



United States Government Accountability Office

Report to the Ranking Member,
Committee on Health, Education, Labor
and Pensions,
United States Senate

May 2016

RETIREMENT SECURITY

Low Defined Contribution Savings May Pose Challenges

Accessible Version

GAO Highlights

Highlights of [GAO-16-408](#), a report to the Ranking Member, Committee on Health, Education, Labor and Pensions, United States Senate

Why GAO Did This Study

Defined contribution (DC) plans, in which individuals save for their own retirement, have become the dominant form of retirement plan for U.S. workers. However, not all workers have access to or participate in such plans through their employer. DC plans also shift more risk to participants compared to traditional defined benefit (DB) pension plans. For example, a worker often needs to decide to participate in a DC plan, make regular contributions, and decide how to invest those savings before retirement. GAO was asked to review recent trends and future prospects for DC plan savings.

This report focuses on 1) recent trends in DC plan participation and account savings, and 2) how much households could potentially save in DC plans over their careers, and how key individual and employer decisions affect plan saving.

GAO analyzed household financial data from the Federal Reserve's triennial Survey of Consumer Finances (for 2004 through 2013, the most recent available). GAO also analyzed projected DC savings for a cohort of individuals born in 1997 using microsimulation models developed by the Policy Simulation Group. These simulation models allowed GAO to analyze the projected effect of certain decisions made by the employer and plan participant on DC savings at retirement. The selected simulations were informed by a review of the literature and interviews with retirement experts.

GAO is making no recommendations in this report.

View [GAO-16-408](#). For more information, contact Charles Jeszeck at (202) 512-7215 or jeszeck@gao.gov.

May 2016

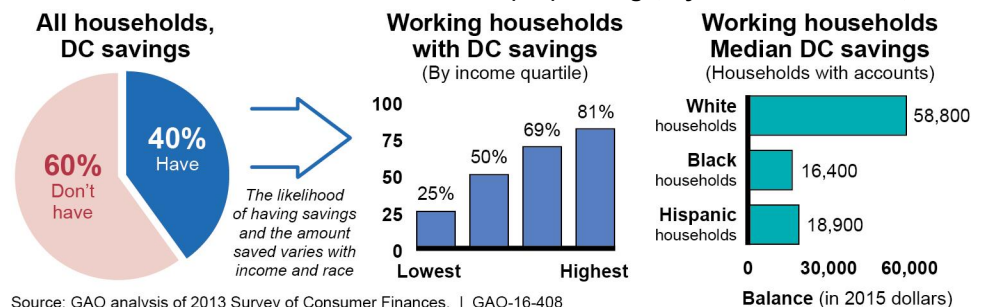
RETIREMENT SECURITY

Low Defined Contribution Savings May Pose Challenges

What GAO Found

An estimated 40 percent of all U.S. households had some retirement savings in a defined contribution (DC) plan, such as a 401(k) plan, in 2013, and account balances varied by household income and race in recent years, according to the most recent data from the Survey of Consumer Finances (SCF). The 60 percent of all households (and specifically the 44 percent of working households) without any DC savings in 2013 may result from several factors. Approximately 39 percent of working households lacked access to, or were not eligible to participate in, an employer-sponsored DC plan at their job in 2013. Low-income households and Black and Hispanic households were even less likely to have access to a DC plan at their workplaces or to have DC savings. For example, GAO found that approximately 25 percent of working, low-income households had any savings in a DC plan compared to 81 percent of working, high-income households. Additionally, access and account balances declined for some, but not all, groups during the recent recession and recovery from 2007 to 2013. For example, Black working households' median DC plan balance declined by \$14,700 (in 2015 dollars), from \$31,100 in 2007 to \$16,400 in 2013. Meanwhile, White working households' median DC balance did not change significantly over the same period. By 2013, White households' median DC balances were more than three times larger than for Black and Hispanic households'.

Estimated Household Defined Contribution (DC) Savings, by Income and Race, 2013



Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

GAO projections of household DC plan savings at retirement vary widely across earning groups, and by key individual and employer decisions. These projections of DC savings accumulated over a career for a simulated group born in the same year differ from analysis of the SCF, which estimates current savings of different age groups. According to GAO's projections, households in the lowest earning group accumulated DC savings that generated lifetime income in retirement, as measured by an annuity equivalent, of about \$560 per month on average (in 2015 dollars). Yet, 35 percent of this group had no DC savings at retirement. In contrast, households in the highest earning group saved enough to receive about 11 times more per month in retirement and only 8 percent had no DC savings. GAO also simulated several scenarios involving workers' decisions (e.g., participating in a DC plan or maximizing the employer match) and employer decisions (e.g., offering a DC plan or automatic enrollment) that increased the amount of projected DC savings available for retirement—particularly for low-earning workers. While GAO's projections of these scenarios show many possible ways to increase DC savings, they do pose potential tradeoffs for both workers and employers.

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Abbreviations

BLS	Bureau of Labor Statistics
CPS	Current Population Survey
DB	defined benefit
DC	defined contribution
EBRI	Employee Benefit Research Institute
Federal Reserve	Board of Governors of the Federal Reserve System
IRA	individual retirement account
MINT	Modeling Income in the Near Term
NBER	National Bureau of Economic Research
OCACT	Office of the Chief Actuary
PBGC	Pension Benefit Guaranty Corporation
PEU	Primary Economic Unit
PENSIM	Pension Simulator
PPA	Pension Protection Act of 2006
PSG	Policy Simulation Group
PSID	Panel Study of Income Dynamics
SCF	Survey of Consumer Finances
SIPP	Survey of Income and Program Participation
SSA	Social Security Administration
SSASIM	Social Security and Accounts Simulator
SSI	Supplemental Security Income

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May 5, 2016

The Honorable Patty Murray
Ranking Member
Committee on Health, Education, Labor and Pensions
United States Senate

Dear Senator Murray:

Approximately 60 percent of Americans are worried about not having enough money for retirement,¹ and the percentage of workers who are confident they have enough hit record lows between 2009 and 2013, due in part to a historic recession.² Employer-sponsored retirement plans, such as 401(k) plans, represent an important component of retirement security programs in the United States. Over the past three decades, employers have largely shifted from offering defined benefit (DB) plans in which workers accrue guaranteed lifetime benefits, to offering defined contribution (DC) plans, in which workers accumulate savings in personal accounts to fund their retirements. There are now five times more active participants in DC plans than in DB plans.³ However, there has been concern among policymakers and the public that DC plan account savings, in addition to other income sources, may not be sufficient to ensure adequate retirement security for many participants; in particular many U.S. households do not have any DC plan savings. The recent financial and labor market instability and recession during the last decade may have intensified this concern.

You asked us to review the current status of DC account savings given the recent recession and recovery and how much future workers are expected to save in DC plans. This report addresses the following questions: (1) What are the recent trends in DC plan participation and account savings; and 2) How much households could potentially save in

¹Gallup, "Americans' Money Worries Unchanged From 2014," April 20, 2015.

²Employee Benefit Research Institute, "The 2016 Retirement Confidence Survey: Worker Confidence Stable, Retiree Confidence Continues to Increase" March 2016.

³Department of Labor, Employee Benefits Security Administration, *Private Pension Plan Bulletin Historical Tables and Graphs* (Washington, D.C.: 2014). Data exclude one-participant plans.

DC plans over their careers, and how do key individual and employer decisions affect plan saving?

To analyze households' access to and participation and savings in DC plans, we examined data from the 2004, 2007, 2010, and 2013 Survey of Consumer Finances (SCF). Conducted by the Board of Governors of the Federal Reserve System (Federal Reserve), the SCF is a triennial national survey of households' assets and income. Throughout the report, we use the term "DC savings" to mean money accrued in account-based DC plans, such as 401(k) plans, and individual retirement accounts (IRAs).⁴ We do not estimate the value of households' DB plans nor do we estimate assets held outside of retirement accounts. To analyze how much workers can expect to save in DC plans by the time they retire and the factors that affect these savings, we simulated the life of a cohort born in 1997—including a simulated work history and earnings pattern based on historical data—to project retirement savings. Our reported results are projections for when the cohort retires, from ages 62 to 70 in the years 2059 to 2067. We contracted the use of the Policy Simulation Group's (PSG) microsimulation models—which were originally developed for use by the Department of Labor (DOL) and the Social Security Administration (SSA) and used in a number of previous GAO reports—to construct our simulations. We selected scenarios to model based on the various decisions made by the employer and by the plan participant, as identified in prior GAO work, that affect the accumulation of DC savings. In addition, our scenarios were informed by an extensive literature review and interviews with experts in the area of retirement income data, subject to the existing capabilities of the PSG models. Our report highlights scenarios that had a relatively strong positive impact on the DC savings of households in the lowest earnings group and a reduction in the number of households with no DC plan savings at retirement. The analysis of other scenarios is included in appendix I. We assessed the reliability of the PSG models and SCF data by conducting electronic data tests for completeness and accuracy, reviewing documentation on the dataset, and interviewing knowledgeable officials about how the data are collected and maintained and their appropriate uses. We determined the data we

⁴Although most IRAs are not employer-sponsored plans, for the purposes of this report, we categorize IRAs as such because rollovers from DC plans and other employer-sponsored plans comprise the predominant source of contributions to IRAs. An estimated 96 percent of the money contributed to traditional IRAs in 2012 was from rollovers. Investment Company Institute, *The U.S. Retirement Market*, Third Quarter 2015 (December 2015).

analyzed and the microsimulation model we employed were sufficiently reliable for the purposes of our analysis. For additional information on our scope and methodology, see appendix I.

We conducted this performance audit from October 2014 to May 2016 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Overview of the U.S. Retirement System

Households primarily rely on three main sources of retirement income: Social Security, employer-sponsored pension plans, and household savings.⁵

- *Social Security* pays benefits to retirees, their spouses, and their survivors. Qualified workers can claim benefits starting at age 62, but the amount of monthly benefits increases the longer a worker delays receiving them, up until age 70. Our prior work indicates that while Social Security retirement benefits replace a higher percentage of

⁵Although both DB plans and DC plans are referred to in statute as pension plans (29 U.S.C. § 1002(34) and (35)), the Department of Labor observed that the phrase “pension plans” is most often associated with a monthly benefit. Thus, throughout the report, we attempt to make it clear when we are referring to DB plans, DC plans or both if we use the term pension as a modifier.

earnings for lower-income workers, this alone may not ensure lower-income workers an adequate retirement income.⁶

- *Employer-sponsored pension plans* represent a critical source of income for many retirees. Employer-sponsored plan coverage includes DB and DC plans.⁷ Households can also save for retirement through IRAs, which allow individuals to make contributions for retirement on a tax preferred basis without participating in an employer-sponsored plan.

⁶GAO, *Retirement Income: Ensuring Income throughout Retirement Requires Difficult Choices*, [GAO-11-400](#) (Washington, D.C.: June 7, 2011). Many older Americans, even with Social Security benefits, have incomes below the poverty threshold. GAO, *Social Security's Future: Answers to Key Questions*, [GAO-16-75SP](#) (Washington, D.C.: October 2015). In addition, certain long-lived individuals will face challenges in ensuring adequate retirement incomes via Social Security. In addition, lower-income individuals have shorter-than-average life expectancy, which means that they can expect to receive Social Security retirement benefits for substantially fewer years than higher-income individuals who have longer-than-average life expectancy. As a result, when these disparities in life expectancy are taken into account, on average, projected lifetime Social Security retirement benefits are reduced for lower-income individuals, but are increased for higher-income individuals, relative to what they would have received if they lived the average life expectancy for their cohort. GAO, *Retirement Security: Shorter Life Expectancy Reduces Projected Lifetime Benefits for Lower Earners*, [GAO-16-354](#) (Washington, D.C.: March 25, 2016). Further, people age 65 and older with low income and few assets may qualify for Supplemental Security Income (SSI), a means-tested program to provide cash assistance to people who are disabled, aged, or both. According to the Congressional Budget Office, the share of people age 65 and older who receive SSI is expected to fall from about 5 percent in 2012 to about 4 percent over the following 10 years. Congressional Budget Office, *Supplemental Security Income: An Overview*, December 2012.

⁷There are several different categories of DC plans. Most DC plans are types of cash or deferred arrangements, in which employees can direct pre-tax dollars along with any employer contributions into an account, with assets growing tax deferred until withdrawal. The 401(k) plan is the most common DC plan (26 U.S.C. § 401(k)), covering about 85 percent of active DC participants. Certain types of tax-exempt employers may offer plans, such as 403(b) or 457 plans, which have many features similar to 401(k) plans. 26 U.S.C. §§ 403(b) and 457. Small business owners may offer employees a Simplified Employee Pension or Savings Incentive Match Plan for Employees of Small Employers, two types of DC plans that have reduced regulatory requirements for sponsors. 26 U.S.C. § 408(k) and (p). Other types of DC plans keep the basic individual account structure of the 401(k), but with different requirements and employer practices. Some are designed primarily for employer contributions. These include: money purchase plans, which specify fixed annual employer contributions; profit sharing plans, in which the employer decides the annual contributions, perhaps based on profits, into the plan, and the allocations of these to each participant; and employee stock ownership plans, in which contributions are primarily invested in company stock. 26 U.S.C. § 401 and 26 C.F.R. § 1.401-1(b). Some employers sponsor cash balance plans, which have some characteristics of both DB and DC plans. While cash balance plans express accrued benefits in terms of a lump sum balance, they are DB plans in which benefits are determined by a formula. GAO, *Cash Balance Plans: Implications for Retirement Income*, HEHS-00-207 (Washington, DC: Sept. 29, 2000).

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- *Household savings*, defined broadly to include items such as income from assets or earnings, as well as home equity available through selling a home or obtaining a reverse mortgage. Earnings might include wages from a spouse who is not yet retired.⁸

Characteristics of Employer-Sponsored Pension Plans

Employers can offer their employees two broad types of pension plans, DB and DC plans.⁹ In DB plans, workers' benefits are typically calculated using a formula that includes the number of years an employee has worked for an employer and, often, the employee's earnings in years prior to retirement. In DC plans, workers accumulate savings through contributions to an individual account. These accounts are tax-advantaged in that contributions may be deducted for purposes of current-year income taxes, and taxes on contributions and investment earnings are deferred until they are withdrawn.¹⁰ An employer may also make contributions, often by matching employees' contributions up to plan or legal limits.

Over the last three decades, DC plans have replaced DB plans as the dominant type of private-sector employer-sponsored plan and have taken a primary role in how workers save for retirement. In 2013 (the most recent data available), DC plans comprised 94 percent of all employer-sponsored plans and active DC participants outnumbered those in DB plans 76.7 million to 15.2 million.¹¹

DC plans typically offer workers more control over managing their retirement assets, but also shift responsibility and risks from employers to workers. For instance, workers in 401(k)-type plans generally have had to first elect to participate in a plan. Once participating, their total account savings at

⁸Households may also rely on earnings income from work after retirement. However, many workers may unrealistically expect to continue working as long as possible or transition to new work when they retire. In a prior report, we found that while 59 percent of workers approaching retirement plan to work as long as possible, only 29 percent of retirees continue in the workforce. GAO, *Retirement Security: Most Households Approaching Retirement Have Low Savings*, [GAO-15-419](#) (Washington, D.C.: May 12, 2015).

⁹29 U.S.C. § 1002(34) and (35).

¹⁰26 U.S.C. § 402.

¹¹U.S. Department of Labor, Employee Benefits Security Administration, "Private Pension Plan Bulletin Historical Tables and Graphs." September 2015. These figures may double-count individuals who have both DB and DC plans. Data exclude one-participant plans.

retirement depends on how much they and their employer contribute to the account over the participant's career and the performance of the assets in the participant's account. Workers who receive DC plan distributions, particularly those receiving lump sum distributions, must manage these funds so their savings last throughout retirement. In contrast, workers are usually automatically enrolled in DB plans and the employer bears the investment risk and has the responsibility to ensure that the plan has sufficient funds to pay promised benefits. Additionally, DB plans must offer the option to take benefits as a lifetime annuity, or periodic benefits until death.¹² An annuity provides longevity insurance against outliving one's savings, but may lose purchasing power if benefits do not rise with inflation (see table 1).

Table 1: Key Characteristics of Defined Contribution and Defined Benefit Plans

	Defined contribution plans	Defined benefit plans
What determines the level of benefits?	Contributions into a personal account and the return on those assets.	A formula, typically based on an employee's years of service and, often, salary history.
What does the employee have to do to participate and earn benefits in the plan? ^a	May require an employee to work a certain length of time to become eligible. Employee often must enroll. Participants may need to work up to 6 years to fully vest in employer matching contributions.	Eligibility and participation are typically automatic. Employees working at least 1,000 hours per year earn years of service toward benefits. Participants may need to work up to 7 years to fully vest in plan benefits.
How are contributions made?	Typically employee decides how much to contribute from current wages; employer may also contribute.	Typically by employer only.
Who manages and assumes the risks of investing the assets?	Employee, in most plans, although sponsor chooses menu of investment offerings.	Plan sponsor; benefits usually insured up to certain limits.
What happens to the benefits when the employee leaves the job?	Can be left in plan, rolled over to an IRA (or sometimes a new employer's plan), or cashed out (generally with a penalty if done before age 59 ½).	Generally remains in plan trust to provide benefits at retirement.
How are benefits paid in retirement and what are the major risks they pose?	Typically paid as a lump sum distribution, which must be managed to last throughout retirement. Some plans provide an annuity option and, if not, participants can still use their distribution to purchase one on the open market.	Always as life annuity, but plan may offer lump sum option.

Source: GAO analysis | GAO-16-408

¹²26 U.S.C. § 401(a)(11).

^aGAO is currently conducting research on private sector employer-sponsored retirement plans' use of eligibility and vesting requirements and a report on that work is forthcoming.

