists often use an approach that attempts to measure whether people will have the resources to sustain their quality of life postretirement. This retirement income adequacy approach defines adequacy as a minimum retirement income relative to people's preretirement earnings.⁴¹

A household is considered adequately prepared for retirement if its expected retirement income is greater than a minimum share, such as 75 percent of its earnings before retirement.⁴² This ratio of retirement income to preretirement earnings is also known as the replacement rate. It measures the share of preretirement earnings a household can replace with the income it can expect to receive from Social Security; defined benefit pensions; and private savings. In estimates that use 75 percent as a threshold, people are considered adequately prepared for retirement if their expected income during retirement is projected to be at least 75 percent as large as their income before retiring.

The evidence on retirement income adequacy generally shows that a large share of households—especially among communities of color, single women, and households with less education—is ill prepared to maintain its standard of living in retirement. And the share has grown over long periods of time, according to most studies that provide longer views.⁴³ One such measure is the Center for Retirement Research at Boston College's National Retirement Risk Index, or NRRRI.⁴⁴ The NRRRI measures the share of working-age households that has not yet reached the full retirement age and that is at risk of being unable to maintain its standard of living in retirement based on expected income from Social Security, DB pensions, and individual savings, including money in 401(k) plans, IRAs, and housing. The NRRRI estimates that 52 percent of working-age households were at risk of not being able to maintain their standards of living in retirement in 2013, up from 31 percent in 1983. That is, the share of households inadequately prepared for retirement is large and increasing.⁴⁵

Importantly, the NRRRI shows shortfalls in retirement savings less severe than those recorded by other researchers. For instance, a report by the National Institute on Retirement Security, or NIRS, finds that 65 percent of households fell short of their savings targets in 2010 using savings levels recommended by the financial service industry

and the same data as the NRRI.⁴⁶ The NRRI, by contrast, found that in 2010, only 53 percent of working-age households were at risk of not being able to maintain their standard of living in retirement.⁴⁷

Even studies that have identified a lower share of households than the NRRI as being inadequately prepared for retirement have found evidence of increasing retirement income inadequacy. A widely cited—and comparatively optimistic—assessment of retirement income adequacy by researchers at the University of Wisconsin in 2006 found that those born between 1931 and 1941—based on data from the University of Michigan’s Health and Retirement Study—had only a 16 percent chance of falling below their optimal savings target.⁴⁸ An update of this research in a working paper in 2009—before the full effect of the Great Recession was felt—found that 26 percent of households were inadequately prepared for retirement.⁴⁹ Studies that break down data by age, meanwhile, find that younger generations are worse prepared for retirement than older cohorts.⁵⁰

Estimates for the share of households inadequately prepared for retirement also vary with household characteristics. The respective shares tend to be greater among communities of color, single women, and those with less education than among white households, single men, and households with more education. In his research on wealth inequality, New York University Professor Edward Wolff offers breakdowns for households between the ages of 47 and 64 years.⁵¹ Wolff’s research shows that 51 percent of households between these ages in 2010 were unable to replace 75 percent of their preretirement income in retirement.⁵² The relevant share for non-Hispanic whites is 45 percent, compared with 60 percent for African Americans and Hispanics combined.

Based on 2010 data, 59 percent of single women can expect to have to cut back on their living expenses once they retire, compared with only 51 percent of single men. Finally, households with less than 12 years of schooling—those without a high school diploma or GED—have an estimated 61 percent chance of falling short of maintaining their standards of living in retirement, while only 43 percent of households with 16 years or more of schooling—those with at least a college degree—may have to cut back on consumption in retirement.⁵³

[The federal government sacrifices billions of dollars in revenue for the benefit of higher-income earners](#)

Existing savings incentives contribute to a pronounced imbalance in who benefits from them and who does not, while costing the public billions of dollars. In 2013 alone, the federal government forwent about \$137 billion in tax revenue from tax breaks for retirement savings—money that the federal government would have collected had it not been for the special tax treatments of retirement benefits. Moreover,

only 7 percent of this forgone revenue went to the bottom 40 percent of earners, while 66 percent accrued to the top 20 percent of earners. Of this 66 percent, close to three-quarters of the tax incentive went to the top 10 percent of earners.^{54*} Importantly, this unequal distribution of tax incentives is a snapshot of only one year's tax benefits offered to households for saving for retirement.

