

GAO

Report to the Ranking Member, Special
Committee on Aging, U.S. Senate

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RETIREMENT SECURITY

Women Face Challenges in Ensuring Financial Security in Retirement





Highlights of [GAO-08-105](#), a report to Ranking Member, Special Committee on Aging, U.S. Senate

Why GAO Did This Study

Women aged 65 and over will account for a growing segment of the U.S. population over the next several decades. Despite increases in women's workforce behavior in the past 65 years, elderly women have persistently high rates of poverty. Thus, it is important to understand the differences between men's and women's retirement income, and how women may fare given future reforms to Social Security and pensions. GAO was asked to examine (1) how women's retirement income compares with men's and the reasons for differences; (2) how certain life events such as divorce, widowhood, and workforce interruptions affect women's retirement income; and (3) the possible effect on women's retirement income of certain changes to Social Security and pensions that seek to mitigate the effects of differences in workforce participation patterns.

To address these objectives, GAO reviewed the relevant literature, interviewed academics and other retirement experts, and used a microsimulation model to project future retirement income. GAO provided a draft of this report to the departments of Labor and Treasury, the Internal Revenue Service, and the Social Security Administration. Cognizant agency officials provided technical comments which were incorporated as appropriate.

GAO is making no recommendations.

To view the full product, including the scope and methodology, click on [GAO-08-105](#). For more information, contact Barbara Bovbjerg at (202) 512-7215 or bovbjergb@gao.gov.

RETIREMENT SECURITY

Women Face Challenges in Ensuring Financial Security in Retirement

What GAO Found

In general, women have less retirement income than men, largely because of women's lower labor force attachment and lower earnings, on average. Fewer women than men have income from most major retirement sources, and women have less income from these sources. Women's median Social Security income is 70 percent of men's. Also, fewer women than men have pensions. Among the population age 65 and over who continue to work, women earn just over half of what men earn. Women also have somewhat smaller income than men from assets, such as interest and dividends. Accordingly, rates of poverty among those 65 and over are substantially higher for women than for men. Although their participation has increased substantially in the last century, women still spend fewer years in the labor force than men, and they more often work part-time. Also, women tend to earn less than men, despite increases in their wages over time relative to men. Although work patterns are key in earnings differences, in prior work, we found that even after accounting for behavioral differences such as education or labor force participation, women still earn less than men.

Certain life events—including changes in marital status, labor force interruptions, and long-term care needs—can significantly reduce the amount of pension income and Social Security benefits women receive—and leave women with fewer financial resources at retirement than men. Social Security divorced spousal benefits are available only if the marriage lasted at least 10 years. Furthermore, pension benefits are available to a divorced spouse only under certain circumstances. Women's role as primary family caregiver for children and elderly relatives can reduce their career earnings, on which retirement income is based. Because women tend to live longer than men, widowhood and costly long-term care assistance may further reduce their retirement resources.

GAO's simulations of some Social Security changes that would compensate for low earnings or time out of the workforce showed that those changes tend to increase benefits for beneficiaries overall, and particularly those in lower income quintiles. Alternatively, changes that focus on shifts in family structure, such as increases in two-earner couples and increased incidence of divorce, tend to increase the benefits of groups targeted by the change, but produce mixed results for others. Some pension changes that have been proposed in the past several years take into account the changing labor force and norms of employer-provided retirement plans; while these changes are gender-neutral, they may provide important new opportunities for women to increase their retirement income. For example, decreased vesting requirements may provide additional pension income to those with intermittent workforce participation who would not qualify for pension benefits under a longer vesting schedule.

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Abbreviations

AIME	Average Indexed Monthly Earnings
CSSS	Commission to Strengthen Social Security
DB	defined benefit
DC	defined contribution
ERISA	Employee Retirement Income Security Act of 1974
GEMINI	Genuine Microsimulation of Social Security and Accounts
IRA	individual retirement account
MTR	Maintain Tax Rates
OASDI	Old-Age, Survivors, and Disability Insurance
OCACT	Social Security Administration’s Office of the Chief Actuary
OLC	overlapping cohorts
PENSIM	Pension Simulator
PIA	Primary Insurance Amount
PSG	Policy Simulation Group
QDRO	qualified domestic relations order
RCS	representative cohort sample
REA	Retirement Equity Act
SPIA	Special Primary Insurance Amount
SSA	Social Security Administration
SSASIM	Social Security and Accounts Simulator
SSI	Supplemental Security Income

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United States Government Accountability Office
Washington, DC 20548

October 11, 2007

The Honorable Gordon Smith
Ranking Member
Senate Special Committee on Aging
United States Senate

Dear Senator Smith:

Over the next 40 years women aged 65 and over will account for a growing segment of the U.S. population. In 2000, there were about 20 million women aged 65 and over, more than 7 percent of the U.S. population; by 2050 that number is estimated to grow by nearly 28 million to about 12 percent of the population. Elderly women have persistently high rates of poverty, and the major source of income for many retired women is Social Security. However, the Social Security system is affected by the decrease in the rate of growth of the working age population. Under current law, the Social Security Trustees project that by 2041 the Social Security Trust Funds could be insufficient to pay full benefits.¹