Additional Characteristics of Defined Contribution Plans

The federal government gives qualifying employer-sponsored pension plans preferential tax treatment to encourage employers to sponsor them and employees to participate in them.¹³ Under DC plans, taxes on contributions and investment earnings generally are deferred until benefits are received in retirement.¹⁴ According to the Office of Management and Budget, in fiscal year 2016 this tax incentive will result in an estimated \$64.7 billion in forgone federal tax revenue.¹⁵

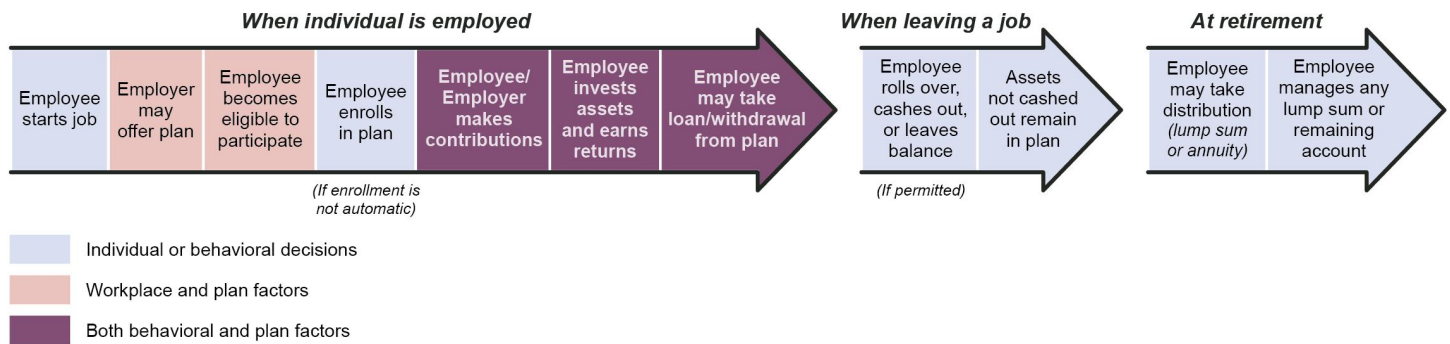
An individual's ability to accrue savings in a DC plan is dependent upon decisions made by the employer and by the plan participant (see fig. 1).

¹³Specifically, plan sponsors may, within certain statutory limits, deduct their plan contributions and certain fees from income for tax purposes. 26 U.S.C. § 404. In addition, plan participants pay no income taxes on their contributions or earnings on any contributions to their accounts until those funds are distributed to them, presumably when they are retired and in a lower tax bracket. 26 U.S.C. § 402. A Treasury official also noted that employee contributions do not reduce Social Security wages and, therefore, future benefits.

¹⁴Some DC plans provide an option for designated Roth contributions that are included in taxable income rather than tax-deferred. The investment income earned on such contributions is generally not subject to tax upon distribution, provided that the requirements and restrictions applicable to such accounts under the Internal Revenue Code have been satisfied.

¹⁵Office of Management and Budget, Analytical Perspectives, *Fiscal Year 2017 Budget of the U.S. Government* (Washington, D.C.: February 2016). The tax expenditure is measured as the tax revenue that the government does not currently collect on contributions and earnings amounts, offset by the taxes paid on pensions by those who are currently receiving retirement benefits. The estimate for IRAs is an additional \$16.9 billion in forgone revenue for 2016.

Figure 1: Mechanics of Accumulating and Managing Retirement Savings in Defined Contribution Plans



Source: GAO. | GAO-16-408

Key employer decisions that may affect retirement savings include:

- *Plan sponsorship*—whether the employer sponsors a plan.
- *Plan eligibility*—which employees are eligible to participate in the plan.¹⁶
- *Plan vesting*—the employer has a limited ability to determine when the employee has the right, based on length of employment, to keep contributions made by the employer.¹⁷
- *Automatic enrollment*—whether to use automatic enrollment, through which eligible workers are enrolled in the plan, unless they explicitly choose to opt out, as opposed to the more traditional method in which workers must

¹⁶Employers may require an employee to be at least 21 years old and to have a year of service with the company before the employee becomes eligible to participate in a plan.

¹⁷While employees do not necessarily have an immediate right to contributions made by their employer, they do immediately vest in their own contributions. 26 U.S.C. § 411(a)(1). Federal law provides a maximum number of years an employer may require employees to work to earn the vested right to some or all of the employer contribution. 26 U.S.C. § 411(a)(2)(B). There are two basic vesting schedules. Under the 3-year schedule, employees are 100 percent vested after 3 years of service under the plan. The 6-year graduated schedule allows employees to become 20 percent vested after 2 years and to vest at a rate of 20 percent each year thereafter until they are 100 percent vested after 6 years of service. Plans may have faster vesting schedules—including immediate vesting.

take action to join a plan.¹⁸ When the employer offers a basic automatic enrollment arrangement, the plan must also specify the percentage of the employee's wages that will be deducted. In addition, the employer may choose to offer a plan with automatic enrollment that increases the specified initial default contribution percentage over time, referred to as automatic escalation.

- *Employer contributions*—whether and in what amount the employer makes matching or non-contingent contributions to employees' accounts.¹⁹
- *Investment options*—which investment options are available to plan participants and their associated fees.
- *Withdrawals/loans*—whether to allow participants to take loans or hardship withdrawals and, if so, under what conditions and terms.²⁰

Key individual decisions and behaviors that may affect retirement savings include:

- *Participation*—whether an individual enrolls in a DC plan to which they have access and are eligible.

¹⁸Employers who have adopted automatic enrollment must also establish default contribution rates and default investment vehicles for workers who do not specify these choices. 26 U.S.C. § 401(k)(13) and 29 U.S.C. § 1104(c)(5). The Pension Protection Act of 2006 (PPA) facilitated automatic enrollment by, among other things, providing employers with a safe harbor method for specifying the schedule of default deferral percentages for each year the employee participates as well as specifying the form and amount of minimum employer contributions required. Pub. L. No. 109-280, § 902(a), 120 Stat. 780, 1033-35 (codified at 26 U.S.C. § 401(k)(13)). The adoption of automatic enrollment has risen markedly since the adoption of PPA. According to a Vanguard report on its funds, only 5 percent of defined contribution plans (with employee elective contributions) had automatic enrollment in 2005 compared to 36 percent of such plans in 2014. Vanguard, "How America Saves 2015: A Report on Vanguard 2014 Defined Contribution Plan Data," June 2015.

¹⁹Many employers match employee contributions based on a specified percentage of the employee's salary and the rate at which the participant contributes. For example, an employer match might equal 50 percent (or some other percent) of an employee's contributions up to the first 6 percent of deferred employee salary.

²⁰In addition, if a loan is offered, the plan (employer) may place limitations on the amounts, purpose, or number of loans available.

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- *Participant contributions*—how much a participant contributes to the plan.
 - *Investment decisions*—how the participant allocates contributions among the available investment options.
 - *Withdrawals/loans*—whether a participant withdraws from his or her DC account pre-retirement (sometimes referred to as leakage).²¹
 - *Rollover*—whether, upon separation from a job, a participant transfers the DC account savings to an IRA, moves it to a new DC plan, leaves the money in the old DC plan, or takes the account savings as a cash distribution.
 - *Age at retirement*—the age at which the participant retires, which determines how many years the participant can accumulate DC savings and how long the money has to last in retirement.
 - *Spend down, or decumulation*—once the participant retires or otherwise cashes out monies from the plan, the participant must decide the method or schedule of spending, which may include lump sum payments, programmed withdrawals, annuities, or possibly some combination thereof.²²

Most Households Have No DC Savings, and DC Plan Access and Savings Show Income and Race Differences

²¹Leakage more broadly is a category of pre-retirement DC plan withdrawals that may include cash-outs, loans, unclaimed accounts, and hardship distributions.

²²For a more detailed review of spend-down options in the U.S. and other countries, see GAO, *401(k) Plans: Other Countries' Experiences Offer Lessons in Policies and Oversight of Spend-down Options*, [GAO-14-9](#), (Washington, D.C.: Nov. 20, 2013).

Most Households Have No DC Savings



Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

An estimated 60 percent of all households had no savings in a DC plan from a current or former job, according to our analysis of the 2013 Survey of Consumer Finances (SCF), the most recent data available for our review.²³ This is a nearly 3 percentage point increase in households with no DC savings since 2007. These numbers improve when we limit our analysis to working households, which we define as households in which at least one person is working, but not self-employed, and the household head is between the ages of 25 and 64.²⁴ Of those working households, an estimated 44 percent had no DC savings, a percentage that has remained steady since 2004 despite increases in the number of active DC plan participants and the use of automatic enrollment.

Our analysis also found that an estimated 34 percent of working households had neither a DC nor a DB plan from a current or former job. This percentage has remained relatively stable from 2004 to 2013. Our previous work shows that for households age 55 and older, an estimated 29 percent had neither a DB plan nor DC retirement savings in 2013,

²³Unless otherwise stated in this report, all estimates are from our analysis of the 2013 SCF. Household DC plan savings can be accumulated by several members of a household and across several jobs spanning a career. Our measure of household DC savings includes savings accrued in DC plans from former or current jobs. This savings also includes any rolled-over IRA or Keogh plan balances. Further, when we refer to access or eligibility to DC plans, we are referring only to current access to certain DC plans—including thrift, savings, and 401(k) plans—but not any rollover IRAs or Keogh plans.

²⁴In this section, we refer to the full population of all U.S. households as “all households,” and prime-age working households as “working households.” We define working households as those in which at least one member of the household (i.e. the respondent or spouse) is working, including respondents (or spouses) who state that they have retired but currently work, but excluding those households that are self-employed (i.e. where at least one member of the household is not working for someone else). Since DC plans are employer-sponsored, we focused our analysis on the group most likely to have access to a DC plan—prime-age working households. We use a “prime-age” category restricted to households headed by someone within the 25–64 age group to exclude younger households who may be in college or graduate school and older households who may have already retired. Use of prime- or working-age population samples is common among researchers of retirement wealth. See, for example, Sebastian Devlin-Foltz, Alice M. Henriques, and John Sabelhaus, “The Evolution of Retirement Wealth,” Board of Governors of the Federal Reserve System, *Finance and Economics Discussion Series 2015-009*. Washington, D.C.: February 2015; Teresa Ghilarducci, Joelle Saad-Lessler, and Kate Bahn, “Are US Workers Ready for Retirement? Trends in Plan Sponsorship, Participation, and Preparedness,” *Journal of Pension Benefits*, Ferenczy Benefits Law Center, Winter 2015. See appendix I for more information on DC plan participation and savings across different subsamples of the SCF data.

leaving Social Security as their main or only source of retirement income.²⁵

About 61 Percent of Working Households Have Access to a DC Plan, and Most Households with Access Participate

An estimated 61 percent of working households have access to a DC plan at their current employer. The remaining 39 percent of working households do not have access either because their employer does not offer a plan or they are ineligible.²⁶ If an employer offers a DC plan, a large majority of those with access choose to participate. For instance, according to our analysis of the 2013 SCF, an estimated 86 percent of working households participated in a DC plan when provided access. These percentages have remained stable from 2004 to 2013, and they are consistent with the findings in our prior work.²⁷ Our analysis indicates that limited access to DC plans continues to be an impediment to expanding the percentage of households with DC savings.

²⁵[GAO-15-419](#).

²⁶Employers may offer employees eligibility for a DC plan prior to a year of service, but are not required to do so. Since some employers do not allow their employees to participate in the DC plan until they have been employed for 1 year, some currently ineligible employees will gain eligibility in the future. In 2013, an estimated 3 percent of working households expected to become eligible for a DC plan at a current employer in the future. GAO is currently conducting research for a report on private sector employer-sponsored retirement plans' use of plan eligibility and vesting requirements.

²⁷For example, using a different data set, we previously reported that of those private sector workers not participating in an employer-sponsored DC plan, 68 percent worked for an employer who does not sponsor a DC plan, 16 percent were not eligible for the DC plan that their employer sponsored, and 16 percent were eligible for a DC plan and chose not to participate. GAO, *Retirement Security: Federal Action Could Help State Efforts to Expand Private Sector Coverage*, [GAO-15-556](#) (Washington, D.C.: Sept. 10, 2015).

Low-income Households Have Particularly Low DC Plan Savings, Access, and Participation

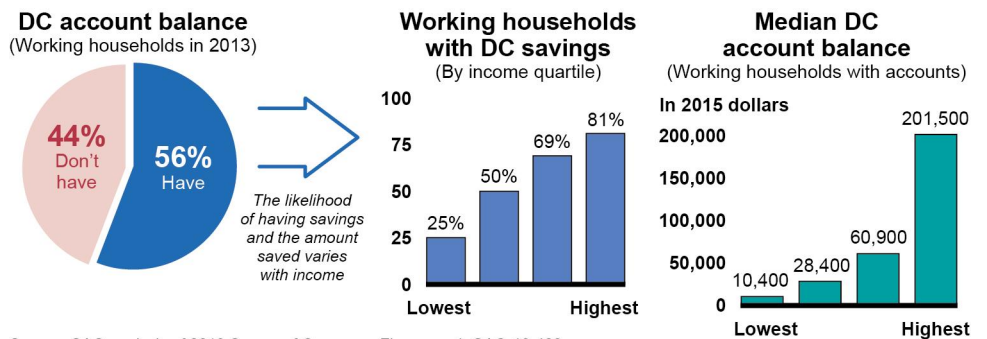
Low-income households had less DC savings and access to DC plans than other income groups as of 2013 (see fig. 2).²⁸ This relationship holds true across all the SCF years we examined (see appendix I for additional information). Among working households, we found that only 25 percent of low-income households had any DC savings, compared to 81 percent of high-income households.²⁹ For households with some DC savings, the median account savings for low-income working households was an estimated \$10,400, compared to \$201,500 for high-income households.³⁰

²⁸Income groups are quartiles, or four equal groups, divided according to a measure of usual household income in the SCF. The SCF weights the characteristics of the survey population to reflect that of the U.S. population. Additionally, because the SCF is a survey interested in asset accumulation, the SCF oversamples high-wealth households. This means that the unweighted population over-represents respondents of higher incomes (and wealth), which results in numbers of respondents within each income group that are not equal to each other. See appendix I for more information on survey weighting.

²⁹Our analysis examined household income in the SCF by “usual” income and divided households into income quartiles, or groups. Actual income refers to the income received during the survey year whereas usual income refers to expected income in a normal year and is recorded if the actual income is unusually high or low compared to a normal year. Our analysis focuses on usual income to create these income groups, rather than actual income, because including the DC plan access and participation rates and DC savings of households only temporarily within a different income group due to an income shock would create the potential for biased estimates. See appendix I for more information on actual vs. usual income. Discussion of “low” and “high” income households refers to the first (i.e., “lowest”) and the fourth (i.e., “highest”) income groups, respectively.

³⁰We focus on households with DC savings because the overall median balance of DC savings for all working, prime-age (age 25-64) households in 2013 was just \$3,000. The overall median balance of DC savings for working, prime-age (age 25-64) households with a DC account in 2013 was \$41,900. Unless otherwise noted, all dollar amounts in this report have been adjusted to reflect 2015 dollars.

Figure 2: Defined Contribution (DC) Plan Savings by Household Income among Working Households, 2013



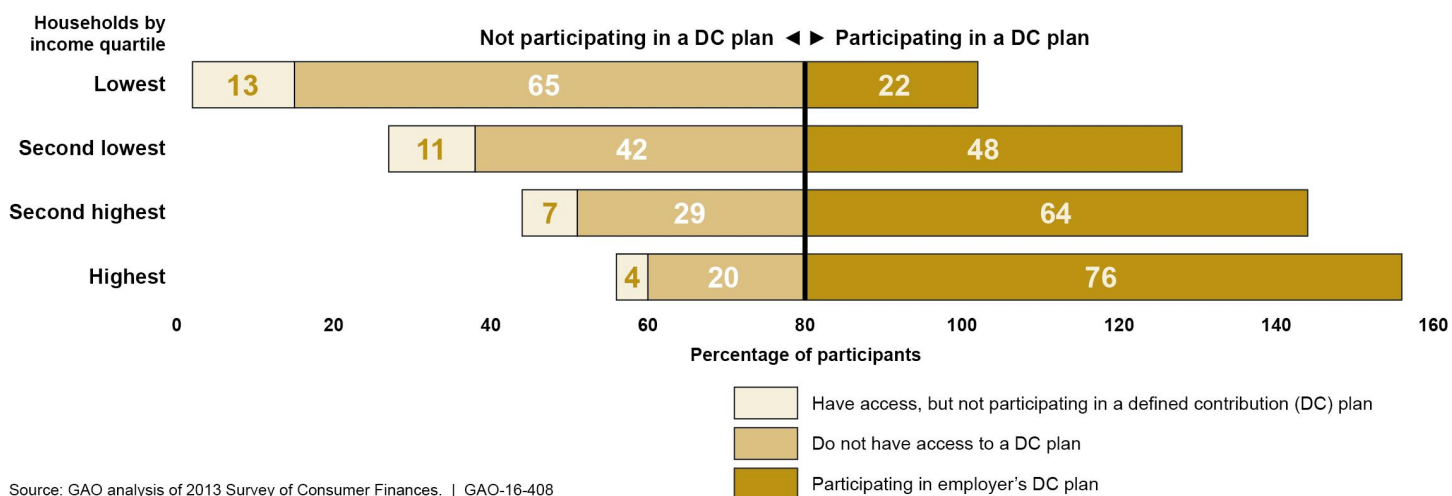
Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

Note: All percentage estimates in this figure have 95 percent confidence intervals within +/- 3.1 percent. Thus the amount and percentage for each income group, or quartile, of usual household income is statistically different from the others. The ranges of income groups for all working households are \$0 – \$39,200 for the lowest usual household income group; \$40,200 – \$67,000 for the second lowest income group; \$68,000 – \$108,200 for the second highest income group; and \$109,200 and above for the highest income group. The ranges of income groups for working households with DC savings are \$0 – \$56,700 (we are 95 percent confident that the median DC savings estimate within this range is \$10,400 +/- \$1,500) for the lowest usual household income group; \$57,700 – \$87,600 (\$28,400 +/- \$5,500) for the second lowest income group; \$88,100 – \$133,900 (\$60,900 +/- \$6,200) for the second highest income group; and \$135,000 and above (\$201,500 +/- \$28,300) for the highest income group. The SCF weights the characteristics of the survey population to reflect that of the U.S. population. Additionally, because the SCF is a survey interested in asset accumulation, the SCF oversamples high-wealth households. This means that the unweighted population over-represents respondents of higher incomes (and wealth), which results in numbers of respondents within each income group that are not equal to each other. To convert survey dollar values into 2015 dollars, we use the year-end (i.e. December) values of Consumer Price Index Research Series Using Current Methods, or CPI-U-RS, published by the Department of Labor's Bureau of Labor Statistics (BLS). At the time of our analysis, the CPI-U-RS was only available up to 2014, thus we supplemented an additional year of data by using the most recently available estimate of the year-end change from 2014 to 2015 using the historical current Consumer Price Index for All Urban Consumers, or CPI-U (also published by BLS).