Despite the unequal benefits accorded to high earners through the existing, unequal incentives, there does not appear to be much of an offsetting macroeconomic effect in the form of increased personal savings. Research shows that higher-income earners, on average, largely replace nontax-advantaged savings with tax-advantaged savings. This means that higher-income earners would save similar amounts absent the savings incentives.⁵⁵ The federal government spent as much as \$92 billion in fiscal year 2013 on retirement savings incentives for the top quintile of earners alone, without actually increasing personal savings beyond where savings would have been already.⁵⁶ The existing tax-advantaged retirement savings are valuable tax breaks, especially for higher-income earners, but they do little to advance retirement income security for many lower-income households.

Conclusion

The need to save for retirement outside Social Security has increased over time. Social Security's retirement age is increasing, defined benefit pensions have declined, and labor and financial markets have become riskier. Households need to save more money to protect themselves from these risks.⁵⁷ The tax code offers a number of savings incentives to help people save more for retirement, but these incentives are complex and skewed toward higher-income earners.

These incentives are ultimately inefficient. The federal government and several state governments lose substantial amounts of tax revenue without stemming the tide of rising retirement income insecurity. The resulting economic insecurity as people age is expected to be severe among lower-income households, single women, and communities of color. Addressing the shortcomings of existing savings incentives in the tax code would be a welcome step toward middle-class retirement income security.

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*** Correction, August 9, 2016:** *This issue brief has been updated to reflect that the authors looked specifically at the retirement incentives included in the referenced data.*

Appendix

The calculation of the nominal—not inflation adjusted and not adjusted for the time value of money—tax benefit follows work by Peter Brady of the Investment Company Institute, as well as other researchers’ development of it:⁵⁸

$$\text{Equation 1: } B_D^{\text{nominal}} = (1 + r_c)^T (1 - t_0^T) - (1 - t_0^0) (1 + r_c (1 - t_0^d))^T$$

The variable “ B_D^{nominal} ” refers to the net nominal tax benefit for each dollar on which tax payment is deferred into the future. The other relevant variables in this equation are defined as follows:

t_0^0 : the marginal income tax rate when the initial contribution is made

t_0^d : the marginal income tax rate during the deferral period, when the money is invested

t_0^T : the marginal income tax rate when money is withdrawn

r_c : the rate of return earned on the investments during the deferral period

T : the length of time of deferral

The equation is the difference between the after-tax distribution after “ T ” periods from a tax-advantaged retirement savings account minus the after-tax distribution from a taxable account. The difference between the money received from a tax-advantaged account and a taxable account logically has to be the net tax benefit in nominal dollars.

The calculation of the net present value of the net tax benefit of tax deferral is also taken from Brady’s work, as well as other researchers’ development of it:⁵⁹

$$\text{Equation 2: } R_D^{\text{PV}} = t_0^0 + \sum_{n=1}^T \frac{t_0^d r_c [(1 - t_0^0)(1 + r_c (1 - t_0^d))^{n-1}]}{(1 + r_g)^n} - \frac{t_0^T (1 + r_c)^T}{(1 + r_g)^T}$$

Equation 2 calculates the net present value of a dollar that has been deferred from paying taxes, “ R_D^{PV} .” And “ r_g ” denotes the government interest rate, which is equal to the discount rate. All other variables are defined as above.

Equation 2 has three separate parts on the right-hand side. The first, “ t_0^0 ” is the tax benefit from deducting the initial contribution from taxable income in the first year. The second part, after the summation sign, shows the tax benefits from earning tax-free compounded interest on the investment over the deferral period, “ T .” And the third part after the minus sign shows the tax burden that the household has to pay when withdrawing money from the tax-advantaged asset.