Demographics as well as rising health care costs are profoundly affecting not only the Social Security system, but also Medicare, private pension and health benefits, and personal savings in ways that will likely present serious challenges to ensuring financial security for future retirees and, ultimately, the economic security of the nation. In recent years, many proposed reforms of the Social Security system have focused on long-term solvency and financing issues, many of which could result in decreased benefits for individuals. Alternatively, some Social Security proposals developed over the past several decades include elements that seek to modify the program and address its limitations when applied to nontraditional-family or earnings structures. These limitations may be due both to the evolving nature of families and to changes in women's labor

¹The Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, *The 2007 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (Washington, D.C.: Apr. 23, 2007).

force participation that have emerged since Social Security's creation.² These elements often address the needs of two-earner families as well as retirement benefits after divorce. Additionally, recent and ongoing changes in employer-sponsored pension plans, most notably the shift from defined benefit pension plans to defined contribution plans, may complement changes in workforce patterns, but also place greater responsibility for prudent savings and investment decisions on workers. Given the existing differences in men's and women's incomes, and the changes in women's workforce behavior in the later half of the 20th century, any future changes to Social Security as well as both proposed and ongoing changes to employer-provided pensions could have different impacts on women and men. It is important to understand how each will fare under various proposals.

You asked us to help clarify what drives the gap in retirement income between men and women and to provide information on the implications of different modifications to both Social Security as well as employer-provided pensions. Our objectives were to examine (1) how women's retirement income compares with men's and describe the reasons for differences; (2) how certain life events such as divorce, widowhood, and workforce interruptions affect women's retirement income, as compared with men's; and (3) the possible effect on women's retirement income of certain changes to Social Security and pensions that seek to mitigate the effects of differences in workforce participation patterns.

To address these objectives, we reviewed the relevant literature and federal laws, interviewed academics and other retirement experts, and used a retirement-income microsimulation model to project women's future retirement income.³ Specifically, we reviewed and summarized government and academic research on women's retirement income, life events, and poverty as well as proposed changes to Social Security and

²Family structure changed substantially during the later part of the 20th century. According to the Census Bureau, in 1970, about 70 percent of all households were composed of married couple families. By 2003, this had fallen to less than 52 percent. In addition, the proportion of families with children that were headed by a single parent increased from 13 percent in 1970 to 32 percent in 2003.

³We used the GEMINI model under a license from the Policy Simulation Group, a private contractor. GEMINI estimates individual effects of policy scenarios for a representative sample of future beneficiaries. GEMINI can simulate different reform features for their effects on the level and distribution of benefits. See appendix I for more detail on the modeling analysis, including a discussion of our assessment of the data reliability of the model.

employer-provided pensions. We used the Policy Simulation Group's retirement income microsimulation model to illustrate differences in benefit levels by differences in workforce attachment and marital status of a simulated population, born in 1985. We also used the microsimulation model to project changes in Social Security benefit levels for a sample of workers at age 70, from the 1950 and 1985 birth cohorts, under a variety of possible modifications. The results of our analyses reflect outcomes for individuals in the simulated populations and do not attempt to estimate outcomes for an actual population. Unlike some of our prior work, rather than evaluating Social Security reform packages that seek to achieve sustainable solvency, we evaluated proposed individual changes targeted to enhance benefits for certain groups. We also used the model to project changes in pension benefit levels for a sample of workers at age 70, from the 1985 birth cohort.⁴ We used two cohorts in order to identify differences in the effects of the changes that could be due to variations in labor force participation across generations. For some of our analyses, we used a measure of income that adjusts to account for household size and economies of scale. The adjustment is made by dividing household benefit levels by a "family equivalence scale."⁵ We did this to facilitate comparisons between non-married persons and married persons, whose household income includes income from both spouses that can vary significantly between them.⁶ We also evaluated the effect of modifications on individual benefit levels. In addition to evaluating changes in benefit levels resulting from each modification, we assessed changes in a variable in the model that serves as a proxy for poverty avoidance.⁷ Consistent with our past work on Social Security reform, when simulating benefits we

⁴We did not simulate pension benefits for the 1950 birth cohort because the current version of PENSIM does not have a realistic characterization of pre-1996 employer pension offerings, and therefore should not be used to simulate lifetime pension accumulation for cohorts born before 1975.

⁵There are both advantages and disadvantages of using such measures. For additional information on the development, use, and limitations of equivalence scales see, Constance F. Citro and Robert T. Michael (eds.), *Measuring Poverty: A New Approach*, Washington, DC: National Academy Press, 1995 and GAO, *Social Security: Program's Role in Helping Ensure Income Adequacy*, [GAO-02-62](#) (Washington, D.C.: Nov 30, 2001).

⁶For more information on our adjustment of income, see appendix I.