Lower DC plan access and participation rates among low-income households contributed to this discrepancy in DC plan savings. For instance, about 35 percent of low-income working households had access to a DC plan, compared to 80 percent of high-income working households (see fig. 3). When they had access to a DC plan, an estimated 64 percent of low-income working households participated compared to 95 percent of high-income working households. These findings are broadly similar to those in our prior work, which analyzed a different dataset and found that high-income workers were nearly four times as likely to work for an

employer who offered a DC plan and more than four times as likely to participate as were low-income workers.³¹ (See textbox.)

Figure 3: Defined Contribution Plan Access and Participation by Household Income among Working Households, 2013



Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

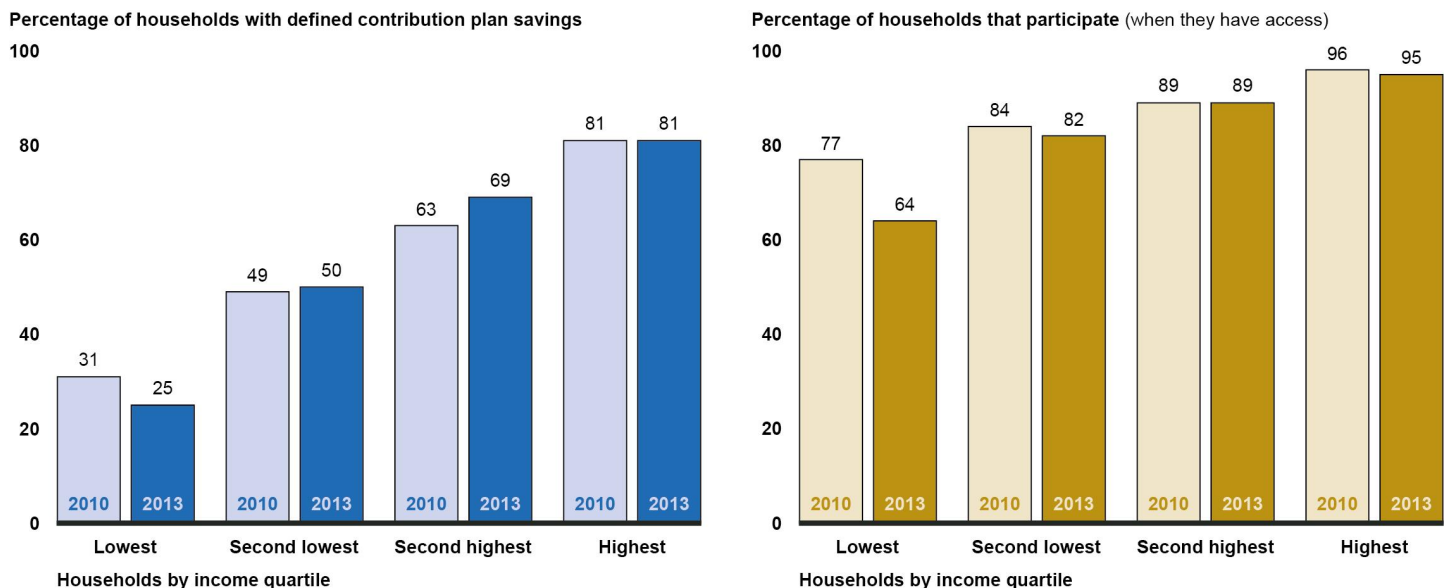
Note: All percentage estimates for working, prime-age (age 25–64) households for this figure have 95 percent confidence intervals within +/- 4.5 percent. The ranges of income groups for those working households in 2013, in 2015 dollars, are \$0 – \$39,200 for the lowest usual household income group; \$40,200 – \$67,000 for the second lowest income group; \$68,000 – \$108,200 for the second highest income group; and \$109,200 and above for the highest income group. Eligibility here refers to those households with a member who is currently eligible for a DC plan at a current employer.

From 2007 to 2013—a period covering the recent recession and subsequent recovery—DC plan savings and participation of low-income households remained generally unchanged. However, in the intervening years, from 2010 to 2013, the percentage of low income working households with DC savings decreased 6 percentage points, from approximately 31 percent in 2010 to 25 percent in 2013, while the percentages for all other income groups remained unchanged. This decrease, which lagged into post-recession recovery period, could be due to any number of factors. For example, part of the decline in the percentage of low-income households with DC savings could possibly be attributable to the cashing out of DC savings after the end of the recession—especially if they found difficulty with employment or expenses coming out of the post-recession recovery. When an individual changes jobs—or loses a job—he or she may choose to withdraw, or

³¹[GAO-15-556](#).

“cash out,” the balance of their savings. Because they often experience less stable employment, individuals in low-income households tend to have more opportunities—as well as a greater propensity—to cash out than those in other income groups.³² Alternatively, the post-recession decrease in low-income working households with DC savings could have been driven, in part, by declining participation. While the percentage of households with access to a DC plan remained unchanged for low-income working households after the recession and recovery, our analysis found that the percentage of these households participating in a DC plan when they had access declined about 12 percentage points, from 77 percent in 2010 to 64 percent in 2013 (see fig. 4). In comparison, participation rates among all other income groups remained stable.

Figure 4: Defined Contribution Plan Savings and Participation by Household Income among Working Households, 2010 to 2013



Source: GAO analysis of Survey of Consumer Finances 2010-2013. | GAO-16-408

³²For example, according to research by HelloWallet using the 2010 SCF, 30 percent of low-income households (defined as earning income of less than \$50,000) cashed out their DC savings for non-retirement purposes. This cash-out incidence is about twice as much as that of middle-income households (between \$50,000 and \$150,000), and nearly four times as much as that of high-income households (\$150,000 or more). See Fellowes and Willemijn, “The Retirement Breach in Defined Contribution Plans: Size, Causes, and Solutions,” HelloWallet (Washington, D.C.: January 2013).

Note: Estimates of the percentage of households with DC savings by usual income groups, or quartiles, among working, prime-age (age 25–64) households for 2010 and 2013 in this figure have 95 percent confidence intervals within +/- 3.1 percent—but are within +/-2.6 percent for the lowest income group. Estimates of the percentage of households that participate when they have access to a DC plan by usual income groups for working, prime-age (age 25–64) households across all income groups in this figure have 95 percent confidence intervals within +/- 4.5 percent. The ranges of income groups for those working households in 2013, in 2015 dollars, are \$0 – \$39,200 for the lowest usual household income group; \$40,200 – \$67,000 for the second lowest income group; \$68,000 – \$108,200 for the second highest income group; and \$109,200 and above for the highest income group. The SCF weights the characteristics of the survey population to reflect that of the U.S. population. Additionally, because the SCF is a survey interested in asset accumulation, the SCF oversamples high-wealth households. This means that the unweighted population over-represents respondents of higher incomes (and wealth), which results in numbers of respondents within each income group that are not equal to each other.

Explaining Differences by Income in Defined Contribution (DC) Plan Participation

Research has shown that low-income households are much less likely than high-income households to have access to a DC plan. When provided access to a DC plan, low-income households may participate at lower rates than high-income households for a variety of reasons.^a For instance, low-income households may not have the disposable income to participate. Compared to high-income households, a larger percentage of the take-home earnings for a low-income household is used for staples such as food, clothing, and shelter. This means that participating in a DC plan might affect the ability of low-income households to pay for these basic necessities. Additionally, some studies suggest that low-income households have lower levels of financial literacy than high-income households, including knowledge about how to take advantage of the preferential tax treatment given to qualifying DC plans.

The progressive structures of the U.S. tax code and Social Security also provide low-income households less incentive to participate in a DC plan than those provided to high-income households. For example, the U.S. income tax rate increases as a household's taxable income increases, so the tax advantages of contributing to a DC plan—increased tax savings—are greater for high-income than low-income households.^b The progressive structure of Social Security benefits also reduces the incentive for low-income households to participate in a DC plan. For instance, Social Security replaces a higher percentage of earnings for low-earners than high-earners, which may make DC plan participation seem less urgent for low-income households.^c

^aGur Huberman, Sheena S. Iyengar, and Wei Jiang, "Defined Contribution Pension Plans: Determinants of Participation and Contributions Rates," *Journal of Financial Services Research* (January 2007).

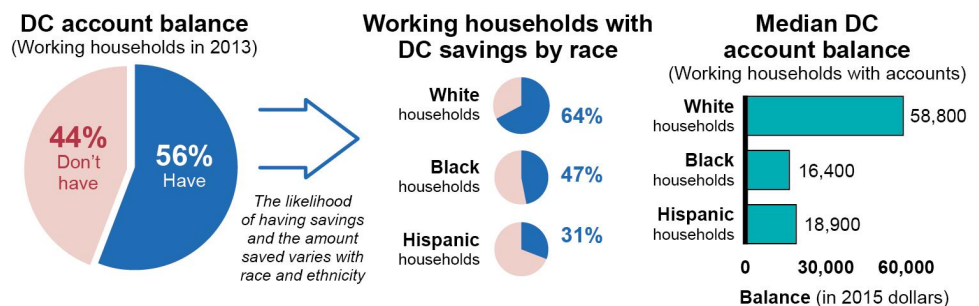
^bCongressional Budget Office (CBO). 2013. *The Distribution of Major Tax Expenditures in the Individual Income Tax System*. CBO Publication No. 4308, pp. 14-15. <http://www.cbo.gov/publication/43768>.

^cGAO, *Social Security's Future: Answers to Key Questions*, [GAO-16-75SP](#) (Washington, D.C.: October 2015), pp. 10-11; GAO, *Social Security: Distribution of Benefits and Taxes Relative to Earnings Level*, [GAO-04-747](#) (Washington, D.C.: June 15, 2004).

Minority Households Have Less DC Plan Access and Savings

Minority households have less DC plan access and DC retirement savings than White households. For example, an estimated 64 percent of White, 47 percent of Black, and 31 percent of Hispanic working households had DC savings in 2013 (see fig. 5).³³ Among working households with DC savings, the estimated median balance of DC savings of White households was \$58,800; of Black households, \$16,400; and of Hispanic households, \$18,900. Lack of access to a DC plan was a major contributor to racial and ethnic differences in DC savings. An estimated 35 percent of Hispanic, 56 percent of Black, and 68 percent of White working households had access to a DC plan through a current employer. When able to access a DC plan, differences in households' participation by race and ethnicity were small. For instance, 88 percent of White, 81 percent of Black, and 80 percent of Hispanic working households participated when they had access to a DC plan.³⁴

Figure 5: Defined Contribution (DC) Plan Savings by Race/Ethnicity among Working Households, 2013



Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

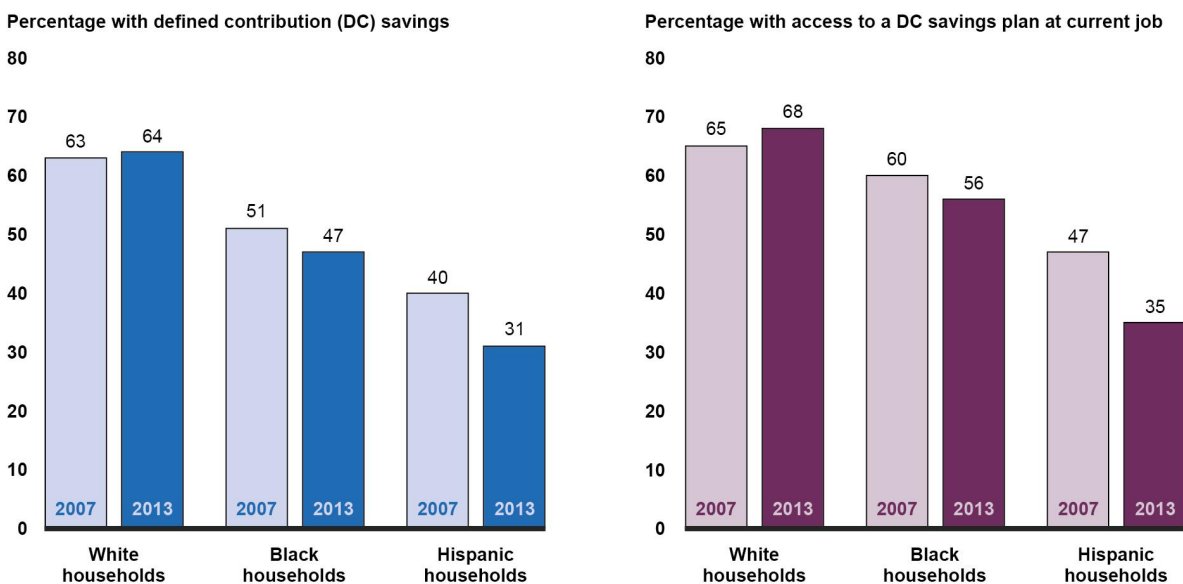
³³Other racial and ethnic categories, for example Asian and American Indian, are grouped together as "Other" in the publicly released version of the SCF. Our analysis throughout the report is limited to households where the respondent (generally the household head) is White, Black, or Hispanic. This limitation occurs, in part, because the "Other" contains multiple racial and ethnic categories and also tends to contain relatively fewer respondents. See appendix I for additional information.

³⁴Participation in this context simply means that the household owns or has a DC or IRA account to which employer and/or employee contributions can be made. This participation does not imply any specific level of contributions. Disparities in employee contributions by race/ethnicity are noted in a consultant survey. For example, a study by Ariel/Aon Hewitt noted that Black and Hispanic employees' contribution rates were about 1.6 and 1.3 percentage points lower, respectively, than for Whites, who contributed, on average, 7.2 percent of pay in 2010. Ariel/Aon Hewitt, "401(k) Plans in Living Color: A Study of 401(k) Savings Disparities across Racial and Ethnic Groups" (Chicago: 2012).

Note: We are 95 percent confident that the median balance of DC savings for working, prime age (age 25–64) households with DC savings are within +/- \$6,800 for White households and within +/- \$5,700 for Black and Hispanic households. All percentage estimates in this figure are for working, prime age (age 25–64) households and have 95 percent confidence intervals within +/- 3.8 percent. To convert survey dollar values into 2015 dollars, we use the year-end (i.e., December) values of Consumer Price Index Research Series Using Current Methods, or CPI-U-RS, published by the Department of Labor’s Bureau of Labor Statistics (BLS). At the time of our analysis, the CPI-U-RS was only available up to 2014, thus we supplemented an additional year of data by using the most recently available estimate of the year-end change from 2014 to 2015 using the historical current Consumer Price Index for all Urban Consumers, or CPI-U (also published by BLS).

Hispanics’ DC plan access and savings experienced large declines from 2007 through 2013 during the recession and recovery, according to our analysis of the SCF. According to our analysis, the percentage of Hispanic working households with DC savings decreased 9 percentage points from 40 percent in 2007 to 31 percent in 2013, while the percentages for Black and White working households remained unchanged. A decrease in the percentage of Hispanic working households with access to DC plans likely contributed to this decrease in Hispanic working households with DC savings. The percentage of Hispanic working households with DC plan access decreased 12 percentage points, from an estimated 47 percent in 2007 to 35 percent in 2013, while DC plan access for Black and White working households remained unchanged (see fig. 6).

Figure 6: Defined Contribution Plan Savings and Access by Race/Ethnicity among Working Households, 2007 to 2013



Source: GAO analysis of Survey of Consumer Finances 2007-2013. | GAO-16-408

Note: All percentage estimates for the percentage of working, prime-age (age 25–64) households with DC savings by race/ethnicity from 2007 to 2013 have 95 percent confidence intervals within +/- 3.8 percent, except for the estimates of Black and Hispanic households with DC savings in 2007, for which the 95 percent confidence intervals are +/- 5.6 and +/-4.7 respectively. Only the 9 percentage point decrease in the percentage of Hispanic households with DC savings from 2007 to 2013 is a statistically significant change. All percentage estimates for the percentage of working, prime age (age 25–64) households with access to a DC plan at a current job by race/ethnicity from 2007 to 2013 have 95 percent confidence intervals within +/- 5.2 percent. Only the 12 percentage point decrease in the percentage of Hispanic households with access to a DC plan at a current job from 2007 to 2013 is a statistically significant change.

However, among racial and ethnic groups, only Black working households' median balance of DC savings decreased from 2007 to 2013, with their median balance of savings declining by \$14,700 (in 2015 dollars) from \$31,100 in 2007 to \$16,400 in 2013.³⁵ From 2004 to 2013, the only increase in median balances of DC savings, was for White working households, who saw their median account balance rise by \$14,500 (in 2015 dollars), from \$44,300 in 2004 to \$58,800 by 2013 according to the SCF data we examined. (See textbox.)

³⁵Our analysis of the impacts of the 2007 to 2009 recession and subsequent recovery focuses on working households with DC plans because working households would be most vulnerable to the economic shocks—for example, job loss—of an economic recession and recovery. The median balance of DC savings for Hispanic working households in 2007 was not considered reliable enough to include in this report. The change in White working households' balances from 2007 to 2013 was unchanged—or determined to be not statistically significant.

Potential Impact of Labor Market Experience and Other Wealth Accumulation on Racial and Ethnic Disparities in DC Savings

Research has shown that differences in earnings and labor market experiences may be a contributing factor to differences in DC balances and participation by race and ethnicity. The Census Bureau estimated in 2014 that White households had a median income of \$60,256 compared to median incomes of \$35,398 for Black households and \$42,491 for Hispanic households.^a An Urban Institute analysis finds that these annual income differences add up over the course of a lifetime, with the typical White individual earning a median of \$2 million, the typical Black individual earning \$1.5 million, and the typical Hispanic individual earning \$1 million.^b Additionally, a study for the Center for Labor Research and Education found that Black workers, in particular, had higher rates of unemployment and greater incidence of long-term unemployment than the working population as a whole, leading the researcher to conclude that Black workers face particularly severe challenges in accumulating wealth.^c White households' generally higher income leads to higher levels of wealth accumulation in a variety of financial instruments. A Federal Reserve analysis of the 2013 SCF found that the average wealth of White families was 7 times that of Black families and 6 times that of Hispanic families.^d Disparities in the overall accumulation of financial assets may account for these racial and ethnic disparities. For example, a Demos and Institute on Assets and Social Policy analysis of 2011 Survey of Income and Program Participation (SIPP) data found large racial and ethnic disparities in homeownership rates—73 percent of White households owned homes compared to 47 percent of Hispanic and 45 percent of Black households. Median home equity was \$86,800 for White homeowners compared to \$50,000 for Black homeowners and \$48,000 for Hispanic homeowners.^e Overall, as noted earlier in the report, low-income households have lower levels of access, participation, and savings in DC plans. For a variety of reasons, larger percentages of Black and Hispanic households tend to be low-income.^f

^aU.S. Census Bureau, Historical Income Tables, Table H-17: Households by Total Money Income, Race, and Hispanic Origin of Householder, <https://www.census.gov/hhes/www/income/data/historical/household/>. Data are for White (alone, not-Hispanic), Black (alone), and Hispanic (any race); Income is in 2014 CPI-U-RS adjusted dollars. Households are as of March of the following year.