Endnotes

- 1 For the next 20 years, 10,000 Americans will turn 65 years old every day, according to the Bureau of the Census. By 2025, the number of Americans in their adult prime, ages 34 to 55, will increase by only 3.6 million, while the number of people ages 65 to 74 will increase by more than 10 million. Those turning 65 in the next few decades face a higher risk of downward mobility than any cohort since the end of World War II, when Social Security, Old Age Assistance, employer pensions, and the economy were expanding. Of the 18 million workers ages 55 to 64 in 2015, 1.7 million live on incomes defined as poor or near poor. This means that 1.7 million people—who are working—live on less than \$11 per day for food and \$500 per month for rent. When this cohort retires at age 65, the number of poor or near poor will increase to 4.3 million due to no or diminished retirement assets, increased Medicare premiums, and their sole reliance on Social Security. Without action to address this crisis, the number of 65-year-olds per year who are poor or near poor will increase by 146 percent between 2013 and 2022. What goes unmeasured is the as-of-yet unspoken financial burden that the increasing number of poor and near-poor elderly will place on taxpayers and municipal budgets. See Teresa Ghilarducci and Zachary Knauss, “More Middle Class Workers Will Be Poor Retirees” (New York: Schwartz Center for Economic Policy Analysis, 2015), available at http://www.economicpolicyresearch.org/images/docs/retirement_security_background/Downward_Mobility.pdf.
- 2 Alicia H. Munnell, Anthony Webb, and Wenliang Hou, “How Much Should People Save?” (Boston: Center for Retirement Research at Boston College, 2014), available at <http://crr.bc.edu/briefs/how-much-should-people-save/>.
- 3 Keith Miller, David Madland, and Christian E. Weller, “The Reality of the Retirement Crisis” (Washington: Center for American Progress, 2015), available at <https://www.americanprogress.org/issues/economy/report/2015/01/26/105394/the-reality-of-the-retirement-crisis/>.
- 4 Craig Copeland, “Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2013” (Washington: Employee Benefit Research Institute, 2014), available at http://www.ebri.org/pdf/briefspdf/EBRI_IB_405_Oct14.RetPart.pdf.
- 5 Teresa Ghilarducci and Adam Hayes, “401(K) Tax Policy Creates Inequality” (New York: Schwartz Center for Economic Policy Analysis, 2015), available at http://www.economicpolicyresearch.org/images/docs/research/retirement_security/Hayes_Ghilarducci_Policy_Note_1.9.15_FINAL.pdf.
- 6 See Congressional Budget Office, “The Distribution of Major Tax Expenditures in the Individual Tax System” (2013), available at <https://www.cbo.gov/publication/43768>. See Figure 5 in this source for supplemental data.
- 7 Teresa Ghilarducci and others, “Retirement Savings Tax Expenditures: The Need for Refundable Tax Credits” (New York: Schwartz Center for Economic Policy Analysis and Department of Economics, The New School for Social Research, 2015), available at http://www.economicpolicyresearch.org/images/docs/retirement_security/Retirement_Savings_Tax_Expenditures.pdf.
- 8 Ghilarducci and Knauss, “More Middle Class Workers will be Poor Retirees.”
- 9 See Christian E. Weller and David Madland, “Keep Calm and Muddle Through” (Washington: Center for American Progress, 2014), available at <https://www.americanprogress.org/issues/economy/report/2014/08/06/95222/keep-calm-and-muddle-through/>.