⁷This variable is called the "low benefit avoidance rate." It is produced by the model and is expressed as a percentage of retirement years in which Social Security benefits (plus any earnings) are above a predetermined low benefit threshold. The threshold is measured separately for married couples and for unmarried individuals. It does not include pension income or savings, and so cannot be called a true poverty-avoidance measure.

compared benefits under each reform to two hypothetical benchmark policy scenarios that would achieve 75-year solvency, one by only increasing payroll taxes (which simulates “promised benefits”) and the other by only reducing benefits (which simulates “funded benefits”).⁸ However, unlike prior GAO work, for the purposes of this study, we evaluated certain specific individual modifications, rather than comprehensive reform packages. We did this in order to focus on modifications that account for more recent changes in family structure and labor force composition. Additionally, to facilitate comparisons across cohorts, we generally report the effect of each modification in terms of percent changes in benefit levels. Using such a measure, the outcomes from each benchmark are largely similar. In the body of the report, in most cases, we present output from simulations using the “promised benefits” benchmark. Detailed output from both benchmarks is presented in appendix II. For this report, we focused on examining the distribution of benefits and did not assess equity measures. While our simulations provide estimates of future retirement income, there is a considerable amount of uncertainty involved with these estimates. Since these estimates could change significantly, depending on assumptions used and behavioral responses, they should not be considered predictions.

We conducted our work between January 2006 and August 2007 in accordance with generally accepted government auditing standards. A more detailed discussion of our scope and methodology appears in appendix I.

Results in Brief

Generally, women have less retirement income than men, largely because of women’s lower labor force attachment and lower earnings, on average. Fewer women than men have income from most major retirement sources, and those women who do receive income from these sources receive less than men. Women’s median Social Security benefit is approximately 70 percent of the median benefit that men receive. Meanwhile, fewer women than men have pension incomes, and the median value of their pensions is about half that of men’s. While only a small proportion of men and women aged 65 and over are engaged in the paid labor force, among those who are, women earn just over half of what men earn. While there is less distinction between the income of men and women from assets such as interest, dividends, rents, and royalties, women earn somewhat less than

⁸See appendix I for a complete description of our benchmark policy scenarios.

men from these sources as well. Not surprisingly, older women are more often poor than men. Among those 65 and over, 12 percent of women are in poverty, compared to 7 percent of men. Although women's work outside the home has increased substantially in the last century—with the labor force participation rate of married women aged 16 and over increasing from approximately 32 percent in 1960 to 61 percent in 2006—they spend fewer years in the labor force than men and they more often work part-time. Additionally, they tend to earn less than men during their working years, earning only 77 percent of what men earned for full-time, year-round work in 2005. Although work patterns are key in earnings differences, in prior work we found that even after accounting for these and other behavioral differences—such as educational attainment—women still earn less than men.

Certain life events—including changes in marital status, labor force interruptions, and long-term care needs— can significantly reduce the amount of pension income and Social Security benefits for both men and women. However, because of women's lower earnings and labor force participation, these events may increase the probability women will enter retirement with fewer financial resources than men. Divorce often results in economic loss for both men and women, but women tend to experience more economic loss than men. Further, at retirement, Social Security divorced-spouse benefits are available only if the marriage lasted at least 10 years. Women's role as primary family caregiver for children and elderly relatives can also reduce their career earnings. For example, one study documented that almost half of women who worked during pregnancy with their first child took unpaid leave and one-quarter quit their jobs. Because women tend to live longer than men, they are more likely than men to experience widowhood. Social Security income is reduced at the household level upon the death of a spouse, and widows do not often retain all of their husbands' pension benefits. In part because of their longer average life spans, with age, women are also more likely than men to become disabled and need long-term care, further increasing demand upon their retirement resources.

Our simulations of some proposed changes to the Social Security system and the employer-sponsored pension system resulted in different effects on women and men, and among different subgroups of women, because of differences in lifetime work histories. Some of the proposed changes to Social Security that we analyzed are in fact designed to increase the benefits of targeted groups by taking advantage of differences in workforce participation patterns. On one hand, our model results showed that modifications that compensate for low earnings or time spent out of

the workforce for caregiving tend to increase benefits for beneficiaries overall, and particularly those in lower income quintiles. For example, when we simulated a dependent care credit to compensate for zero or low earnings when children are young, benefits increased across the board for women in all marital statuses and in all income quintiles. On the other hand, the changes that focus on shifts in family structure, such as increases in two-earner couples and increased incidence of divorce, tend to increase the benefits of groups targeted by the change, but produce mixed results for others. For example, our simulation of a reduction in Social Security's marriage eligibility rule had a narrowly focused impact on a very small number of women and almost no men. Some pension rule changes that have been proposed or passed into law in the past several years take into account changes in the labor force and the changing norms of employer-provided retirement plans; while these changes are gender-neutral, they may provide important new opportunities for some women to increase their retirement income. For example, when we simulated a pension change that would ensure that 100 percent of retirement account balances would roll over to another qualified account when individuals switched jobs (rather than allowing some or all of the balance to be withdrawn or spent), among those affected, women had larger median percentage changes than men, and among women, never-married and divorced women had the largest median percentage changes in pension income.

The departments of Labor and the Treasury and the Social Security Administration provided technical comments which we incorporated as appropriate.