^bMelissa Favreault, "Differences in earnings add up over a lifetime and widen the racial wealth gap," Urban Institute, <http://apps.urban.org/features/wealth-inequality-charts/>, Graph 5.

^cNari Rhee, "Black and Latino Retirement (In)security," Center for Labor Research and Education (Berkeley, CA: 2012).

^dJeffrey P. Thompson and Gustavo Suarez, "Exploring the Racial Wealth Gap Using the Survey of Consumer Finances," Finance and Economics Discussion Series 2015-076, Board of Governors of the Federal Reserve System (Washington, D.C.: 2015). In absolute terms the wealth differences between race groups are large, and the relative gaps are even larger if we look at median instead of mean net worth. Mean net worth in 2013 was \$688,000 for White families, \$95,000 for Black families, and \$112,000 for Hispanic families.

^eDemos and Institute on Assets and Social Policy, "The Racial Wealth Gap: Why Policy Matters," (New York: 2015)

^fAnalysis of the 2013 American Community Survey Public Use Microdata Sample (PUMS) finds that 23 percent of White, 49 percent of Black, and 55 percent of Hispanic working families live on annual household income that is 200 percent below the poverty line. Deborah Povich, Brandon Roberts and Mark Mather, "Low-Income Working Families: The Racial/Ethnic Divide," The Working Poor Families Project, Policy Brief (Winter 2014-2015).

Disparities in wealth and savings by income, and by race and ethnicity, may influence not only participation in DC plans but how households manage their DC accounts.³⁶ A study from the National Bureau of Economic Research (NBER) found that Black employees tended to contribute a lower percentage of their income to their 401(k) plans than did White and Hispanic employees, and that Black and Hispanic employees selected less risky and less high-yielding investments in their plans than White employees.³⁷ Compared to White households, Black and Hispanic households also borrow from their plan savings at higher rates, NBER researchers found. Our analysis found that 15 percent of Black and Hispanic working households with DC account savings took loans in 2010, compared to 9 percent of White working households. Other researchers found differences by race and ethnicity in DC savings loan behavior, with 49 percent of Black and 40 percent of Hispanic workers, compared to 26 percent of White workers, carrying an outstanding loan from their DC savings account in 2010.³⁸ The same study found racial and ethnic differences in managing a DC account when leaving a job. For example, 63 percent of Black, 57 percent of Hispanic, and 39 percent of White workers cashed out rather than rolled over their DC savings to an IRA or other retirement account when they left their employers in 2010. Several studies have found mixed results in examining whether Blacks and Hispanics who are financially similar to Whites make similar decisions about DC plan participation and contributions.³⁹ However, our analysis shows that Black, Hispanic, and White households are not comparably situated in

³⁶Some 401(k) and profit sharing plan sponsors also changed how they managed DC plans during the 2007 to 2009 recession. One study found that 15 percent of employers suspended and another 6 percent reduced their matching contribution to employees' DC plans from 2007 to 2010. Profit Sharing/401k Council of America (PSCA), "401(k) and Profit Sharing Plan Response to Current Conditions," (Chicago, December 2010).

³⁷Kai Yuan Kuan, Mark R. Cullen, and Sepideh Modrek, "Racial Disparities in Savings Behavior for a Continuously Employed Cohort," Working Paper 20937, National Bureau of Economic Research (Cambridge, MA: February 2015).

³⁸Ariel/Aon Hewitt, (Chicago: 2012).

³⁹See, for example: Alicia H. Munnell and Christopher Sullivan, "401(k) Plans and Race," Center for Retirement Research at Boston College, Vol. 9, Issue 24 (Chestnut Hill, MA: November 2009); Irena Dushi and Marjorie Honig, "Are 401(k) Savings Rates Changing? Cohort/Period Evidence from the Health and Retirement Study," WP 2007-160, University of Michigan Retirement Research Center (Ann Arbor, MI: October 2007); Jeffrey P. Thompson and Gustavo Suarez, "Exploring the Racial Wealth Gap Using the Survey of Consumer Finances," *Finances and Economics Discussion Series 2015-076*, Board of Governors of the Federal Reserve System (Washington, D.C.: 2015); Ariel/Aon Hewitt, (Chicago: 2012).

terms of access to DC plans. These differences in access, among other factors, may be a large hurdle to equalize DC plan savings across ethnic and racial groups.

Projected DC Plan Savings at Retirement Are Small for Many Households, but Key Decisions Can Increase Savings for Low-Earners

Projected DC Plan Savings at Retirement Vary Widely by Earnings, with Many Households Having No Plan Savings at Retirement

Our baseline projections show that households on average would save enough in their DC plans over their careers to generate monthly lifetime income at retirement, as measured by an annuity equivalent,⁴⁰ of about \$2,970 in 2015 dollars (see table 2).⁴¹ While 81 percent of households in our baseline projections have at least some DC savings at retirement, a significant portion—19 percent of households—have no DC savings at retirement.⁴² Our baseline scenario projects DC savings assuming current law and trends.

Projecting DC Retirement Savings

We simulate the life of a cohort born in 1997—including a simulated work history and earnings pattern based on historical data—to project retirement savings. Our reported results are projections for when the cohort retires, from ages 62 to 70 in the years 2059 to 2067. Some assumptions of our simulation include the following: (1) workers fully annuitize all accumulated DC plan savings at retirement; (2) participants invest all plan assets in target date funds, which are mixed funds with risk levels based on proximity of retirement; and (3) stocks earn an average annual 6.4 percent real return.

Table 2: Projected Household Average Annuity from Defined Contribution Plan Savings at Retirement, by Earnings, under Baseline Scenario

⁴⁰We refer to an “annuity equivalent” as an “annuity” in the rest of this report. The dollar values in our report have been adjusted to reflect the dollar value of the annuity in those years to be in 2015 dollars. See appendix I for information on how we calculated the annuity equivalent conversion and other assumptions underlying our simulations.

⁴¹We projected these DC retirement savings for a simulated cohort from their birth in 1997 through retirement. This 1997 cohort was about 18 years old at the time of our analysis and thus just beginning their careers. Projection models such as the PSG microsimulation model are instructive in part because DC plans have only been the predominant type of plan since the 1990s. Therefore, looking at current savings levels does not necessarily convey the potential for workers to save in these accounts over an entire working career of 40 years or more. Further, we used this cohort for our simulations so that policy options, if implemented in the near future, would be in effect for the majority of this cohort’s working life. Average retirement age in the model is 64. Our simulation assumes that individuals retire from ages 62 to 70 in the years 2059 to 2067.

⁴²The results of our projections, which consist of a measure of accumulated savings at retirement for a hypothetical group born in the same year, are not directly comparable to our analysis of the SCF, which is a snapshot of savings of a sample of individuals of different ages.

	By Earnings Quartile				
	Overall	Lowest	Second lowest	Second highest	Highest
Highest and lowest monthly household earnings within each group	No data	\$60-\$2,989	\$2,990 -\$5,267	\$5,267 - \$9,027	\$9,028 - \$282,167
Average retirement annuity (per month, \$2015)	\$2,970	\$560	\$1,550	\$3,370	\$6,380
Households with DC savings at retirement (percent)	81	65	80	87	92

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Note: We projected the retirement savings for a cohort born in 1997. The results shown are projections for when the cohort retires, between ages 62 and 70 in the years 2059 to 2067. Other model assumptions include the following: 1) workers fully annuitize all accumulated DC plan savings at retirement; 2) participants invest all plan assets in target date funds; and 3) stocks earn an average annual 6.4 percent real return. The overall median annuity equivalent is \$1,420 per month in 2015 dollars. Households accumulate DC plan savings over their career to generate a median monthly annuity equivalent of \$170 for lowest group, or quartile, \$1000 for second lowest group, \$2,730 for second highest group, and \$5,670 for the highest group of households. (See appendix I for more model details).

In our analysis, projected savings would vary widely across earnings groups.⁴³ Households in the low-earnings group would accumulate DC plan savings equivalent to an average annuity of about \$560 per month in retirement. Further, 35 percent of this group would have no DC plan savings at retirement. These low-earning households with no DC plan savings are also less likely to have sources of retirement income other than Social Security and are at particular risk for retirement insecurity.⁴⁴ In contrast, households in the high-earnings group would save enough to receive about 11 times more annuity income from DC plans than low-earning households, on average. Even in this high-earning group, 8 percent of households would have no DC plan savings at retirement. Though the baseline results suggest that DC plans have the potential to provide significant retirement income, our projections also suggest that the retirement security of some households—and particularly low-earning households—could be at risk.

⁴³Groups are quartiles, or four equal groups, divided according to a measure of household earnings. Discussion of “low” and “high” earning households refers to the first (i.e., “lowest”) and the fourth (i.e., “highest”) earning groups, respectively.

⁴⁴Our prior work also indicates that while Social Security retirement benefits replace a higher percentage of earnings for lower-earning workers, this alone may not ensure lower-earners an adequate retirement income. See [GAO-11-400](#).

Many Individual and Employer Decisions Can Substantially Raise Projected DC Plan Savings at Retirement, Especially for Low-Earning Households

Many decisions, some within the control of workers and some within the control of plan sponsors, can have significant effects on projected balances of DC savings. We simulated scenarios examining how workers' behaviors and employer decisions affect the amount of projected income available for retirement as compared to our baseline scenario.⁴⁵ Behaviors that we simulated included participation, rolling over of savings at the end of a job, and contributing to a plan.⁴⁶ Employer decisions that we simulated included availability of plans, eligibility and vesting requirements, and automatic enrollment.⁴⁷ All of these scenarios had a relatively strong, positive impact on the DC savings of households in the low-earnings group and a reduction in the number of households with no DC plan savings at retirement.⁴⁸ Our scenarios indicate that increasing participation, rollover rates, and offer rates may have a particularly significant impact on overall savings, especially for low-earners. While these projections represent stylized scenarios, they illustrate the potential improvement on retirement savings from changing these key decisions.

⁴⁵We selected scenarios to analyze based on the various decisions made by the employer and by the plan participant that affect the accumulation of DC savings—with consideration of existing modeling capabilities as well as expert interviews and our review of existing literature. This section highlights decisions by individuals and employers that had a relatively strong positive impact on the DC plan savings of households in the lowest earnings group and a reduction in the number of households with no DC plan savings at retirement. The analysis of other scenarios is included in appendix I.

⁴⁶These behaviors were simulated in our universal participation, universal rollover, and maximize employer match scenarios.

⁴⁷These employer decisions were simulated in our universal offer, immediate eligibility and vesting, and automatic enrollment scenarios. In this report, we are not recommending or endorsing the adoption of any particular policies or practices. Rather, we identify them from existing literature and expert interviews as potential options that could be considered.

⁴⁸Other scenarios we simulate related to workers' behavior or employer decisions affected average retirement savings overall, but had a smaller impact on low-earning households' savings relative to high-earners and on the number of households with no plan savings at retirement. These scenarios include assumed changes in retirement age, annual contribution and catchup provisions, account fees, and suspension of employer's match. See appendix I for the results of these projections. Our prior work also simulated the existing Saver's Credit tax incentive, a refundable credit (which could be in excess of taxes due and, thereby, generate a refund) (26 U.S.C. § 25b), and automatic IRAs. [GAO-13-699](#)

Universal Participation

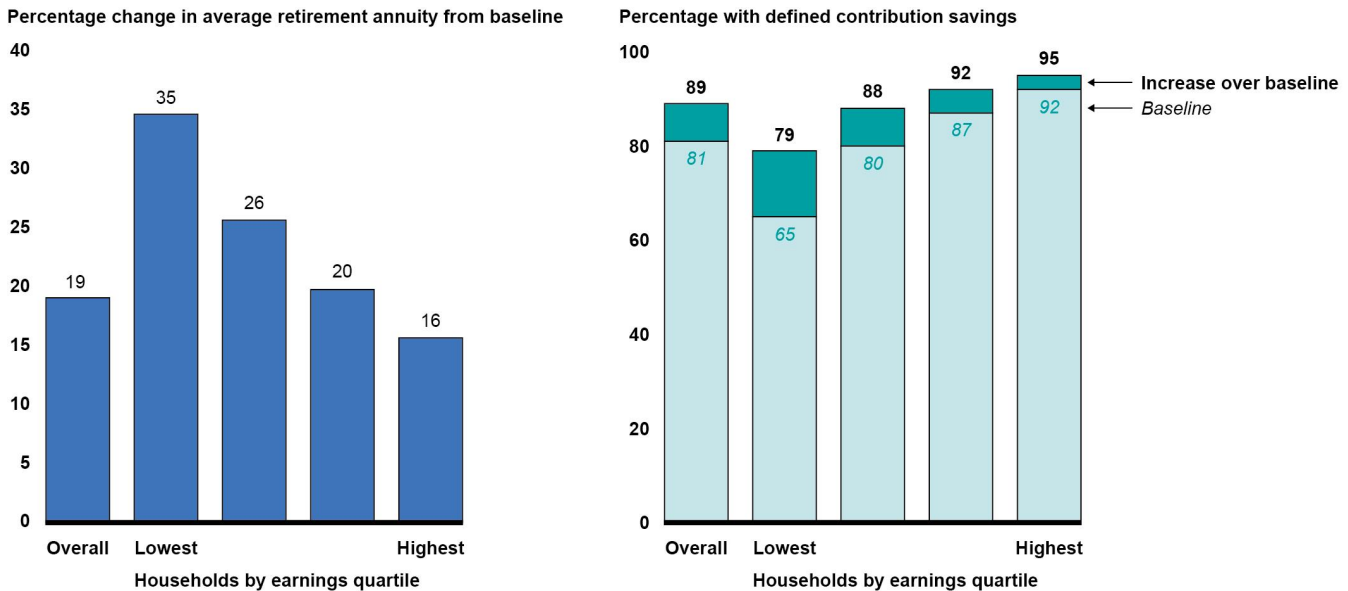
Scenario: Universal Participation

All workers participate in a DC plan if they are offered one by their employer.

While the modification of several key decisions can increase retirement income and the percentage of households with DC savings at retirement, universal participation provides the largest overall gains in our projections of household retirement annuities—an average increase of 19 percent (see fig. 7).⁴⁹ This scenario also produced the largest increase for low-earning households' average retirement annuities. Average annuities increased 35 percent for this group compared to 16 percent for high-earners. Universal participation also significantly increased the percentage of households with DC savings at retirement. However, even with universal participation, 11 percent of households overall and 21 percent of households in the low-earnings group still had no DC plan savings at retirement, meaning this segment of the population did not have a plan offered to them, were not eligible for a plan, or withdrew (or “leaked”) their DC savings prior to retirement.

⁴⁹Our universal participation scenario does not alter current standards for eligibility or the likelihood that an employer will offer a DC plan. Thus, only workers who are offered and are eligible for a plan participate and the probability of being offered a plan is the same as our baseline projection. Further, while this scenario ensures eligible workers participate, it does not necessarily ensure consistent contributions. The PSG models assign a contribution rate among participants using a process that accounts for variation across age and earning groups, individuals within age-earning groups, and variation across years for the same individual. For participants not passively accepting a default contribution under any automatic enrollment features in the plan, the assigned contribution rate does not depend on the plan match. While the contribution will vary significantly by individual and over time, the average intended employee contribution rate is almost 6.7 percent for someone who is age 40 and earns at or below the Social Security Administration's average wage index. In our baseline projections, 33 percent of those eligible to participate in a DC plan do not choose to participate; therefore, when applied to our projections, this scenario significantly raises plan participation rates among workers.

Figure 7: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Participation Scenario



Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Despite the projected benefits of universal participation, research indicates that many workers choose not to participate in an employer-sponsored retirement plan. In addition to deciding whether to participate, households must decide how often to contribute to their DC plan. Recent analysis found that, over the 2007 to 2012 period, consistently contributing workers had a 67 percent higher average account savings than other participants.⁵⁰ Since employee contributions to DC plans are voluntary, achieving universal participation under current law and economic conditions would be challenging. For instance, some potential participants—especially those from low-income households—may have constrained resources and elect not to participate in a DC plan. For these individuals, contributing to a DC plan could create economic hardship as

⁵⁰Jack VanDerhei; Sarah Holden; Luis Alonso; and Steven Bass. "What Does Consistent Participation in 401(k) Plans Generate? Changes in 401(k) Account Balances, 2007-2012," EBRI Issue Brief No. 402 (Washington, D.C.: July 2014).

it diverts funds from basic necessities.⁵¹ Nevertheless, this scenario demonstrates that policies or strategies focused on increasing participation rates for those who have access to a DC plan could significantly increase retirement savings.

Universal Rollover

Scenario: *Universal Rollover*

All workers who have savings in a DC plan always keep the money in a tax-preferred account upon leaving a job, either by keeping the money in the plan, transferring it to a new employer plan, or rolling it into an IRA, rather than cashing it out.