- 10 Not all states have personal income taxes. Those that do, though, often follow the lead of the federal government and do not subject contributions to tax-advantaged retirement savings accounts to state income taxes if they are not subject to federal income taxation. For a more detailed discussion of the link between federal and state income tax treatment of tax-advantaged savings, see Ghilarducci and others, “Retirement Savings Tax Expenditures: The Need for Refundable Tax Credits.”
- 11 This applies only to non-Roth type plans. Roth-type retirement savings plans require people to pay taxes before they contribute, but earnings on their savings and withdrawals from such savings plans are tax free. See Internal Revenue Service, “Publication 590-A: Contributions to Individual Retirement Arrangements (IRAs)” (2014), available at <https://www.irs.gov/publications/p590a/>.
- 12 Roth IRAs and Roth 401(k)s receive a different tax advantage. Contributions to these types of retirement savings plans occur after a taxpayer has paid income taxes, but investment gains and withdrawals from these savings accounts are tax free. See *ibid.*
- 13 For details on potential exceptions to this excise tax, see Internal Revenue Service, “Topic 558 - Additional Tax on Early Distributions from Retirement Plans Other Than IRAs,” available at <http://www.irs.gov/taxtopics/tc558.html> (last accessed October 2015).
- 14 *Ibid.*
- 15 Internal Revenue Service, “Retirement Plans FAQs regarding Hardship Distributions: Are hardship distributions allowed from an IRA?”, available at <http://www.irs.gov/Retirement-Plans/Retirement-Plans-FAQs-regarding-Hardship-Distributions#7> (last accessed October 2015).
- 16 On pension loans, see Christian E. Weller and Jeffrey Wenger, “Easy Money or Hard Times? Health and 401(k) Loans,” *Contemporary Economic Policy* 30 (1) (2012): 29–42. On withdrawals, see Robert Argento, Victoria Bryant, and John Sabelhaus, “Early Withdrawals from Retirement Accounts During the Great Recession.” Working Paper 2013-2 (Federal Reserve Board Divisions of Research and Statistics and Monetary Affairs, 2013).
- 17 See, for instance, Weller and Wenger, “Easy Money or Hard Times?”
- 18 Alicia H. Munnell and Anthony Webb, “The Impact of Leakages on 401(K)/IRA Assets” (Chestnut Hill, MA: Center for Retirement Research, 2015), available at http://crr.bc.edu/wp-content/uploads/2015/01/IB_15-2.pdf.
- 19 Pamela Perun and C. Eugene Steuerle, “Reality Testing for Pension Reform.” Working Paper 2004-10 (Pension Research Council, 2004).
- 20 Shlomo Benartzi and Richard H. Thaler, “Heuristics and Biases in Retirement Savings Behavior,” *Journal of Economic Perspectives* 21 (3) (2007): 81–104, available at <http://wolfweb.unr.edu/homepage/pingle/Teaching/BADM%20791/Week%209%20Behavioral%20Microeconomics/Benartzi-Thaler%20Biased%20Savings%20Behavior.pdf>.
- 21 Gary R. Mottola and Stephen P. Utkus, “Can There Be Too Much Choice in a Retirement Savings Plan?” (Valley Forge PA: Vanguard Center for Retirement Research, 2006), available at http://www.403bwise.com/pdf/vcrr_choice_study.pdf.
- 22 Sheena Sethi-Iyengar and others, “How Much Choice is Too Much? Contributions to 401(k) Retirement Plans.” In Olivia S. Mitchell and Stephen P. Utkus, eds., *Pension Design and Structure: New Lessons from Behavioral Finance* (New York: Oxford University Press, 2004); Ilona Babenko and Rik Sen, “Money Left on the Table: An Analysis of Participation in Employee Stock Purchase Plans,” *Review of Financial Studies* 27 (12) (2014): 3658–3698.
- 23 See Teresa Ghilarducci, *When I’m Sixty-Four: The Plot Against Pensions and the Plan to Save Them* (Princeton, NJ: Princeton University Press, 2008).
- 24 Internal Revenue Service, “1040 Tax Tables 2014” (2014), available at <http://www.irs.gov/pub/irs-pdf/i1040tt.pdf>.