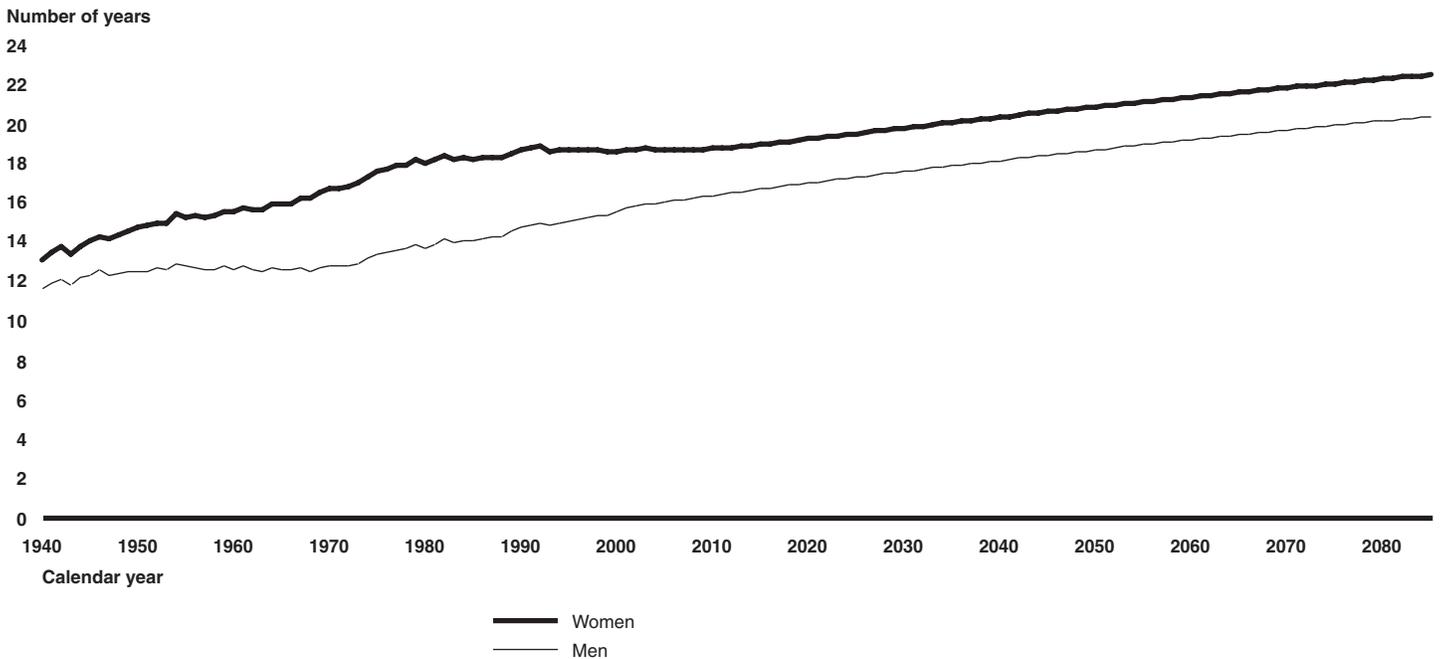
Background

The retirement outlook for both men and women in the United States has changed significantly in the last 30 years. Like many industrialized countries, the United States is undergoing a significant demographic shift toward an aging population and is experiencing the increased pressures on the social insurance, medical, and private pension systems that this shift creates.

While life expectancy in the United States has steadily increased over the last 50 years, birthrates have declined, and both have led to rapid growth in the proportion of the population comprised of elderly people: in 1950, those aged 65 or older made up 8 percent of the population; in 2000, this proportion rose to 12 percent and is projected to rise to almost 20 percent by 2030. Also, between 1940 and 1980, women's life expectancy generally increased faster than men's. During the same time period, the difference in

life expectancy at age 65 for women and men grew from 1.5 years in 1940 to 4.4 years in 1980. (See fig. 1.)

Figure 1: Life Expectancy at Age 65, 1940 to 2006 and Projected 2007 to 2085

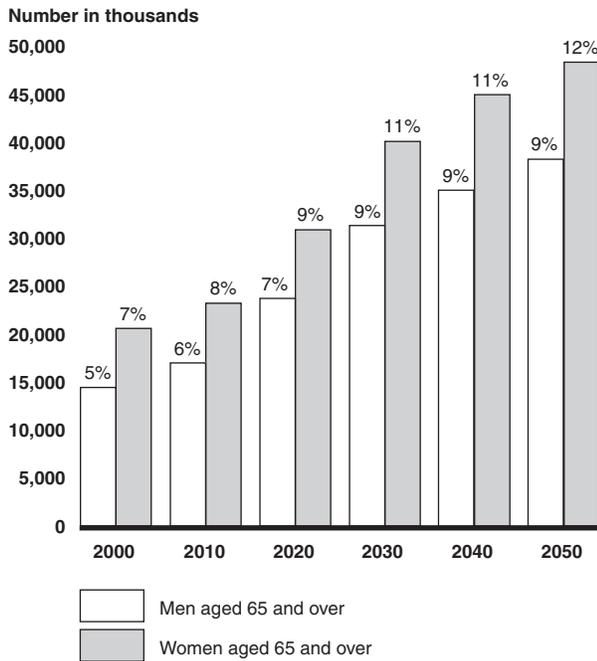


Source: Social Security Administration.

Note: Data for 2004 through 2006 are preliminary or estimated. The period life expectancy at a given age for a given year represents the average number of years of life remaining if a group of persons at that age were to experience the mortality rates for that year over the course of their remaining lives.

The difference in men's and women's longevity has decreased over the past 25 years, and that difference is expected to remain stable throughout much of the 21st century. Nevertheless, the ratio of elderly women to elderly men increased substantially in the post-World War II era, and elderly women will continue to outnumber elderly men both in numbers and as a percent of the population for the foreseeable future. (See fig. 2.) As a result of these trends, women can expect on average to spend more years in retirement than men.