What workers choose to do with their DC savings when changing jobs can profoundly affect a household's preparedness for retirement. Reducing a source of leakage at job change—the cashing out of DC savings when an employee separates from an employer—preserves retirement savings and allows workers to accrue higher benefits in the long term.⁵² Our projections show that eliminating cash-outs and instead rolling these funds into other DC accounts or IRAs increases average projected retirement annuities 16 percent (see fig. 8).⁵³ Eliminating cash-outs also results in a projected 79 percent of low-earning households having at least some DC savings at retirement. Our universal rollover scenario also increases retirement annuities the most for the lowest-earning households, meaning cash-outs may be a more significant drain on retirement savings for this group than for other earnings groups. For example, under our universal

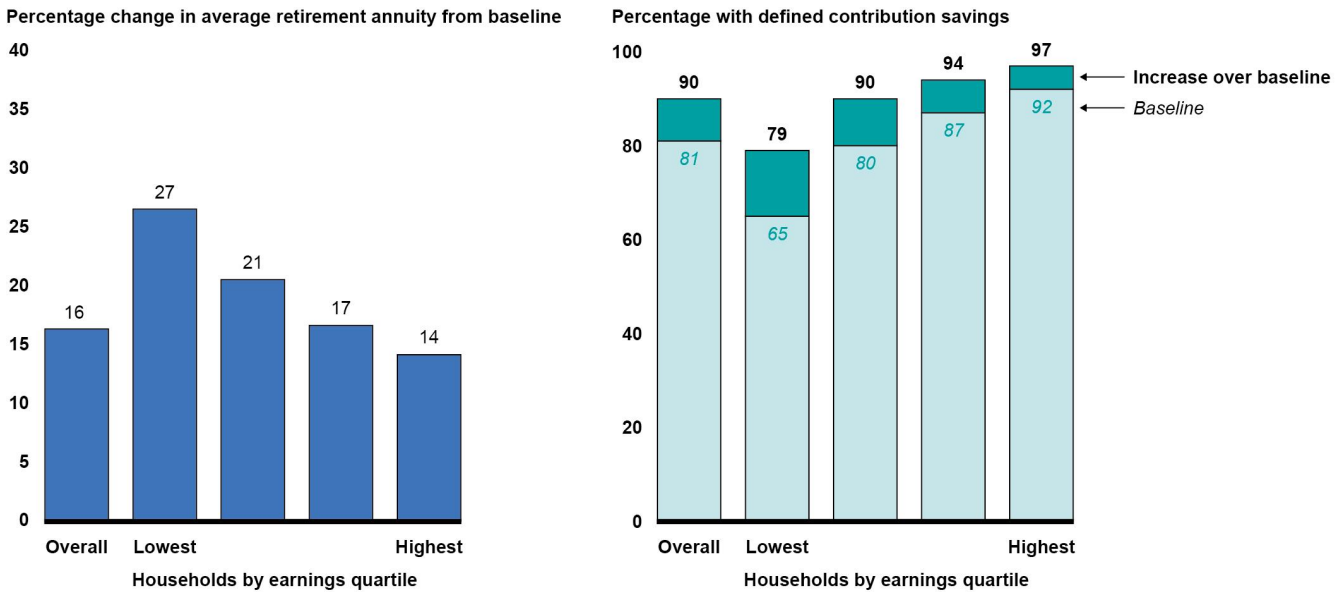
⁵¹The Federal Reserve Board's Survey of Household Economics and Decisionmaking found that lower-income households are more likely than higher-income households to have their spending exceed their income. Over a quarter of low-income households spent more than their income and 43 percent reported that their spending equaled their income. Board of Governors of the Federal Reserve System, *Report on the Economic Well-Being of U.S. Households in 2014* (Washington D.C.: May 2015).

⁵²Workers with a DC plan may cash out their DC savings when separating from an employer by requesting a lump sum payment of their total account savings, or some portion of it, rather than keeping their accumulated savings in the plan or rolling it into another DC plan or IRA. Early distributions that are not rolled over are generally subject to a 10 percent excise tax in addition to regular income tax. 26 U.S.C. § 72(t). Plan sponsors may also force the transfer of account savings into an IRA for participants who have accumulated less than \$5,000 and change jobs without indicating what should be done with the money. 26 U.S.C. §§ 401(a)(31) and 411(a)(11). For more information on forced transfers see GAO, *401(K) Plans: Greater Protections Needed for Forced Transfers and Inactive Accounts*, [GAO-15-73](#) (Washington, D.C.: Nov. 21, 2014).

⁵³In our baseline scenario, workers cash out account savings between 16 to 20 percent of the time when leaving a job, depending on their age. These cash-outs take into account other sources of leakage, such as loan defaults. The PSG models do not independently simulate other sources of leakage. Our previous work has found that cash-outs of DC accounts at job separation result in the largest amounts of leakage and the greatest proportional loss in retirement savings. GAO, *401(k) Plans: Policy Changes Could Reduce the Long-term Effects of Leakage on Workers' Retirement Savings*, [GAO-09-715](#) (Washington, D.C.: Aug. 28, 2009).

rollover scenario, average DC savings increased 27 percent for the low-earnings group compared to 14 percent for the high-earnings group.

Figure 8: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Rollover Scenario



Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Other research also finds that lower-earning households are more susceptible to leakage than higher-earning households. A 2013 study by the Federal Reserve suggests that leakage from DC accounts is strongly correlated with shocks to income, and lower-income workers are more likely to experience these types of shocks and withdraw savings from their DC accounts.⁵⁴ For instance, the researchers found that leakage increased between 2004 and 2010, and rose markedly after the financial crisis and recession. Another study found that incidences of leakage of DC savings declined as account savings, incomes, financial wealth, and rates of IRA

⁵⁴Leakage in this study include all gross distributions from a DC account for taxpayers younger than 55. Argento, Bryant, and Sabelhaus, *Federal Reserve Board: Early Withdrawals from Retirement Accounts During the Great Recession*, March 2013. Washington, D.C.

ownership increased.⁵⁵ Our prior work examining the effects of leakage concluded that many participants continue to cash out their DC savings when separating from their employer in part because the option is often presented to them with little or no information on its long-term consequences. Our prior work also noted that, with better information on the consequences of leakage, participants may choose to preserve their DC retirement savings, which could result in a better retirement outcome.⁵⁶

Scenario: Universal Offer

All employers that do not sponsor a plan are required to provide a DC plan with no employer contribution. Existing employer-sponsored plans are not affected by this assumption.

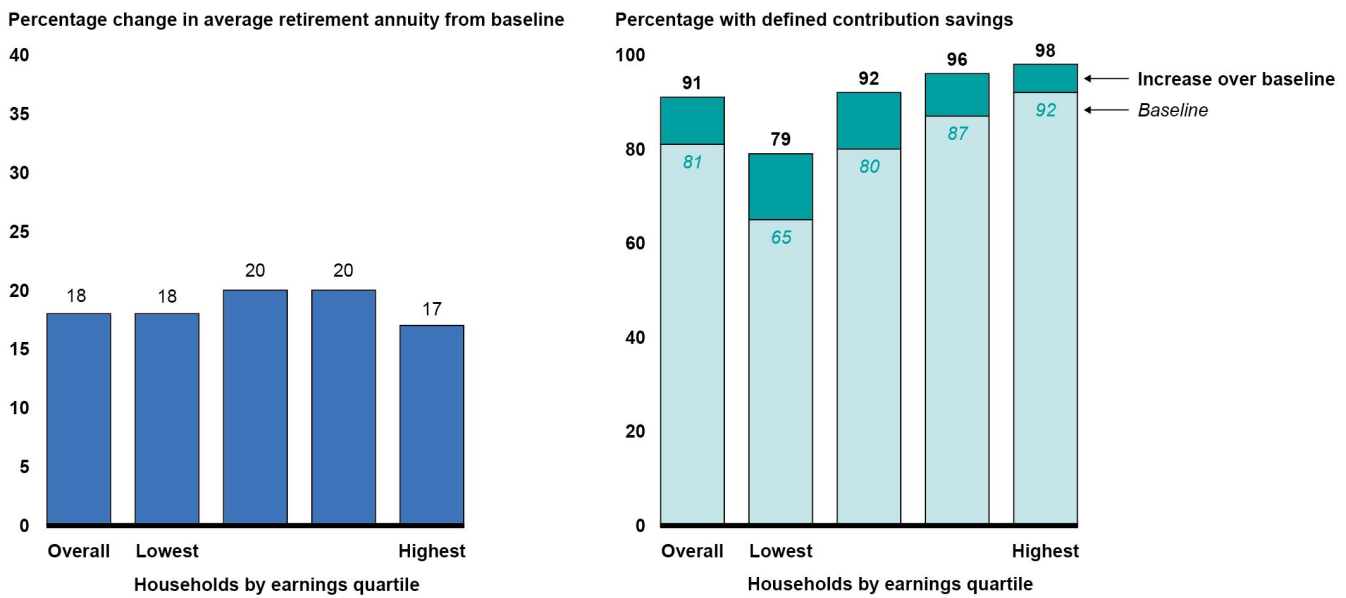
Projected retirement savings increased substantially when we assumed that all employees are offered a DC plan from their employers. This universal offer scenario increased projected household retirement annuities by 18 percent overall (see fig. 9). This increase was relatively consistent across earning groups. Both low-earning and high-earning households saw considerable increases in the percentage of households with at least some projected DC savings at retirement under our universal offer assumption. Our projections show it increased the percentage of low-earning households with DC savings at retirement 14 percentage points—from 65 percent to 79 percent—compared to the baseline. Additionally, the percentage of households in the high-earnings group with DC savings also increased significantly under the universal offer scenario suggesting that certain high-earning households may benefit from increased access to DC retirement plans.⁵⁷

⁵⁵Sudipto Banerjee “Take it or Leave it? The Disposition of DC Accounts: Who Rolls Over into an IRA? Who Leaves Money in the Plan and Who Withdraws Cash?” *EBRI Notes*, Vol. 35, No. 5 (Washington, D.C.: May 2014). This study uses Health and Retirement Study data (a longitudinal study on health, retirement, and aging sponsored by the National Institute on Aging) to analyze the disposition of DC accounts for a group of workers age 50 or older.

⁵⁶See [GAO-09-715](#)

⁵⁷In our baseline scenario, 7 percent of households overall were never offered a DC plan from any of their employers over their career. Low-earning households were much less likely than high-earning households to be offered a DC plan. For instance, 11 percent of the low-earning group were never offered a DC plan over their career compared to 4 percent of the high-earning group. While the percent of households covered by DC plans increased more for low-earning households than for high-earning households under this scenario, the percent change in retirement savings were similar across earning groups. These results are due, in part, to modeling assumptions that lower-earning households will generally contribute less relative to higher-earning households. In turn, lower contributing households are more likely to witness leakage (i.e., cash-outs) of DC savings, as the model also assumes higher rates of leakage for those with lower account balances.

Figure 9: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Offer Scenario



Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

The primary reason workers do not participate in a DC plan is because they are not offered a plan from their employer, according to our prior findings.⁵⁸ In recognition of this issue, some states have recently taken steps to expand access

⁵⁸For instance, our analysis of 2012 Survey of Income and Program Participation data found that among private sector workers who do not participate in a workplace retirement savings program, 68 percent reported they worked for an employer that did not offer a program. See [GAO-15-556](#). In another report, we found that expanding access to DC plans through automatic IRAs could increase retirement coverage and modestly increase retirement annuities for households at all earnings levels. Specifically, we projected that 7 percent of all households had no retirement annuities from DB or DC plans, but could receive annuity income from automatic IRAs. Based on our projections, more households in the lowest earnings group would benefit than in other earnings groups. See [GAO-13-699](#).

and coverage.⁵⁹ Consistent with our projections, we also previously found that lower-income workers are much less likely to be offered employer-sponsored retirement plans.⁶⁰ Other research has also shown that access to an employer-sponsored retirement plan can improve retirement savings. For example, a study prepared for the Small Business Administration (SBA) concluded that the biggest step small employers could take to increase worker retirement savings was to offer them access to a plan.⁶¹

⁵⁹We recently summarized efforts to increase employment-based retirement savings in select states. State legislatures in the six states we studied proposed or enacted legislation to expand coverage by combining access to an employer-sponsored retirement plan with automatic enrollment and financial incentives. These efforts would expand workplace access for uncovered workers in two ways: (1) by *encouraging* small employers to offer workplace access by creating state-run programs or state-facilitated marketplaces through which employers can voluntarily offer workers access to a retirement savings program and payroll deduction; or 2) by *requiring* employers that have more than a certain number of employees and that do not already offer an employee benefit plan to make their payroll systems available for workers to contribute via payroll deduction. Additionally, in 2015, the Department of the Treasury launched My Retirement Account, or *myRA*, directed toward those who lack access to a retirement savings plan at work. Under the program, individuals may voluntarily set up recurring payroll deduction contributions that will be invested in nonmarketable retirement savings bonds only available to *myRA* participants. [GAO-15-556](#).

⁶⁰Our analysis found that workers in the highest income quartile were nearly 4 times more likely than workers in the lowest income quartile to work for an employer that offers a workplace retirement plan, after controlling for other factors. [GAO-15-556](#).

⁶¹Department of Labor's Employee Benefits Security Administration and Internal Revenue Service, *Choosing a Retirement Solution for Your Small Business*, (Washington, D.C., 2012); accessed on June 22, 2015: <http://www.dol.gov/ebsa/pdf/choosing.pdf>; and Kobe, Kathryn. *Small Business Retirement Plan Availability and Worker Participation*, Written for the Small Business Administration, Office of Advocacy, (Washington, D.C., March 2010).

Maximize Employer Match

Scenario: Maximize Employer Match

All employees contribute at least the amount needed to receive their employer's maximum matching contribution.

Taking full advantage of an employer's matching contribution also increased projected savings, particularly for low-earning households.⁶² Employers may offer a match—an additional contribution equal to some or all of the worker's contribution. This scenario increased households' retirement annuities 13 percent overall and 31 percent for low-earning households (see fig. 10).⁶³ Our projection results suggest that low-earning households are more likely than others to miss out on at least part of their employer matching contribution. A recent study examining savings records of plan participants found that one in four employees missed out on some employer contributions by not contributing enough to their DC plan to receive their full employer match. These researchers estimated that U.S. workers are passing up approximately \$24 billion annually in employer matching contributions.⁶⁴

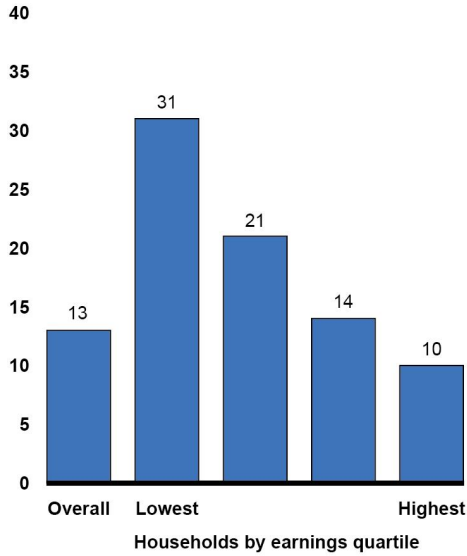
⁶²For instance, under this scenario, if an employer matches 50 percent for the first 6 percent of salary contributed by an employee, eligible employees will contribute at least 6 percent of their salary to their DC account. Those that are already contributing at or above the employer match rate will be unaffected by this scenario. Contributions under this scenario continue to be limited by IRS contribution limits and plan rules that set a percent of earnings as a ceiling on employee contributions.

⁶³Increasing contributions in this manner may increase costs for employers that offer matching contributions because this would increase their overall contributions. As a result, employers might reduce their match rate or other forms of compensation to keep their total compensation and benefits cost the same. In addition, while the increases in retirement annuities were large relative to our baseline, the increase in the percentage of households with DC savings was relatively small—especially in comparison to our other scenarios.

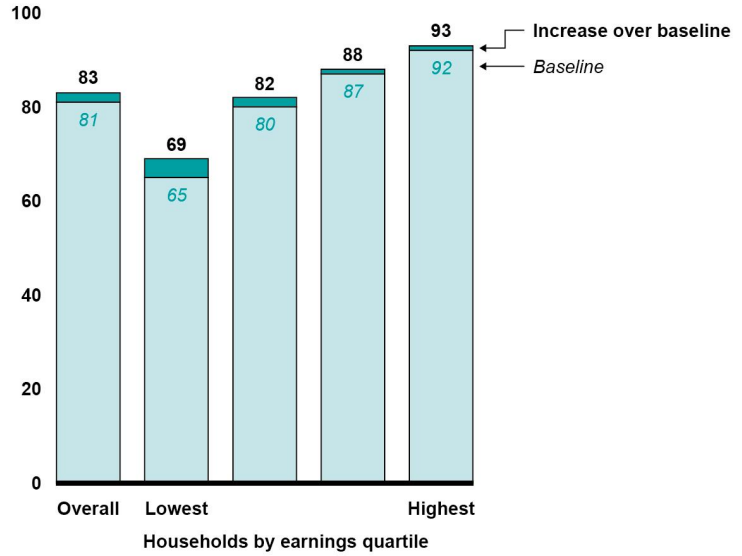
⁶⁴“Missing Out: How Much Employer 401(k) Matching Contributions Do Employees Leave on the Table?” Financial Engines (Sunnyvale, CA: May 2015).

Figure 10: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Maximize Employer Match Scenario

Percentage change in average retirement annuity from baseline



Percentage with defined contribution savings



Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Immediate Eligibility and Vesting

Scenario: Immediate Eligibility and Vesting

Workers who work for an employer that offers a plan are immediately eligible to participate and immediately vested in employer contributions.