- 25 The value of these savings incentives as a share of after-tax income drops for the top 1 percent to 2.6 percent. This relative decline at the very top of the income distribution reflects very high incomes and some limits on savings incentives. Counting all itemized deductions, the top earners still receive a larger share of income than lower-income earners. See, for instance, Tax Policy Center, “2013 Table T13-0099 Tax Benefit of All Itemized Deductions; Distribution of Federal Tax Change by Cash Income Percentile, 2015,” March 1, 2013, available at <http://www.taxpolicycenter.org/numbers/displayatab.cfm?DocID=3857>.
- 26 For some illustrative examples and a review of other relevant research, see, for instance, Peter Brady, “The Tax Benefits and Revenue Costs of Tax Deferral” (Washington: Investment Company Institute, 2012), available at https://www.ici.org/pdf/ppr_12_tax_benefits.pdf.
- 27 This discussion includes only some of the most important real-life aspects but leaves out additional ones such as the interaction between federal and state income taxes, differential taxes on varying forms of withdrawals such as annuities and self-managed withdrawals.
- 28 Copeland, “Employment-Based Retirement Plan Participation.”
- 29 Christian Weller, *Retirement on the Rocks: Why Americans Can't Get Ahead and How New Savings Policies Can Help* (New York: Palgrave Macmillan, forthcoming). Higher-income households typically receive more diverse income streams—wages in addition to self-employment income—than is the case for lower-income households. See Christian E. Weller and Jeffrey B. Wenger, “Income Diversification as Insurance in an Increasingly Risky World: Identifying Policy Goals.” In Christian E. Weller, ed., *Inequality, Uncertainty and Opportunity: The Varied and Growing Role of Finance in Labor Relations* (Ithaca, NY: ILR Press, 2015).
- 30 Internal Revenue Service, “Publication 501: Exemptions, Standard Deduction, and Filing Information” (2014), available at <http://www.irs.gov/publications/p501/>. Those ages 65 and older are able to take a higher standard deduction—specifically, \$1,550 more individually and up to \$2,400 more jointly.
- 31 Gary R. Mottola, “The Financial Capability of Young Adults—A Generational View” (Washington: FIRNA Investor Education Foundation, 2014), available at <http://www.usfinancialcapability.org/downloads/FinancialCapabilityofYoungAdults.pdf>; Karen Smith, Mauricio Soto, and Rudolph G. Penner, “How Seniors Change Their Asset Holdings During Retirement” (Washington: Urban Institute, 2009), available at <http://www.nber.org/2009rrc/3.1%20Smith,%20Soto,%20Penner.pdf>; James M. Poterba, Steven F. Venti, and David A. Wise, “401(k) Plans and Future Patterns of Retirement Saving,” *The American Economic Review* 88 (2) (1998): 179–184.
- 32 Stewart E. Sterk and Melanie B. Leslie, “Accidental Inheritance: Retirement Accounts and the Hidden Law of Succession,” *New York University Law Review* 89 (2014): 165–237, available at <http://www.nyulawreview.org/sites/default/files/pdf/NYULawReview-89-1-Sterk-Leslie.pdf>. The tax code tries to counter this possibility by requiring that households withdraw a minimum share of their savings in IRAs—for instance, no later than the year after they turn 70.5 years old. See Internal Revenue Service, “Retirement Topic - Required Minimum Distributions (RMDs),” available at <http://www.irs.gov/Retirement-Plans/Plan-Participant,-Employee/Retirement-Topics-Required-Minimum-Distributions-%28RMDs%29> (last accessed October 2015).
- 33 Higher-income households tend to have more assets held in retirement accounts than lower-income households and to experience a lower rate of decumulation from these accounts, starting at a later age. See, for example, Smith, Soto, and Penner, “How Seniors Change Their Asset Holdings During Retirement.” See also Congressional Budget Office, “Will the Demand for Assets Fall When Baby Boomers Retire?” (2009), available at http://www.cbo.gov/sites/default/files/09-08_baby-boomers.pdf.
- 34 Internal Revenue Service, “Retirement Topics - IRA Contribution Limits,” available at <https://www.irs.gov/Retirement-Plans/Plan-Participant,-Employee/Retirement-Topics-IRA-Contribution-Limits> (last accessed October 2015).
- 35 The exact length of investment—or tax deferral—does not materially affect the conclusions of this discussion.
- 36 All calculations here assume that taxes are paid upon withdrawal and that all money is withdrawn at the end of the investment period. Households can reap additional tax benefits by delaying the payout and by choosing from a range of payout options, such as annuities. For additional details on this issue, see Brady, “The Tax Benefits and Revenue Costs of Tax Deferral.”