Figure 2: Men and Women Aged 65 and Over: Number and Percent of the Total U.S. Population, Projections 2000 to 2050



Source: U.S. Census Bureau, *Demographic Trends of the 20th Century*.

Note: Percentage values over each bar show the total U.S. population represented by each bar.

Traditionally, the financial resources that provide retirement security have been characterized as a three-legged stool: Social Security, pensions, and savings, although increasingly, earnings are also a significant source of income for the elderly. Overall, women have been more likely than men to rely on Social Security to finance their retirement. Moreover, some aspects of the Social Security system particularly benefit women. For instance, because women tend to have lower lifetime taxable earnings than men, they benefit from the Social Security system’s progressive benefit formula, which replaces a larger portion of lifetime earnings for people with low earnings than for people with high earnings. In addition, Social Security is designed specifically to accommodate both low- or non-earning spouses, often women, by providing them with a dependent benefit based upon their spouses’ earnings. Social Security was created based upon the model of a single-earner married couple family structure, and while many women still never enter the paid workforce or choose to reduce their workforce participation, at least in part to care for children or other family members, the single-earner family model no longer describes the typical American

household. Nevertheless, this structure has been and continues to be extremely beneficial to some women.

However, Social Security faces a long-term financing shortfall resulting largely from longer life spans and lower birthrates. According to 2007 Social Security projections,⁹ absent policy changes, Social Security tax revenue is expected to fall short of benefit payments for the first time in 2017; by 2041 the system may have inadequate resources to pay full benefits. As a result, in the future, Social Security's role could change. Reductions in scheduled benefits and/or increases in program revenues will be needed to restore the long-term solvency and sustainability of the program. Within the program's current structure, possible benefit changes might include changes to the benefit formula or reductions in cost-of-living increases, among other options; revenue increases might include increases in payroll taxes or transfers from the Treasury's general fund.¹⁰ In addition, many proposals have been put forth over the past several decades to address the adequacy of Social Security benefits for different kinds of workers and their families. These proposals often address the needs of spouses, survivors, and low earners as well as those with significant workforce interruptions.

Additionally, many workers bear greater risk and responsibility for their retirement savings than in the past. About half of U.S. workers do not have a pension plan through their employer, and those who do are less likely than in the past to be covered by defined benefit (DB) plans. Among those who offer plans, employers have increasingly shifted from traditional DB to defined contribution (DC) plans, such as 401(k)s, which are based on contributions to and investment returns on individuals' accounts. While private sector DB plans must offer a guaranteed lifetime income in the form of an annuity, DC plans more often provide the beneficiary with a lump sum as the only option.¹¹ While individuals could take the proceeds

⁹The Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, *The 2007 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*.

¹⁰Also, some proposals would change the structure of the program to incorporate a system of individual accounts. Many such proposals would reduce benefits under the current system and make up for those reductions to some degree with income from the individual accounts.

¹¹Although DC plans generally are not required to have an annuity option, certain DC plans, known as money purchase plans, are required to make an annuity payout option available to participants. In addition, lump sum distributions from DB plans are becoming more common.

of their lump sum and purchase an annuity, the cost of purchasing a private annuity may make this option unattractive to many households. In addition, the private equity market charges women a higher premium for a life annuity than it charges men of the same age, because on average women live longer than men.¹²

Personal savings have traditionally been an important source of retirement income. Unfortunately, despite the challenges facing both public and private benefit systems for the elderly, relatively few Americans are currently saving, and some research suggests that women have less in savings than men. According to some measures, America has the lowest overall saving rate of any major industrialized nation. The U.S. personal saving rate as a percentage of disposable personal income has recently reached levels not seen since the Great Depression, falling below 1 percent in 2005 and 2006.¹³ A variety of proposals seeking to encourage more individuals to save have been introduced in the past several years. Many of these proposals target low- and moderate-income workers who are least likely to have access to employer-sponsored pension plans. Some of these proposals create added incentives or ease access for individuals to save through existing savings vehicles, such as 401(k) plans or individual retirement accounts (IRA). Other plans would create new vehicles for savings, such as 401(k) type plans for those not currently covered by a plan. One mechanism that already exists to encourage individuals to save is the so-called spousal IRA offered to non-earning spouses, who are most often women, as a way to build retirement income. A spousal IRA, allows

¹²The difference in annuity benefits for men and women exists only for private annuities. In 1983, the U.S. Supreme Court held that an employer's use of sex-segregated actuarial tables to calculate retirement benefits is unlawful, whether or not the tables reflect an accurate prediction of the longevity of women as a class. *Arizona Governing Comm. for Tax Deferred Annuity and Deferred Compensation Plans v. Norris*, 463 U.S. 1073, 1084 (1983).