Eliminating eligibility and vesting wait-periods increases households' projected average retirement annuities nearly 10 percent overall and 15 percent for low-earning households (see fig. 11).⁶⁵ Further, this scenario increases by 6 percentage points the projected number of households in the low-earnings group with DC savings at retirement. Even when employers offer a DC plan, many workers—and low-earners in particular—may be ineligible to participate.⁶⁶ Low-earners are more likely than high-earners to have part-time or temporary employment, which is traditionally associated with ineligibility for DC plans.⁶⁷ Similarly, these workers, if eligible for a plan, may be less likely to stay in a job long enough to be vested, which allows them to keep employer contributions which have been made to their DC account.⁶⁸

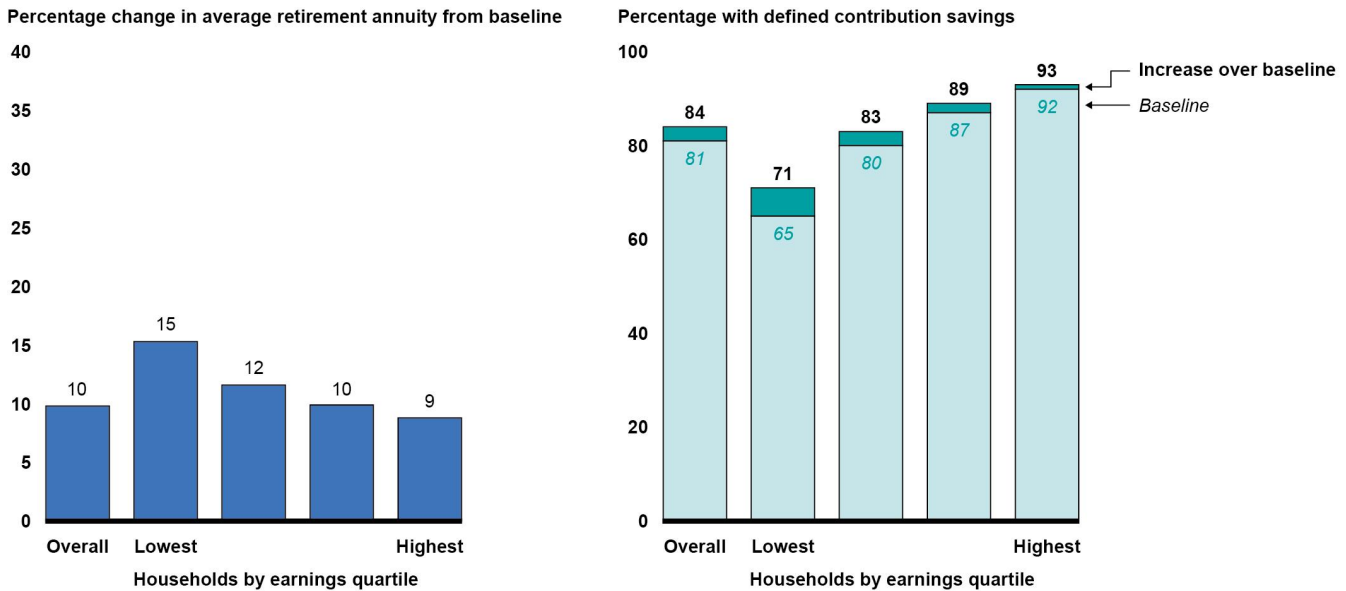
⁶⁵The Employee Benefit Research Institute (EBRI) utilizes a different microsimulation model that projects retirement income and retirement expenditures to calculate the likelihood of potential retirement savings shortfalls. Consistent with our results, their results suggest that reducing or eliminating eligibility requirements for participation in a DC plan can have a significantly positive impact on reducing retirement savings shortfalls. For instance, the retirement savings shortfall for those assumed to have no future years of eligibility (e.g., projected to work for an organization that does not provide access to a DC plan) is approximately \$78,000 per individual. In contrast, those with at least 20 years of future eligibility could find their average retirement savings shortfall at retirement reduced to only \$23,000. Jack VanDerhei “Retirement Readiness Ratings and Retirement Savings Shortfalls for Gen Xers: The Impact of Eligibility for Participation in a 401(k) plan” *EBRI Notes*, Vol. 33, No. 6 (Washington, D.C.: June 2012).

⁶⁶GAO is currently conducting research on private sector employer-sponsored retirement plans' application of eligibility and vesting requirements and a report on that work is forthcoming.

⁶⁷Young workers are also more likely to have temporary or part-time employment. Young workers who are not eligible for participation potentially forgo the savings realized through many years of compounding. Plans may require that workers otherwise eligible to participate in a plan reach the age of 21 or complete at least 1 year of employment, whichever is later, before participating. 26 U.S.C. § 410(a)(1)(A).

⁶⁸Participants may have to work for a certain period of time before they have a right to accrued benefits (or a portion of accrued benefits) based on their employer's contributions. Once a participant is fully vested, he or she has the right to 100 percent of the benefit that he or she has accrued to date, including benefits derived from both employer and employee contributions. However, if a participant leaves his or her employer before vesting, all or a part of the participant's accrued benefit based on the employer's contribution may be forfeited.

Figure 11: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Immediate Eligibility and Vesting Scenario



Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Universal Automatic Enrollment

Scenario: Universal Automatic Enrollment

All DC plans have automatic enrollment in which individuals must affirmatively opt out of participating.

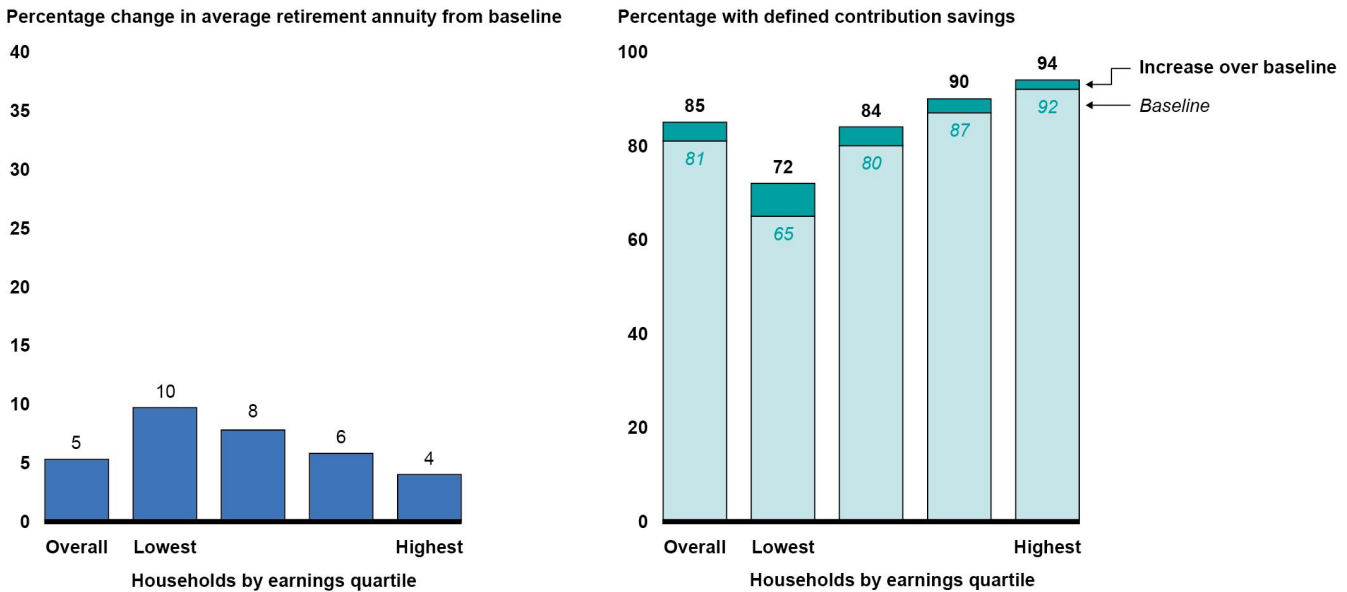
Changing our model to require that all plans automatically enroll participants, where workers must opt out of rather than into coverage, increases projected balances of DC savings and the percentage of households with DC savings at retirement.⁶⁹ While some employers already automatically enroll employees, requiring all DC plans to do so increases households' projected retirement annuities by 5 percent overall and nearly 10 percent for low-earning households (see fig. 12).⁷⁰ Further, low-earning

⁶⁹With respect to automatic enrollment, the model assumes the default contribution (i.e. the specified percentage of the employee's wages that will be automatically deducted) is 3 percent of pay. The PSG model makes no assumption about increasing automatic deductions, or automatic escalation, over time. Research has suggested that automatic escalation of contributions could result in increases to 401(k) savings—especially for low income workers. Jack VanDerhei, "The Expected Impact of Automatic Escalation in 401(k) Contributions on Retirement Income," *EBRI Notes*, Vol. 28, No. 9 (Washington, D.C.: September 2007).

⁷⁰The baseline scenario already assumes that plans will increasingly adopt automatic enrollment over time. Thus, requiring the use of automatic enrollment in our simulations, as was done under this scenario, has a diminishing effect as the cohort ages since the number of plans without automatic enrollment decreases over time. The likelihood of opting out is such that 100 percent automatic enrollment would cause the participation rate to rise from roughly 67 to 90 percent.

households with DC savings at retirement increased 7 percentage points under this scenario.

Figure 12: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Automatic Enrollment Scenario



Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Workers may not enroll and participate in a DC plan because their employer's program requires them to make an active decision to participate rather than automatically enrolling them and allowing them to opt out. Our prior work and other research have found that automatic enrollment is effective in overcoming employee inertia.⁷¹ For example, we previously found that participation rates significantly increased in programs that adopted automatic enrollment, with some participation rates reaching

⁷¹See, for example: GAO, *Retirement Savings: Automatic Enrollment Shows Promise for Some Workers, but Proposals to Broaden Retirement Savings for Other Workers Could Face Challenges*, GAO-10-31. Washington, D.C.: Oct. 23, 2009; GAO, *Retirement Security: Women Still Face Challenges*, GAO-12-699 (Washington, D.C.: July 19, 2012); GAO-13-699; and Jack VanDerhei and Craig Copeland, *The Impact of PPA on Retirement Savings for 401(k) Participants, 2008*, Issue Brief 318 (Washington D.C.: Employee Benefit Research Institute, June 2008).

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as high as 95 percent.⁷² Other studies have also demonstrated that automatic enrollment increases participation. For instance, the participation rate among new hires in plans with automatic enrollment was 91 percent—more than double the 42 percent participation rate of new hires in plans with voluntary enrollment, according to a 2015 Vanguard report.⁷³

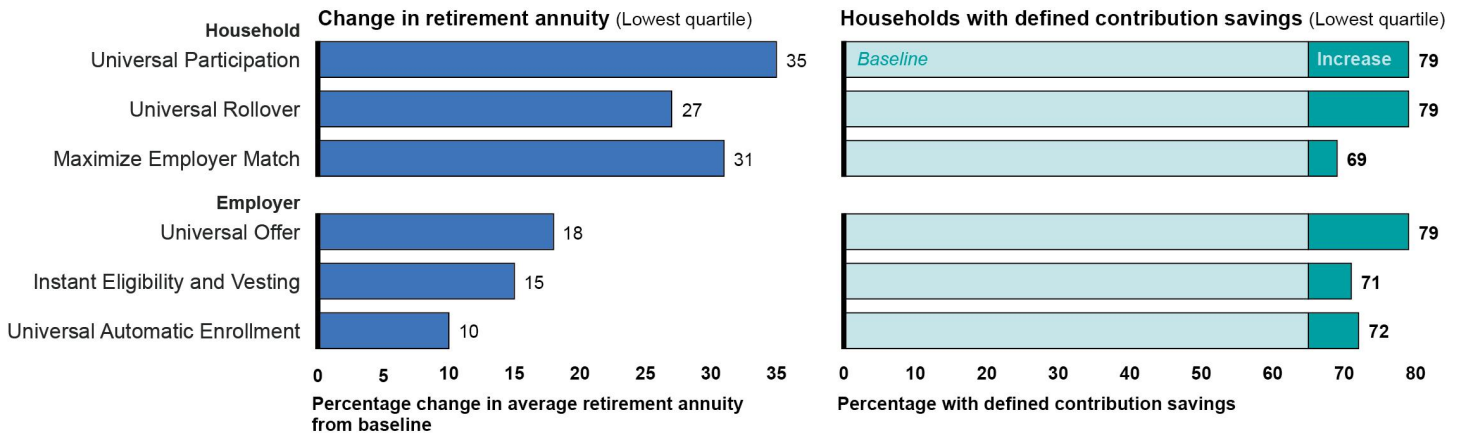
Our projections suggest that altering various decisions can have a dramatic effect on DC retirement savings for many Americans, and particularly for low-earning households, but there may be tradeoffs (see fig. 13). While the changes in each scenario improve projected retirement security by increasing DC retirement savings and the number of households with DC savings, each can place potential burdens on households or employers to achieve that security. Given these tradeoffs, approaches targeting employers and households may also need to take into account potential barriers to DC savings to help ensure retirement security for most households.⁷⁴

⁷²[GAO-10-31](#).

⁷³Statistics were drawn from Vanguard recordkeeping of 500,000 eligible newly hired employees in 460 DC plans. Jeffrey W. Clark, Stephen P. Utkus, and Jean A. Young, *Automatic Enrollment: The Power of the Default* (Valley Forge, PA: Vanguard Research, January 2015).

⁷⁴As noted earlier in this report, we are not endorsing or recommending the adoption of any particular policy option or package of options. Rather, we selected scenarios to analyze based on the various decisions made by the employer and by the individual that affect the accumulation of DC savings—with consideration of existing modeling capabilities as well as expert interviews and our review of existing literature.

Figure 13: Projected Household Retirement Annuities from Defined Contribution Plan Savings for Low-Earners, under Various Scenarios



Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Efforts to alter household behavior by increasing participation, reducing leakage, and optimizing contributions have the potential to significantly increase DC retirement savings for low-earning households, according to our projections. For instance, the largest increase in projected DC plan savings for low-earning households—35 percent—occurs through universal participation. Employer decisions, including whether to offer a plan or automatically enroll employees in a plan, as well as what the eligibility and vesting requirements will be, also have profound effects on the ability of low-earning household to save for retirement, according to our projections. For example, offering DC plans to all workers under our universal offer scenario raises projected average retirement savings of low-earning households by a significant 18 percent, suggesting that many households in this earnings group lack access to DC plans.

While our scenarios demonstrate positive effects on retirement savings, they do pose potential tradeoffs for employers and households that may offset some of these prospective gains. For example, employers who match employee contributions would face greater costs under the scenarios for universal participation, maximizing employer match, immediate eligibility and vesting, and automatic enrollment because they would be making larger contributions. As a result, employers might reduce the amount of their matching contributions or decide to no longer offer a plan. The immediate eligibility and vesting scenario also poses an additional tradeoff. While immediate vesting may help attract new

employees, it may provide less of an incentive for workers to stay with a company compared to a more gradual vesting schedule, which in turn may increase an employer's costs due to employee turnover. This scenario can also result in increased plan costs because of more employer contributions being provided to more workers.

Lower-earning households in particular face difficult tradeoffs in saving for retirement. While our scenarios generally project the largest retirement income increases for low-earning households, we still find many households, and low-earning households in particular, will not have any DC savings at retirement. Our prior work has shown that many of these households will likely have to rely primarily on Social Security, which already faces fiscal challenges of its own and may not provide adequate retirement security.⁷⁵

A major retirement security challenge is that low-earning households are the least able to afford saving for retirement. For example, 35 percent of low-income workers report that they do not participate in a DC plan because they cannot afford to make contributions, according to a federal survey of household economic well-being.⁷⁶ Some of the savings increases that occur under our scenarios might only be realized as a consequence of these households taking on additional debt or postponing important expenditures, for example, preventive healthcare expenses. Similarly, some households may be unwilling to save for retirement without first saving for emergencies in the short-term, such as loss of employment. In the same survey, over half the households reported they did not have emergency funds to cover 3 months of expenses, and nearly a quarter reported experiencing a financial hardship in the previous year.⁷⁷ Thus,

⁷⁵Even with Social Security benefits, many older Americans have incomes below the poverty threshold, and some subgroups are more likely to live in poverty than others. For instance, our analysis of Census data found that poverty rates for Black and Hispanic older Americans were 18 and 20 percent, respectively, compared to 8 percent for Whites ([GAO-16-75SP](#)). Some research suggests low-earners need higher target replacement rates—the percentage of income to aim for in retirement—because, in part, they may spend a relatively high amount of their income on nondiscretionary items, such as food. GAO, *Retirement Security: Better Information on Income Replacement Rates Needed to Help Workers Plan for Retirement*, [GAO-16-242](#) (Washington, D.C.: March 1, 2016).

⁷⁶Board of Governors of the Federal Reserve System, *Report on the Economic Well-Being of U.S. Households in 2014* (Washington D.C.: May 2015).

⁷⁷Ibid. These results represent responses from households across income groups. The percentage of low-income households without emergency funds is likely larger.

restricting leakage, as would occur in the universal rollover scenario, may discourage some workers from participating in a plan for fear they could not access their retirement savings in an emergency.

Agency Comments

We provided a draft of this report to the Department of Labor, the Department of the Treasury, and the Pension Benefit Guaranty Corporation (PBGC) for review and comment. The Department of Labor and the Department of the Treasury provided technical comments, which we incorporated as appropriate. PBGC did not have comments.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Labor, the Secretary of the Treasury, the Director of PBGC, and other interested parties. This report is also available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions regarding this report, please contact me at (202) 512-7215 or jeszeckc@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs can be found on the last page of this report. Key contributors are listed in appendix II.

Sincerely yours,



Charles A. Jeszeck
Director, Education, Workforce, and Income Security

Appendix I: Objectives, Scope, and Methodology

To analyze household savings in DC plans and the decisions that affect these savings we answered the following questions:

1. What are the recent trends in DC plan participation and account savings?
2. How much households could potentially save in DC plans over their careers, and how do key individual and employer decisions affect plan saving?

This appendix provides a detailed account of the information and methods we used to answer these questions. Section 1 describes the key information sources we used to answer both questions. Section 2 describes our analysis of different subsamples of the survey data we examined. Section 3 describes the empirical methods, additional scenarios, and summary statistics from our simulations used to answer the second question.

Section 1: Information Sources

We used information from a variety of sources to answer these questions, including the Survey of Consumer Finances (SCF); the Policy Simulation Group's (PSG) microsimulation models; relevant literature; interviews with a range of experts in the area of retirement security; and relevant federal laws and regulations.

SCF

To answer the first question, we examined data from the 2004, 2007, 2010, and 2013 SCF to analyze households' access, participation, and savings in DC plans. The SCF is a triennial, nationally representative survey from the Board of Governors of the Federal Reserve System (Federal Reserve) that asks households about their pensions, incomes, asset holdings and debts, use of financial services, and demographic information. The publicly released version of the SCF includes 6,015 surveyed households for the 2013 SCF, 6,482 for 2010, 4,417 for 2007 and 4,519 in 2004.¹ The SCF is conducted using a dual-frame sample design.

¹The SCF excludes households that include individuals in the *Forbes Magazine* list of the 400 wealthiest people in the United States in addition to some households from the public data set that had a net worth at least equal to the minimum level needed to qualify for the *Forbes* list. For instance, the 2013 SCF surveyed a total of 6,026 households, but dropped 11 observations from the public data set leaving the 6,015 households in the public data set we examined, as reported above. The numbers reported above for each year exclude the households dropped for qualifying for the *Forbes* 400 list.

The first part of the design is a standard, multistage area-probability design, while the second part is a special over-sample of relatively wealthy households. This survey is designed in this manner to accurately capture financial information about the population at large as well as characteristics specific to the relatively wealthy. The two parts of the sample are adjusted for sample nonresponse and combined using weights to make estimates from the survey data representative of households overall.

For the purposes of this report, a household refers to the primary economic unit (PEU). The SCF defines the PEU as “an economically dominant single individual or couple (married or living as partners) in a household and all other individuals in the household who are financially interdependent with that individual or couple.”² We relied on variable definitions used for Federal Reserve publications using the SCF.³ For example, we used the Federal Reserve’s variable for age, which is the age of the PEU head.⁴ We also were constrained by the limits of the dataset the Federal Reserve releases to the public—as the Federal Reserve takes measures to protect the confidentiality of its respondents during disclosure review.