- 37 The Appendix contains the exact formula, taken from *ibid.*
- 38 There is a substantial debate in the literature over the exact discount rate to use for retirement calculations. For a discussion of discount rates for defined benefit pension plans, see Christian E. Weller and Dean Baker, “Smoothing the Waves of Pension Funding: Could Changes in Funding Rules Help Avoid Cyclical Under-funding?,” *The Journal of Policy Reform* 8 (2) (2005): 131–151. We choose 6 percent here as the discount rate to make our results comparable to others, specifically those generated by Brady, “The Tax Benefits and Revenue Costs of Tax Deferral.”
- 39 Internal Revenue Service, “IRS Announces 2015 Pension Plan Limitations; Taxpayers May Contribute up to \$18,000 to their 401(k) plans in 2015,” Press release, October 23, 2014, available at <https://www.irs.gov/uac/Newsroom/IRS-Announces-2015-Pension-Plan-Limitations-1>.
- 40 Annamaria Lusardi and Olivia Mitchell, “Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education Programs,” Working Paper 2007/15 (Center for Financial Studies, 2007), available at <http://www.econstor.eu/bitstream/10419/25516/1/527633305.PDF>.
- 41 This approach is anchored in a neoclassical economic theory known as the life cycle hypothesis, whereby people smooth their consumption over their life cycle. This implies that they maintain their preretirement consumption in retirement and that their total lifetime consumption relates to their total lifetime income. Recent applications of the life cycle hypothesis to the question of retirement income adequacy include Eric M. Engen, William G. Gale, and Cori E. Uccello, “The Adequacy of Household Saving,” *Brookings Papers on Economic Activity* 1999 2 (1999): 65–165, available at http://www.ssc.wisc.edu/~scholz/Teaching_742/EGU.pdf; John Karl Scholz, Ananth Seshadri, and Surachai Khitatrakun, “Are Americans Saving ‘Optimally’ for Retirement?,” *Journal of Political Economy* 114 (4) (2006): 607–643, available at <https://www.ssc.wisc.edu/~scholz/Research/Optimality.pdf>.
- 42 See, for instance, B. Douglas Bernheim, “The Adequacy of Personal Retirement Saving,” In David A. Wise, ed., *Facing the Age Wave* (Stanford, CA: Hoover Institute Press, 1997); Charles D. Ellis, Alicia H. Munnell, and Andrew D. Eschtruth, *Falling Short: The Coming Retirement Crisis and What to Do About It* (New York: Oxford University Press, 2014); Alan L. Gustman and Thomas L. Steinmeier, “Effects of Pensions on Savings: Analysis With Data From the Health and Retirement Study,” *Carnegie-Rochester Conference Series on Public Policy* 50 (1) (1999): 271–324; Peter Henle, “Recent Trends in Retirement Benefits Related to Earnings,” *Monthly Labor Review* 95 (6) (1972): 12–20; Engen, Gale, and Uccello, “The Adequacy of Household Saving”; Lusardi and Mitchell, “Financial Literacy and Retirement Preparedness”; James F. Moore and Olivia S. Mitchell, “Projected Retirement Wealth and Saving Adequacy,” In Olivia S. Mitchell, P. Brett Hammond, and Anna M. Rappaport, eds., *Forecasting Retirement Needs and Retirement Wealth* (Philadelphia: University of Pennsylvania Press, 2000); Alicia H. Munnell, Francesca Golub-Sass, and Anthony Webb, “What Moves the National Retirement Risk Index? A Look Back and an Update” (Boston: Center for Retirement Research at Boston College, 2007), available at <http://crr.bc.edu/briefs/what-moves-the-national-retirement-risk-index-a-look-back-and-an-update/>; Nari Rhee, “The Retirement Savings Crisis: Is it Worse Than We Think?” (Washington: National Institute on Retirement Security, 2013), available at http://www.nirsonline.org/index.php?option=com_content&task=view&id=768&Itemid=48; Mark J. Warshawsky and John Ameriks, “How Prepared are Americans for Retirement?” In Mitchell, Hammond, and Rappaport, eds., *Forecasting Retirement Needs and Retirement Wealth*; Jack VanDerhei, “Retirement Savings Shortfalls: Evidence from EBRI’s Retirement Security Projection Model” (Washington: Employee Benefit Research Institute, 2015), available at http://www.ebri.org/pdf/briefspdf/EBRI_IB_410_Feb15_RSShrftls.pdf; Christian E. Weller and Edward N. Wolff, *Retirement Security: The Crucial Role of Social Security* (Washington: Economic Policy Institute, 2005), available at http://www.epi.org/publication/book_retirement_income/. The replacement ratio—retirement income to preretirement income—is less than 100 percent, since the income needs of retirees are likely to be lower than those of workers because they no longer need to save for retirement and they pay fewer taxes, have no work-related expenses, have smaller families, and do not have mortgages.