¹³GAO analysis of National Income and Product Accounts (NIPA) data from the Bureau of Economic Analysis (BEA). Personal saving, as measured in the NIPA, does not include capital gains on existing assets because capital gains reflect a revaluation of the nation's existing capital stock and do not provide resources for financing investment that adds to the capital stock. In other words, although an individual household can tap its wealth by selling assets to finance consumption or accumulate other assets, the sale of an existing asset merely transfers ownership; it does not generate new economic output.

non-earning spouses to accumulate retirement savings in their own retirement accounts.¹⁴

Finally, health care coverage and rising health costs have added to the financial burden for retirees. Retired Americans often rely on employer-sponsored health benefits to provide health coverage until they become eligible for Medicare or to supplement their Medicare coverage. In 2005 about 37 percent of retirees were covered by such plans.¹⁵ However, retirees are paying more for these benefits, and the number of private employers offering them has declined considerably.¹⁶ The rate of growth of health care costs has generally outpaced the rate of U.S. economic growth, and this trend is likely to continue, jeopardizing the availability of employer-sponsored insurance for many. Rapidly rising health care costs may be particularly burdensome for retirees with limited financial resources. Additionally, the odds of having a disability or chronic illness increase with age; since, on average, women live longer, dealing with the cost of declining health may be a particular concern for women.

¹⁴In 2006 and 2007, an individual may make a contribution of up to \$4,000 annually to a spousal IRA. The contribution amount increases to \$5,000 in 2008 and will be adjusted based on inflation after that. In addition, those over age 50 are permitted to contribute an additional \$1,000 per year.

¹⁵The Kaiser/HRET Employer Health Benefits 2001 to 2006 Annual Surveys found that between 2001 and 2006 the share of employers with 200 or more workers offering retiree health benefits remained relatively steady, with about 35 percent offering retiree health benefits in 2006. Survey data also show that retiree health benefits are most likely offered by large or unionized firms.

¹⁶People aged 85 or more are much more likely to be covered only by Medicare than those in the 65-74 age category.

Women Have Less Retirement Income than Men Largely because of Differences in Labor Force Participation and Lifetime Earnings

Generally, women have less retirement income than men, largely because, on average, women have lower labor force attachment and lower earnings than men. While about 90 percent of men and women aged 65 and older receive Social Security benefits, fewer women than men have income from most other major sources of retirement income,¹⁷ and they receive less than men from those sources, according to a Congressional Research Service analysis of Census Bureau data.¹⁸ Additionally, women aged 65 and older have higher rates of poverty than men of the same age. While women's labor force participation has increased substantially in the last half century, it has flattened out in recent years and remains more intermittent than men's. Women also tend to earn less than men during their working years.

Women Have Less in Total Retirement Income than Men

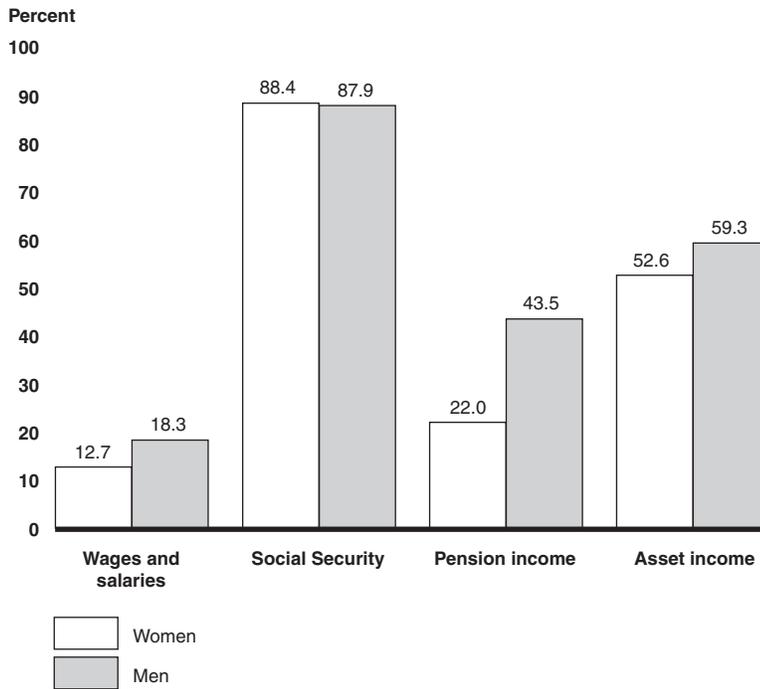
While Social Security provides retirement income to almost 90 percent of all elderly people, a smaller percentage of women than men age 65 and older have additional income from pensions, assets—such as interest or dividends from lifetime savings, or earnings, according to the Congressional Research Service analysis of Census Bureau data.¹⁹ For example, in 2004, the percentage of men with income from pensions was almost twice that of women and 44 percent more men than women had wage and salary income. (See fig. 3.)

¹⁷However, women make up the majority of the poor elderly recipients of the Supplemental Security Income program—a joint federal-state poverty program designed to help the elderly (and the blind and disabled of all ages), who have little or no income, meet their basic needs for food, clothing, and shelter.

¹⁸Patrick Purcell, *Topics in Aging: Income of Americans Age 65 and Older, 1969 to 2004* (Washington, D.C.: Congressional Research Service, 2006).

¹⁹The Census Bureau's Current Population Survey, measures the sources and amount of income people receive. It does not, however, measure a person's wealth, which would include the total amount of lifetime savings. Consequently, in this report, asset income refers to income received from interest or dividends earned on savings, as well as rents and royalties from other types of property.