One modification that impacts our analysis is that the SCF collects survey data on several racial and ethnic categories, but, likely due to small sample size or confidentiality concerns, certain racial and ethnic categories are grouped together in the publically-released version of the SCF under the label “Other.” Due to this limitation, our analysis could not examine DC plan access, participation, and savings in separate subgroups for Asian, American Indian/Alaska Native, or Native Hawaiian/Pacific Islander respondents that are generally the head of household. These households were included in our analyses of overall DC plan access, participation, and savings and by income group—however we limited our analysis of race and ethnicity to White, Black, and Hispanic households.

²Board of Governors of the Federal Reserve System, “Codebook for 2013 Survey of Consumer Finances,” (Updated September 2014).

³See Jesse Bricker, et al. “Changes in U.S. Family Finances from 2010 to 2013: Evidence from the Survey of Consumer Finances,” *Federal Reserve Bulletin*, Vol. 100, No.4 (September 2014).

⁴For purposes of data organization, the Federal Reserve considers the head of the PEU to be the male within a mixed-sex couple or the older individual within a single-sex couple.

We also used the SCF's usual income rather than actual income variable.⁵ Analysis based on actual income might increase some of the values we reported for the lower-income group—such as amount of DC plan savings—because households with historically high income would be included in the low-income group if they were unemployed at the time of the survey.⁶ In analyzing households' access, participation, and savings in DC plans by income, we chose to order household income data by income quartile. Analyzing the data by income quintiles, rather than quartiles, would have made the income subsamples smaller, thus increasing the likelihood that such results might not meet our reporting standards.

We defined “working households” as all those who reported that at least one member was working including those who reported “worker plus disabled” and “worker plus retired.” We excluded those households who reported that they were self-employed (i.e. the respondent and, if applicable, spouse) from our analysis. We use a “prime-age” category restricted to households headed by someone within the 25 to 64 age group to exclude two groups least likely to have a DC plan: younger households who may be in college or graduate school and older households who may have already retired.

We used the Federal Reserve's variables for construction of defined contribution (DC) plans, such as 401(k) plans. Generally speaking the definitions include balances of pension account-type plans from previous employers and pension account-type plans at a current job. These account-type plans may include: 401(k); 403(b); 457; thrift/savings plan; profit-sharing plan; deferred compensation plan, n.e.c.; SEP/SIMPLE; money purchase plan; stock purchase plan; and employee stock option plan (ESOP). In addition, we added rollovers of the households individual retirement accounts (IRA) and Keogh accounts—using the available variables in the SCF.

⁵The SCF asks respondents the following question after data on actual income is collected: “Is this income unusually high or low compared to what you would expect in a ‘normal’ year, or is it normal?” If the respondent answered that income was unusually high or low, a follow-up question asked, “About what would your total income have been if it had been a normal year?” See Bricker, et al. (September 2014).

⁶In 2007, 14.4 percent of families reported that their usual income was higher than their actual income, a percentage that rose to 25.2 percent in 2010, and then declined to 18.4 percent in 2013. In 2007, 23.5 percent of families in the bottom actual income quintile income would have been in a higher usual income group, a percentage that increased to 38.8 percent in 2010 before decreasing to 31.2 percent in 2013. Bricker, et al. (September 2014).

Estimates from the SCF are also subject to some sampling error since the SCF sample is one of a large number of random samples that might have been drawn from the population. Since each possible sample could have provided different estimates, we express our confidence in the precision of the sample results as 95 percent confidence intervals. These intervals contain the actual population values for 95 percent of the samples that could have been drawn.

All percentage estimates based on the SCF have 95 percent confidence intervals, for example those that are reported below in table 3 to table 5. All percentage point or dollar estimate differences between SCF survey years we report (e.g., a percentage point change in households' access to DC plans from 2004 to 2013) are statistically significant at the 95 percent confidence interval level. All financial figures reported using SCF data are in 2015 dollars and most are rounded to the nearest hundred dollars.

The SCF and other surveys that are based on self-reported data are subject to several other sources of nonsampling error, including the inability to get information about all sample cases; difficulties of definition; differences in the interpretation of questions; respondents' inability or unwillingness to provide correct information; and errors made in collecting, recording, coding, and processing data. These nonsampling errors can influence the accuracy of information presented in the report, although the magnitude of their effect is not known.

PSG Microsimulation Models

To project lifetime savings in DC plans, and related retirement plans with personal accounts, and to identify the effects of changes in employer and household behavior, we used the Policy Simulation Group's (PSG) Pension Simulator (PENSIM) and Social Security and Accounts Simulator (SSASIM) microsimulation models. PSG developed these models for the Department of Labor and Social Security Administration, among others, and the models have been utilized in previous GAO reports. SSASIM provides economic and demographic projections and relies on PENSIM for simulated life histories of large representative samples of people born in the same year and their spouses.⁷ Life histories include educational

⁷While these models use sample data, our report, like others using these models, does not address the issue of sampling errors. The results of the analysis reflect outcomes for households in the simulated populations and do not attempt to estimate outcomes for an actual population.

attainment, labor force participation, earnings, job mobility, marriage, disability, childbirth, retirement, and death. Life histories are validated against data from the Survey of Income and Program Participation (SIPP), the Current Population Survey (CPS), Modeling Income in the Near Term (MINT),⁸ and the Panel Study of Income Dynamics (PSID). Additionally, any projected statistics (such as life expectancy, employment patterns, and marital status at age 60 are, where possible, consistent with intermediate cost projections from the Social Security Administration's (SSA) Office of the Chief Actuary (OCACT). At their best, such models can provide only very rough estimates of future incomes. However, these estimates may be useful for comparing future incomes across alternative policy scenarios and over time.

PENSIM simulates the timing for each life event by using data from various longitudinal data sets to estimate a waiting-time model (often called a hazard function model) using standard survival analysis methods. PENSIM incorporates many such estimated waiting-time models into a single dynamic simulation model. This model can be used to simulate a synthetic sample of complete life histories. PENSIM employs continuous-time, discrete-event simulation techniques such that life events do not have to occur at discrete intervals, such as annually on a person's birthday. PENSIM also uses macro-demographic and macroeconomic variables generated by SSASIM.

PENSIM imputes pension characteristics using a model estimated with 1996 to 1998 establishment data from the Bureau of Labor Statistics (BLS) Employee Benefits Survey (now known as the National Compensation Survey). Pension offerings are calibrated to historical trends in pension offerings from 1975 to 2005, including plan mix, types of plans, and employer matching. Further, PENSIM incorporates data from the 1996 to 1998 Employee Benefits Survey to impute access to and participation rates in DC plans in which the employer makes no contribution, which the BLS does not report as pension plans in the National Compensation Survey. The inclusion of these "zero-matching" plans enhances PENSIM's ability to accurately reflect the universe of pension plans offered by employers. The baseline PENSIM assumption,

⁸MINT is a detailed microsimulation model developed jointly by the Social Security Administration, the Brookings Institution, RAND, and the Urban Institute to project the distribution of income in retirement. MINT7 is the latest version and makes projections for the 1926 to 1979 birth cohorts.

which we adopted in our analysis, is that 2005 pension offerings, including the imputed zero-matching plans, are projected forward in time. PENSIM can also simulate federal income taxes.

PSG has conducted validation checks of PENSIM's simulated life histories against both historical life history statistics and other projections. Different life history statistics have been validated against data from the SIPP, the CPS, MINT, the PSID, and the SSA's Trustees Report. PSG reports that PENSIM life histories have produced similar annual population, taxable earnings, and disability benefits for the years 2000 to 2080 as those produced by the Congressional Budget Office's long-term Social Security model and as shown in the SSA's 2004 Trustees Report. According to PSG, PENSIM generates simulated DC plan participation rates and balances of DC savings that are similar to those observed in a variety of data sets. For example, measures of central tendency in the simulated distribution of DC savings among employed individuals are similar to those produced by an analysis of the Employee Benefit Research Institute-Investment Company Institute 401(k) database and of the 2004 SCF. We performed no independent validation checks of PENSIM's life histories or pension characteristics.

In 2006, the Employee Benefits Security Administration submitted PENSIM to a peer review by three economists. The economists' overall reviews ranged from highly favorable to highly critical. While the economist who gave PENSIM a favorable review expressed a "high degree of confidence" in the model, the one who criticized it focused on PENSIM's reduced form modeling. This means that the model is grounded in previously observed statistical relationships among individuals' characteristics, circumstances, and behaviors, rather than on any underlying theory of the determinants of behaviors, such as the common economic theory that individuals make rational choices as their preferences dictate and thereby maximize their own welfare. The reduced form modeling approach is used in pension microsimulation models and the feasibility of using a nonreduced form approach to build such a model may be questionable given the current state of economic research. The third economist raised questions about specific modeling assumptions and possible overlooked indirect effects.

Data Reliability

We conducted a data reliability assessment of the PSG models and selected variables from the SCF by conducting electronic data tests for completeness and accuracy, reviewing documentation on the data set, and interviewing knowledgeable officials about how the data are collected and maintained and their appropriate uses. When we learned that

particular fields were not sufficiently reliable or had sample sizes too small to produce reliable estimates, we did not use them in our analysis. For the purposes of our analysis, we found the PSG microsimulation models and the SCF variables that we ultimately reported on to be sufficiently reliable.

Literature Review and Interviews

We conducted an extensive literature review and interviewed a range of experts. To identify existing studies, we conducted searches of various databases, such as Banking Information Source, EconLit, ERIC, and ProQuest. In addition, we collected articles posted on the websites of organizations such as American Enterprise for Public Policy Research, Center for Retirement Research at Boston College, and the Employee Benefit Research Institute. We performed these searches related to both trends and projections of DC plan savings and identified articles from November 2014 through January 2016.

We identified, largely through our literature review efforts, individuals for interview. We conducted interviews with experts in research, advocacy, and the private sector; an expert from the PSG; and officials from the Department of Labor and the Federal Reserve on technical issues related to both the SCF and our projections. Discussions with experts and officials also informed our selected scenarios.

Section 2: Selected SCF Statistics, 2004 to 2013

Table 3: Percentage of Working, Prime-Age Households with DC Plan Savings, 2004 to 2013

Category	subcategory	2004	2007	2010	2013
Quartile of usual income	Lowest	25.93 (3.54)	29.73 (3.17)	30.93 (2.36)	25.19 (2.60)
	Second lowest	47.30 (3.01)	52.58 (3.91)	49.34 (2.78)	50.18 (3.07)
	Second highest	67.99 (3.58)	71.32 (3.39)	63.47 (2.63)	68.62 (3.06)
	Highest	77.49 (3.49)	79.59 (3.80)	81.31 (1.94)	80.59 (2.56)
Race/ethnicity	White, non-Hispanic	62.19 (2.27)	63.48 (2.29)	63.89 (1.71)	64.07 (1.86)
	Black, non-Hispanic	42.71 (5.50)	51.23 (5.60)	45.77 (5.44)	46.75 (3.69)
	Hispanic, any race	30.40 (4.17)	39.58 (4.70)	32.87 (3.49)	30.64 (3.80)
Total		2004	2007	2010	2013
All working, prime-age households		54.65 (2.26)	58.23 (1.91)	56.19 (1.47)	55.96 (1.48)

Source: GAO analysis of 2004 to 2013 Survey of Consumer Finances. | GAO-16-408

Note: 95 percent confidence intervals are presented in parenthesis underneath each estimate. This means that we are 95 percent confident that the percentage of working, prime-age households with DC savings is between the estimate plus/minus the confidence interval. For example, we are 95 percent confident that the percentage of all working households with DC savings in 2013 is between 54.48 percent and 57.44 percent (or 55.96 percent plus/minus 1.48 percent).

Table 4: Percentage of Working, Prime-Age Households Eligible to Participate in DC Plan at Current Job, 2004 to 2013

Category	2004	2007	2010	2013
Lowest	33.84 (3.19)	38.23 (3.09)	38.45 (2.35)	34.96 (2.73)
Second lowest	58.16 (3.37)	57.66 (3.77)	54.96 (2.58)	58.30 (2.91)
Second highest	72.42 (2.95)	72.80 (3.54)	68.08 (2.72)	70.98 (2.96)
Highest	78.70 (3.40)	79.55 (3.13)	79.32 (2.27)	79.98 (2.51)
Race/ethnicity	2004	2007	2010	2013
White, non-Hispanic	66.13 (2.01)	65.36 (2.30)	65.47 (1.74)	67.71 (1.71)
Black, non-Hispanic	57.03 (4.62)	60.07 (5.22)	52.97 (4.45)	56.37 (4.07)
Hispanic, any race	40.12 (4.12)	47.05 (4.97)	41.67 (3.52)	35.18 (3.77)
Total	2004	2007	2010	2013
All working, prime-age households	60.74 (1.87)	62.00 (1.78)	60.15 (1.37)	60.94 (1.37)

Source: GAO analysis of 2004 to 2013 Survey of Consumer Finances. | GAO-16-408

Note: 95 percent confidence intervals are presented in parenthesis underneath each estimate. This means that we are 95 percent confident that the percentage of working, prime-age households eligible to participate in a DC plan at their current job is between the estimate plus/minus the confidence interval. For example we are 95 percent confident that the percentage of all working households eligible at their current job in 2013 is between 59.57 percent and 62.31 percent (or 60.94 percent plus/minus 1.37 percent).

Table 5: Median DC Account Savings of Working, Prime-Age Households with DC Plan Savings, 2004 to 2013 (to nearest \$100 in 2015 dollars)

Category	subcategory	2004	2007	2010	2013
Quartile of usual income	Lowest	10,500 (2,800)	11,300 (2,400)	10,800 (900)	10,400 (1,500)
	Second lowest	24,100 (3,800)	32,000 (8,500)	23,700 (4,000)	28,400 (5,500)
	Second highest	56,200 (8,200)	59,700 (12,200)	52,200 (9,500)	60,900 (6,200)
	Highest	145,200 (33,800)	162,800 (23,900)	181,300 (29,700)	201,500 (28,300)
Race/ethnicity	White, non-Hispanic	44,300 (7,000)	52,100 (8,800)	48,000 (6,200)	58,800 (6,800)
	Black, non-Hispanic	18,800 (5,300)	31,100 (8,600)	19,900 (4,100)	16,400 (5,200)
	Hispanic, any race	18,700 (8,900)	N/A (N/A)	18,000 (5,700)	18,900 (5,700)
Total		2004	2007	2010	2013
All working, prime-age households with balances		37,800 (4,900)	45,000 (5,100)	38,000 (4,900)	41,900 (4,900)

Source: GAO analysis of 2004 to 2013 Survey of Consumer Finances | GAO-16-408

Note: 95 percent confidence intervals are presented in parenthesis underneath each estimate. This means that we are 95 percent confident that the median DC savings of working, prime-age households with savings is between the estimate plus/minus the confidence interval. For example we are 95 percent confident that the median DC savings of all working, prime-age households with DC savings for 2013 is between \$37,000 and \$46,800 (or \$41,900 plus/minus \$4,900). The median estimate of DC savings for Hispanic working, prime-age households in 2007 was not considered reliable enough to include in this report. To convert survey dollar values into 2015 dollars, we use the year-end (i.e., December) values from the Consumer Price Index Research Series Using Current Methods, or CPI-U-RS, published by the Department of Labor's Bureau of Labor Statistics (BLS). At the time of our analysis, the CPI-U-RS was only available through 2014. We supplemented an additional year of data (2014-2015) by using the historical current Consumer Price Index for All Urban Consumers, or CPI-U (also published by BLS), to determine the most recently available estimate of the year-end change from 2014 to 2015.

Section 3: PSG Methodology, Additional Scenarios, and Summary Statistics

This section describes the scenarios and assumptions used to answer question 2. It also presents the results from additional scenarios not described in the body of the report and describes cohort summary statistics resulting from our simulations.⁹

Scenarios and Assumptions

PENSIM allows the user to alter one or more inputs to represent changes in government policy, market assumptions, or personal behavioral choices and analyze the subsequent impact on pension benefits. Our baseline simulation includes a 2 percent sample of a cohort born in 1997, totaling 64,575 people at birth.¹⁰ We projected household retirement income when the sampled individual reached retirement—between the age of 62 and 70. Our baseline simulation includes some of the following key assumptions and features.

- *DC savings* - Our analysis focused exclusively on accumulated savings in DC plans and did not include any benefits an individual might receive from DB plans or from Social Security. Our reported benefits therefore capture just one source of potential income available to a retiree. We ran an alternate simulation in which all DB plans were converted to DC plans. Even with this assumption, a significant number of households have no DC savings at retirement (see table 6).

Table 6: Projected Household Retirement Annuities from Defined Contribution (DC) Plan Savings, by Earnings, Assuming All Defined Benefit Plans Are Converted to DC Plans

⁹We selected scenarios to analyze based on the various decisions made by the employer and by the plan participant that affect the accumulation of DC savings—with consideration of existing modeling capabilities as well as expert interviews and our review of existing literature. The body of our report highlights decisions by the employer and individual that had a relatively strong positive impact on DC savings of households in the lowest earnings group and a reduction in the number of households with no DC savings at retirement. The results of our projections of other factors are included in table 9 in this section.

¹⁰This number does not include spouses of the cohort whose DC savings contribute to the reported household DC savings.

	By Earnings Quartile				
	Overall	Lowest	Second Lowest	Second Highest	Highest
Average retirement annuity (percent increase over baseline)	21	21	21	21	21
Households with DC savings at retirement	86	70	85	92	96

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Note: In the baseline, households accumulate DC plan savings, in 2015 dollars, over their career to generate an average monthly annuity equivalent of \$2,970 overall; \$560 for the lowest earning group; \$1,550 for second earning group; \$3,370 for the third earning group; and \$6,380 for the highest earnings group. The percent of households with DC savings at retirement in the baseline is 81 percent overall and 65, 80, 87, and 92 percent for the earnings groups, respectively (see table 2).