- 43 For a discussion of a sample of the most influential studies in this debate, see Miller, Madland and Weller, “The Reality of the Retirement Crisis.”
- 44 See Weller and Madland, “Keep Calm and Muddle Through.”
- 45 Alicia H. Munnell, Wenliang Hu, and Anthony Webb, “NRRI Update Shows Half Still Falling Short” (Boston: Center for Retirement Research at Boston College, 2014).
- 46 Rhee, “The Retirement Savings Crisis.”
- 47 Munnell, Webb, and Golub-Sass, “The National Retirement Risk Index: An Update.”
- 48 Scholz, Seshadri, and Khitatrakun, “Are Americans Saving ‘Optimally’ for Retirement?”
- 49 William G. Gale, John Karl Scholz, and Ananth Seshadri, “Are All Americans Saving ‘Optimally’ for Retirement?” Working Paper (Brookings Institution and University of Wisconsin-Madison, 2009), available at https://www.ssc.wisc.edu/~scholz/Research/Are_All_Americans_v6.pdf.
- 50 Munnell, Webb, and Golub-Sass, “The National Retirement Risk Index: An Update”; Rhee, “The Retirement Savings Crisis”; Gale, Scholz, and Seshadri, “Are All Americans Saving ‘Optimally’ for Retirement?”; Scholz, Seshadri, and Khitatrakun, “Are Americans Saving ‘Optimally’ for Retirement?”; Barbara A. Butrica, Karen E. Smith, and Howard M. Iams, “This is Not Your Parents’ Retirement: Comparing Retirement Income Across Generations,” *Social Security Bulletin* 72 (1) (2012), available at <http://www.ssa.gov/policy/docs/ssb/v72n1/v72n1p37.html>; VanDerhei, “Retirement Savings Shortfalls.” The research by the Employee Benefit Research Institute—another widely cited and somewhat optimistic assessment—specifically finds that the share of Gen Xers—defined by the following source as households between the ages of 40 and 49 in 2014—was comparable to those of Late Boomers—defined as households between the ages of 50 and 59 in 2014—but that the savings shortfalls tend to be larger for younger cohorts, in large part because of higher future health care costs. See Jack Vanderhei, “What Causes EBRI Retirement Readiness Ratings™ to Vary: Results from the 2014 Retirement Security Projection Model” (Washington: Employee Benefit Research Institute, 2014), available at http://www.ebri.org/pdf/briefspdf/EBRI_IB_396_Feb14.RRRs.pdf.
- 51 Wolff’s research relies on the same data as the Center for Retirement Research, but there are some key methodological differences, as we discuss in the Appendix.
- 52 This share is comparable to the 53 percent of households shown as being at risk of not being able to maintain their standard of living in retirement in the National Retirement Risk Index. And both the NRRI and Wolff’s research rely on the Federal Reserve’s Survey of Consumer Finances.
- 53 All data in this paragraph are taken from Edward Wolff, “Household Wealth Trends, 1983 to 2010,” *Oxford Review of Economic Policy* 30 (1) (2014): 21–43.
- 54 See Congressional Budget Office, “The Distribution of Major Tax Expenditures in the Individual Tax System.” See Figure 2 in this source for supplemental data.
- 55 Eric M. Engen and William G. Gale, “The Effects of 401(k) Plans on Household Wealth.” Working Paper 8032 (National Bureau of Economic Research, 2000); Daniel J. Benjamin, “Does 401(k) Eligibility Increase Saving?,” *Journal of Public Economics* 87 (5) (2003): 1259–1290.
- 56 From supplemental data in Congressional Budget Office, “The Distribution of Major Tax Expenditures in the Individual Income Tax System,” figure 2. The Congressional Budget Office found that the difference in revenues collected from the top quintile of taxpayers between the current tax system and a system in which contributions to retirement accounts were taxed as ordinary income and in which investment earnings in retirement accounts were taxed as ordinary investment income was \$92 billion.
- 57 See Weller, *Retirement on the Rocks*; Christian E. Weller, “Making Sure Money Is Available When We Need It” (Washington: Center for American Progress, 2013), available at <https://www.americanprogress.org/wp-content/uploads/2013/03/WellerMiddleClass.pdf>.
- 58 Brady, “The Tax Benefits and Revenue Costs of Tax Deferral”; David Love, “What Can the Life Cycle Model Tell Us About 401(k) Contributions and Participation?” (Williamstown, MA: Williams College, 2006), available at <http://projects.vassar.edu/lamacro/web/Love.pdf>; Geng Li and Paul Smith, “Borrowing From Yourself: 401(k) Loans and Household Balance Sheets.” Working Paper 2008-42 (Federal Reserve Board Divisions of Research and Statistics and Monetary Affairs, 2008).
- 59 Ibid.