Figure 3: Percentage of the Population Age 65 and Older Receiving Income from Various Sources, 2004



Source: Congressional Research Service analysis of the Census Bureau's Current Population Survey data.

Moreover, women's median incomes from each of the various retirement sources are lower than men's. As shown in figure 4, men's median annual Social Security income was \$12,583 in 2004, while women's was \$8,799. Nevertheless, Social Security is an important financial resource for women, many of whom receive spousal, divorced spousal, or survivor benefits. According to the Social Security Administration (SSA), while Social Security is the largest single source of income for most of the elderly population age 65 and older, it represents 53 percent of total income for elderly unmarried women—including divorced, widowed, and never married women, compared to 38 percent for unmarried men. Moreover, Social Security was nearly the only source of income for close to half of all elderly unmarried women who received it in 2004, compared to a little more than a third of elderly unmarried men. Importantly, Social Security can become a growing fraction of total retirement income over time since it is indexed to offset the effects of inflation. In contrast, private pensions and income from assets are rarely indexed. Unlike Social Security, pension income may end upon the death of the spouse if the

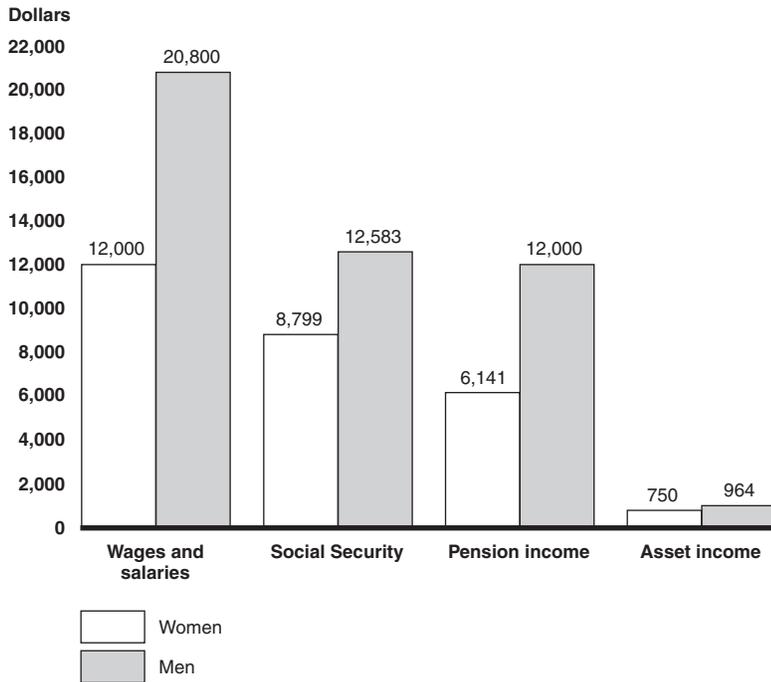
retired worker elects to receive a single life annuity,²⁰ in which payments cease at the time of the worker's death.²¹

The difference between men's and women's pension income is larger than for Social Security. In 2004, men's median pension income was nearly twice women's, \$12,000 and \$6,141, respectively. Asset income is relatively low for both women and men compared to Social Security and pensions. Nevertheless, women's median asset income was \$750, while men's was slightly higher at \$964. Finally, while less than a fifth of the elderly had wage and salary earnings in 2004, men's median earnings were \$20,800, while women's were \$12,000. (See fig. 4.)

²⁰If the worker is covered by a DB plan or by certain DC plans, such as a money purchase plan, the pension plan is required to obtain the written consent of the worker's spouse if the worker declines the qualified joint and survivor annuity option.

²¹A joint and survivor annuity provides income to the surviving spouse should the retired worker die first. However, one study found that 28 percent of married men and 69 percent of married women opted for single life annuities instead of joint and survivor annuities. See Richard W. Johnson, Cori E. Uccello, and Joshua H. Goldwyn, *Single Life vs. Joint and Survivor Pension Payout Options: How Do Married Retirees Choose?* The Urban Institute, September 2003.

Figure 4: Median Annual Income of the Population Age 65 and Older, 2004

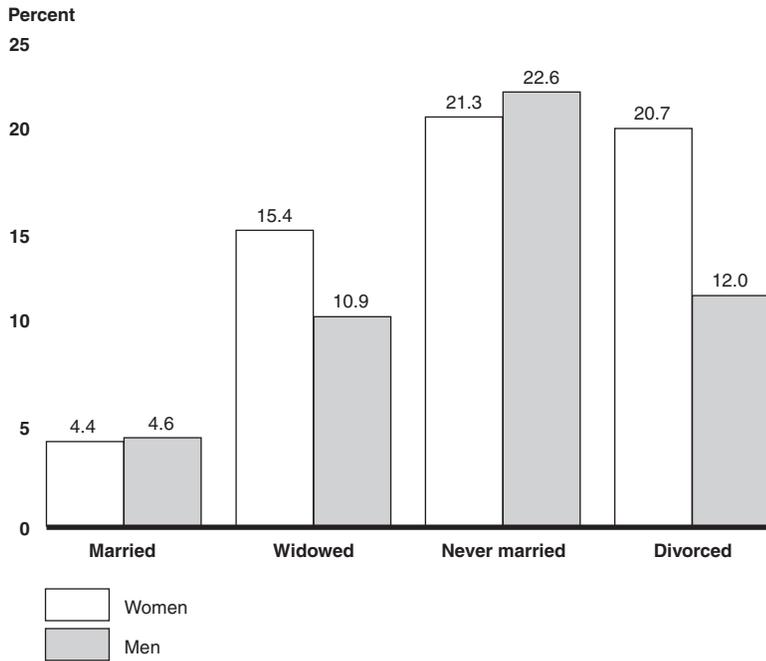


Source: Congressional Research Service analysis of the Census Bureau's Current Population Survey data.