- Description of cohort* - We eliminated from the sample cohort members who: (1) died before they retired; (2) immigrated into the cohort at an age older than 25; (3) emigrated before retirement; or (4) became permanently disabled before age 62.¹¹ We dropped cohort members who died before retiring because we assume annuitization at retirement, but someone who died before retiring would never annuitize his/her DC savings. We applied the other conditions because such cohort members are likely to have fewer years in the workforce to accumulate DC plan savings or are no longer in the cohort.
- Annuity equivalent conversion* - A worker's entire balance of DC savings is converted to an annuity at retirement. This annuity equivalent is based on a single-life annuity that was not adjusted for inflation.¹² Without this step, comparisons across households would be difficult because individuals in the cohort retire in different years and have different spend down behaviors. In practice, few household convert their entire DC account into an annuity. Annuity prices were based on projected mortality rates for the 1997 birth cohort and on loading factors that ensured that the cost of providing annuities in PENSIM

¹¹We classify as retired those workers who become disabled after age 62. We do not classify as disabled those workers who recover from a disability prior to age 62.

¹²While a single-life annuity that is not adjusted for inflation may not be the optimal choice for all members of the cohort, the annuity choices were standardized to simplify analysis.

equaled the revenue generated by selling them at those prices.¹³ We assumed that the annuity provider had no administrative or marketing costs, no costs in acquiring the capital it needs to hold in reserve, and earns no profits.

- *Rollover assumption* - We assumed that workers accumulate DC plan benefits from past jobs in one rollover account, which continues to receive investment returns, along with any benefits from a current job. At retirement, these are combined into one account. When workers change jobs, they either roll over the balance of their DC savings account or cash out. We relied on PENSIM's defaults—where rollover rates are dependent on the relative size of their account savings—to determine whether workers rolled over their account savings. PENSIM does not explicitly simulate the process of an individual taking out and repaying a loan from their DC savings, but the calibration of cash-outs at the end of a job do include the effects of loan defaults.
- *Investment in target date funds* - Plan participants invest all account assets in target date funds, which, by construction in the model, are funds that adjust the mix of assets between stocks and government bonds as the individual ages. Stocks return an annual nonstochastic real rate of return of 6.4 percent and government bonds have a real return of 2.9 percent per year. Because our projections did not stochastically model stock returns, assuming a rate of return on assets equal to the historical return on stocks did not capture the risks associated with stock returns. Further, the nominal rate of return for stocks is based in part on a long-term equity risk premium calculated in 2000.¹⁴ Using different rates of return would result in different effects on the balance of DC account savings at retirement and, as a result, the

¹³PENSIM has an annuity price function that uses standard actuarial methods to combine the ages and genders of the individual and spouse, as well as the individual's cohort birth year, with the age- and gender-specific mortality rates and mortality decline that are produced by way of the economic and demographic statistics that are generally dictated by underlying assumptions in the Social Security portion of the microsimulation model calibrated to the 2015 Social Security Trustees Report. This process produces the unloaded price of a one-dollar-per-year annuity. An assumed gender-specific annuity loading factor is combined with this price to produce a total (that is, loaded) annuity price. The calculated annuity expenditures divided by this annuity price produces the quantity of one-dollar-per-year annuity purchased by the individual.

¹⁴Peter A. Diamond, "What Stock Market Returns to Expect for the Future?" *Social Security Bulletin*, Vol. 63, No. 2 (2000).

size of the household’s retirement annuity.¹⁵ In one simulation, we use the government bond rate (2.9 percent) on all plan assets (see table 7). Using different rates of return reflect assumptions used by OCACT in some of its analyses of trust fund investment.

Table 7: GAO Analysis of Projected Household Retirement Annuities from Defined Contribution (DC) Plan Savings, by Earnings, Assuming a 2.9 Percent Real Annual Rate of Return

	By Earnings Quartile				
	Overall	Lowest	Second Lowest	Second Highest	Highest
Average retirement annuity (percent increase over baseline)	-27	-27	-26	-26	-27
Households with DC savings at retirement	81	66	79	86	92

Source: GAO analysis using the Policy Simulation Group’s microsimulation models. | GAO-16-408

Note: In the baseline, households accumulate DC plan savings, in 2015 dollars, over their career to generate an average monthly annuity equivalent of \$2,970 overall; \$560 for the lowest earning group; \$1,550 for second earning group; \$3,370 for the third earning group; and \$6,380 for the highest earnings group. The percent of households with DC savings at retirement in the baseline is 81 percent overall and 65, 80, 87, and 92 percent for the earnings groups, respectively (see table 2).

- *Household DC savings* - To calculate the balance of household DC savings, we used a combined annuity value of worker-spouse lifetime DC savings and a combined measure of steady family earnings.

Starting from this baseline simulation, we constructed scenarios that varied key inputs and assumptions to see how these variations affected pension benefits at retirement. We did not account for any behavioral responses that changes in these assumptions may have created. In reality, some individuals may choose to contribute more to their DC plans or may choose to start saving in a DC plan in response to these assumption changes. Scenarios we simulated included universal participation, universal rollover, universal offer, maximizing employer match, immediate eligibility and vesting, and universal automatic enrollment.

¹⁵Some projections of retirement savings by other researchers use lower rates of return in their model assumptions. For example, the Center for Retirement Research applies a real return of 4 percent to projected wealth prior to retirement for their calculation of the National Retirement Risk Index.

Additional Factors that Affect Projected DC Plan Savings

We also simulated several other factors that significantly affect projected DC plan savings including the age an individual retires, contribution limits, account fees, and the elimination of matching contributions from employers (see table 8).

Table 8: Explanation of Alternative Scenarios

Scenario	Explanation
Retirement age	Two scenarios in which workers delay retirement by 1 or 3 years ^a
Contribution limits	Assume 2016 annual defined contribution (DC) employee deferral limits increase to \$28,000, the combined employer-employee maximum contribution level increases to \$73,000 and the catch-up provision is increased to \$10,000. ^b
Account fees	The high account fee is 190 basis points and the low account fee is 17 basis points. ^c
Match suspension	All employer matches are eliminated for the entire working career of participants. ^d

Source: GAO analysis. | GAO-16-408

^aDelaying retirement provides more years to contribute to and earn returns on DC account savings and also might raise annual retirement income because older retirees have less years of income to fund.

^bThe Internal Revenue Code sets limits—indexed for inflation—on annual contributions to DC plans by both employees and employers. In 2016, an employee may make up to \$18,000 in tax deferred contributions into a DC plan, and combined employee and employer combined contributions cannot exceed \$53,000. An employee age 50 or older may contribute an additional \$6,000 in annual “catch-up” contributions.

^cThe standard account fee used in the model’s baseline is 75 basis points. The low and high account fee scenarios reflect fees on target date funds currently on the market.

^dThe model assumes that contribution, coverage, and participation rates do not reflect behavioral responses to the elimination of employer matches.

These factors affect average retirement savings overall, but have a lower impact on lower-earners’ retirement savings relative to higher-earners or on the number of workers with zero plan savings at retirement when compared to the scenarios highlighted in the body of our report (see table 9). For instance, higher annual contribution maximums affect projected savings almost exclusively among the highest-income group, because few workers earning less are likely to contribute at existing maximum levels. Similarly, delaying retirement raises retirement savings at higher percentages for those with higher earnings, but has little effect on the

percentage of households with no DC savings in our projections.¹⁶ Assuming different account fees and eliminating the employer’s match affects retirement savings evenly across earning groups.

Table 9: Projected Household Retirement Annuities from Defined Contribution (DC) Plan Savings, by Earnings, Under Alternate Assumptions

	Category	By earnings quartile				
		Overall	Lowest	Second lowest	Second highest	Highest
Contribution limits	Retirement annuity (percent increase over baseline)	16	1	3	11	24
	Households with DC savings at retirement (percent)	81	65	80	87	92
Retirement age: Workers delay retirement 3 years	Retirement annuity (percent increase over baseline)	17	6	18	17	18
	Households with DC savings at retirement (percent)	81	64	80	88	92
Retirement age: Workers delay retirement 1 year	Retirement annuity (percent increase over baseline)	5	3	6	5	5
	Households with DC savings at retirement (percent)	81	64	79	87	92
Account fee: Low account fee	Retirement annuity (percent increase over baseline)	11	11	11	11	11
	Households with DC savings at retirement (percent)	81	65	80	87	92
Account fee: High account fee	Retirement annuity (percent increase over baseline)	-18	-18	-18	-18	-19
	Households with DC savings at retirement (percent)	81	65	80	87	92
Match suspension	Retirement annuity (percent increase over baseline)	-20	-20	-19	-19	-20
	Households with DC savings at retirement (percent)	81	64	79	87	92

Source: GAO analysis using the Policy Simulation Group’s microsimulation models. | GAO-16-408

¹⁶ Encouraging workers to retire later has been suggested as a key element in improving retirement income security, by increasing earnings, allowing more time to save for retirement, and reducing the length of retirement. In our projections, delaying retirement not only provides more years to contribute to and earn returns on DC savings, but also might raise annual retirement income because older retirees receive more annuity income for any given level of savings, holding all else equal.

Note: In the baseline, households accumulate DC plan savings, in 2015 dollars, over their career to generate an average monthly annuity equivalent of \$2,970 overall; \$560 for the lowest earning group; \$1,550 for second group; \$3,370 for the third earning group; and \$6,380 for the highest earnings group. The percent of households with DC savings at retirement in the baseline is 81 percent overall and 65, 80, 87, and 92 percent for the earnings groups, respectively (see table 2).

Cohort Summary Statistics

Lifetime summary statistics of the simulated 1997 cohort’s workforce and demographic variables give some insight into the PSG model’s projections of income in retirement in our report (see table 10). By restricting the sample to retirees who do not immigrate into the cohort after age 25, do not emigrate or die before retirement, and do not become permanently disabled before age 62, we reduced the unrestricted sample of 123,160 households to a sample of 64,575 households.

Table 10: Sample Summary Statistics at Retirement, 1997 Pension Simulator (PENSIM) Cohort

Demographic variables	By earnings quartile				
	Overall	Lowest	Second lowest	Second highest	Highest
Monthly household earnings (mean)	\$7,071	\$1,959	\$4,063	\$6,951	\$15,309
Percent whose longest-held job offers a pension	73	60	71	78	85
Percent who were ever eligible to participate in a DC plan	91	86	90	93	95
Number of years vested in a DC plan (mean)	16	12	15	17	19
Retirement age (mean)	64	64	64	64	65
Percent female	52	62	54	51	41
Education (median)	Some college	High school graduate	High school graduate	Some college	College or graduate degree
Years working full-time (mean)	27	20	27	29	32
Years working part-time (mean)	6	10	7	5	4
Total number of cohort members at retirement	64,575	16,144	16,143	16,144	16,144

Source: GAO analysis using the Policy Simulation Group’s microsimulation models. | GAO-16-408

Note: The sample excludes cohort members who immigrated into the cohort after age 25, emigrated or died before retirement, or became permanently disabled before age 62. Earnings are adjusted for family size and are presented in 2015 dollars. We analyzed our results using earnings quartiles, or four equal groups, which are calculated based on a measure of lifetime household earnings. Earnings groups were based on family steady earnings at age 65.

Appendix II: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, Michael Collins (Assistant Director), Charles Ford (Analyst-in-Charge), Brian Schwartz, Stephen Yoder, and Chris Zbrozek made key contributions to this report. Also contributing to this report were Susan Aschoff, James Bennett, Alicia Cackley, Lawrance Evans, Jennifer Gregory, Sheila McCoy, Karen O'Connor, James McTigue, Edward Nannenhorn, Anna Maria Ortiz, Oliver Richard, Amrita Sen, MaryLynn Sergent, Joseph Silvestri, and Craig Winslow.

Appendix III: Accessible Data

Data Tables

Data Table for Highlights Figure: Estimated Household Defined Contribution (DC) Savings, by Income and Race, 2013

40% of all households have DC savings, but the likelihood of having savings and the amount saved varies with income and race

Income quartile	Percentage of households
Lowest	25%
Second lowest	50%
Second highest	69%
Highest	81%

Working households with DC savings (By income quartile)

By race	Median account balance (in 2015 dollars)
White households	58,800
Black households	16,400
Hispanic households	18,900

Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

Accessible Text for Figure 1: Mechanics of Accumulating and Managing Retirement Savings in Defined Contribution Plans

When individual is employed

1. Employee starts job [Individual or behavioral decision]
2. Employer may offer plan [Workplace and plan factor]
3. Employee becomes eligible to participate [Workplace and plan factor]
4. If enrollment is not automatic, employee enrolls in plan [Individual or behavioral decision]
5. Employee/ Employer makes contributions [Both behavioral and plan factor]
6. Employee invests assets and earns returns [Both behavioral and plan factor]
7. Employee may take loan/withdrawal from plan [Both behavioral and plan factor]

When leaving a job

1. If permitted, employee rolls over, cashes out, or leaves balance [Individual or behavioral decision]
2. Assets not cashed out remain in plan [Individual or behavioral decision]

At retirement

1. Employee may take distribution, such as a lump sum or annuity [Individual or behavioral decision]

2. Employee manages any lump sum or remaining account [Individual or behavioral decision]

Source: GAO. | GAO-16-408

Data Table for Figure 2: Defined Contribution (DC) Plan Savings by Household Income among Working Households, 2013

56% of working households had a DC account balance in 2013, but the likelihood of having savings and the amount saved varies with income

Working households with DC savings (By income quartile)

Income quartile	Percentage of households
Lowest	25%
Second lowest	50%
Second highest	69%
Highest	81%

Median DC account balance (Among working households with accounts)

Income quartile	Median account balance (in 2015 dollars)
Lowest	10,400
Second lowest	28,400
Second highest	60,900
Highest	201,500

Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

Data Table for Figure 3: Defined Contribution Plan Access and Participation by Household Income among Working Households, 2013

Percentage of participants

Households by income quartile	Have access, but not participating in a Defined Contribution (DC) plan	Do not have access to a DC plan	Participating in employer's DC plan
Lowest	13	65	22
Second lowest	11	42	48
Second highest	7	29	64
Highest	4	20	76

Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

Data Table for Figure 4: Defined Contribution Plan Savings and Participation by Household Income among Working Households, 2010 to 2013

Percentage of households with defined contribution plan savings

Households by income quartile	2010	2013
Lowest	31	25
Second lowest	49	50
Second highest	63	69
Highest	81	81

Percentage of households that participate (when they have access)

Households by income quartile	2010	2013
Lowest	77	64
Second lowest	84	82
Second highest	89	89
Highest	96	95

Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

Data Table for Figure 5: Defined Contribution (DC) Plan Savings by Race/Ethnicity among Working Households, 2013

56% of working households had a DC account balance in 2013, but the likelihood of having savings and the amount saved varies with race and ethnicity

Working households with DC savings by race

By race	Percentage of households with savings
White households	64%
Black households	47%
Hispanic households	31%

Median DC account balance among working households with accounts

By race	Median account balance (in 2015 dollars)
White households	58,800
Black households	16,400
Hispanic households	18,900

Source: GAO analysis of 2013 Survey of Consumer Finances. | GAO-16-408

Data Table for Figure 6: Defined Contribution Plan Savings and Access by Race/Ethnicity among Working Households, 2007 to 2013

Percentage with DC savings

By race	2007	2013
White households	63	64
Black households	51	47
Hispanic households	40	31

Percentage with access to a DC savings plan at current job

By race	2007	2013
White households	65	68
Black households	60	56
Hispanic households	47	35

Source: GAO analysis of Survey of Consumer Finances 2007-2013. | GAO-16-408

Data Table for Figure 7: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Participation Scenario

Households by earnings quartile	Percentage change in average retirement annuity from baseline
Overall	19
Lowest	35
Second lowest	26
Second highest	20
Highest	16

Percentage with defined contribution savings

Households by income quartile	Baseline	Total
Overall	81	89
Lowest	65	79
Second lowest	80	88
Second highest	87	92
Highest	92	95

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Data Table for Figure 8: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Rollover Scenario

Households by earnings quartile	Percentage change in average retirement annuity from baseline
Overall	16
Lowest	27
Second lowest	21
Second highest	17
Highest	14

Percentage with defined contribution savings

Households by income quartile	Baseline	Total
Overall	81	90
Lowest	65	79
Second lowest	80	90
Second highest	87	94
Highest	92	97

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Data Table for Figure 9: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Offer Scenario

Households by earnings quartile	Percentage change in average retirement annuity from baseline
Overall	18
Lowest	18
Second lowest	20
Second highest	20
Highest	17

Percentage with defined contribution savings

Households by income quartile	Baseline	Total
Overall	81	91
Lowest	65	79
Second lowest	80	92
Second highest	87	96
Highest	92	98

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Data Table for Figure 10: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Maximize Employer Match Scenario

Households by earnings quartile	Percentage change in average retirement annuity from baseline
Overall	13
Lowest	31
Second lowest	21
Second highest	14
Highest	10

Percentage with defined contribution savings

Households by income quartile	Baseline	Total
Overall	81	83
Lowest	65	69
Second lowest	80	82
Second highest	87	88
Highest	92	93

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Data Table for Figure 11: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Immediate Eligibility and Vesting Scenario

Households by earnings quartile	Percentage change in average retirement annuity from baseline
Overall	10
Lowest	15
Second lowest	12
Second highest	10
Highest	9

Percentage with defined contribution savings

Households by income quartile	Baseline	Total
Overall	81	84
Lowest	65	65

Households by income quartile	Baseline	Total
Second lowest	80	80
Second highest	87	87
Highest	92	92

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Data Table for Figure 12: Projected Household Retirement Annuities from Defined Contribution Plan Savings, by Earnings, under Universal Automatic Enrollment Scenario

Households by earnings quartile	Percentage change in average retirement annuity from baseline
Overall	5
Lowest	10
Second lowest	8
Second highest	6
Highest	4

Percentage with defined contribution savings

Households by income quartile	Baseline	Total
Overall	81	85
Lowest	65	72
Second lowest	80	84
Second highest	87	90
Highest	92	94

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

Data Table for Figure 13: Projected Household Retirement Annuities from Defined Contribution Plan Savings for Low-Earners, under Various Scenarios

Percentage change in average retirement annuity from baseline

Household	Universal Participation	35
	Universal Rollover	27
	Maximize Employer Match	31
Employer	Universal Participation	18
	Universal Rollover	15
	Maximize Employer Match	10

Percentage of households with defined contribution savings (Lowest quartile)

	Households by income quartile	Baseline	Total
Household	Universal Participation	65	79
	Universal Rollover	65	79
	Maximize Employer Match	65	69
Employer	Universal Participation	65	79
	Universal Rollover	65	71
	Maximize Employer Match	65	82

Source: GAO analysis using the Policy Simulation Group's microsimulation models. | GAO-16-408

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