Additionally, rates of poverty among those 65 and over are higher for women than for men.²² Over time, overall poverty rates among the elderly have declined from 35 percent in 1959 to 10 percent in 2005, according to Census Bureau data. This is in part due to Social Security benefits for the aged. Here, too, gender differences remain. In 2004, 12 percent of women and 7 percent of men age 65 and older had incomes below the federal poverty level, with more pronounced variation among individuals of different marital status. For example, never-married elderly men and women had the highest rates of poverty, while the next highest rates were among divorced and widowed elderly women. Married couples had significantly lower rates than all other marital statuses. (See fig. 5.) Moreover, almost 21 percent of women age 65 and older who lived alone were poor, in comparison to almost 15 percent of men who lived alone.

²²People and families are classified as poor if their income is less than the federal poverty level. The official weighted average poverty threshold in 2005 for a single person age 65 or older was \$9,367. For a two-person household in which at least one member was at least 65 years old, the poverty threshold was \$11,815.

Figure 5: Poverty Rates among People Age 65 and Older by Marital Status, 2004



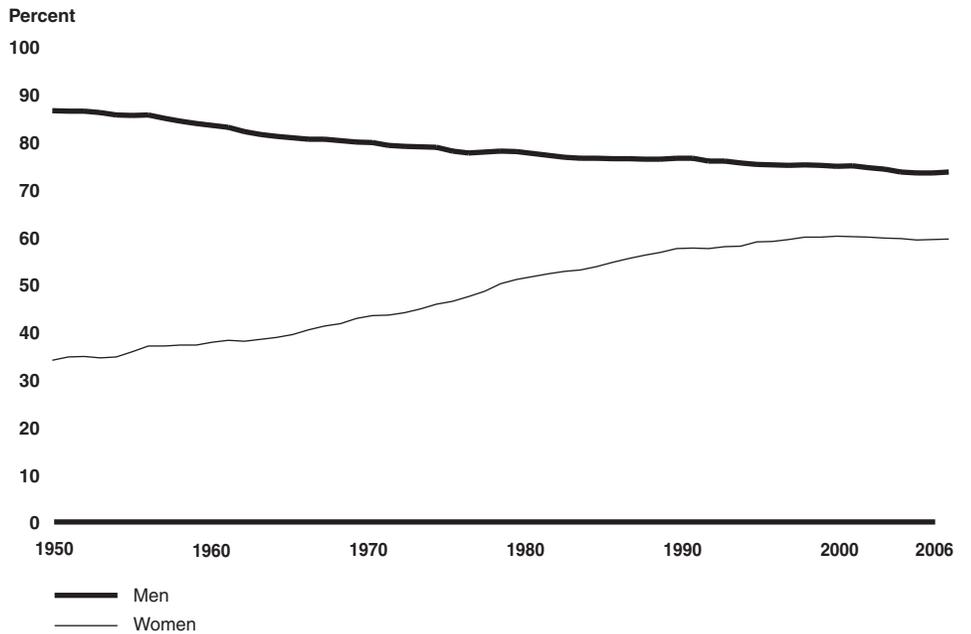
Source: Social Security Administration.

Women Have More Intermittent Work Histories and Lower Earnings than Men

Women's labor force participation increased substantially in the latter half of the 20th century, although women continue to work fewer total years than men and more often work part-time. While women's participation in the labor force increased from the mid-1960s through the late 1990s, men's labor force participation has steadily decreased, most significantly between the mid-1950s and the early-1970s.²³ (See fig. 6.)

²³While the decline in men's labor force participation occurred in most age groups, it was more rapid among those aged 55 years and older.

Figure 6: Overall Labor Force Participation Rate of Men and Women Age 16 and Older, 1950-2006



Source: U.S. Department of Labor, Bureau of Labor Statistics.

Much of the change in women’s participation rates is due to higher labor force participation rates among married women. According to Census Bureau statistics, between 1960 and 1995 married women’s labor force participation increased from almost 32 to 61 percent and has not changed significantly in the past decade. As a result, there are now more married couple households with two earners than when Social Security was first established. These overall trends have recently stabilized, and in 2006 the Bureau of Labor Statistics predicted that women’s labor force participation rate will not change significantly in the near future.²⁴

Despite the overall increases in women’s labor force participation, women continue to have more intermittent labor force participation than men. As we reported in 2003, women have fewer years of work experience, work fewer hours per year, are less likely to work a full-time schedule, and leave

²⁴Mitra Toossi, “A New Look at Long-Term Labor Force Projections to 2050,” *Monthly Labor Review*, vol. 129, no.11 (November 2006).

the labor force for longer periods of time than men.²⁵ For example, 25 percent of women and almost 11 percent of men age 16 and older usually worked part-time in 2005.²⁶

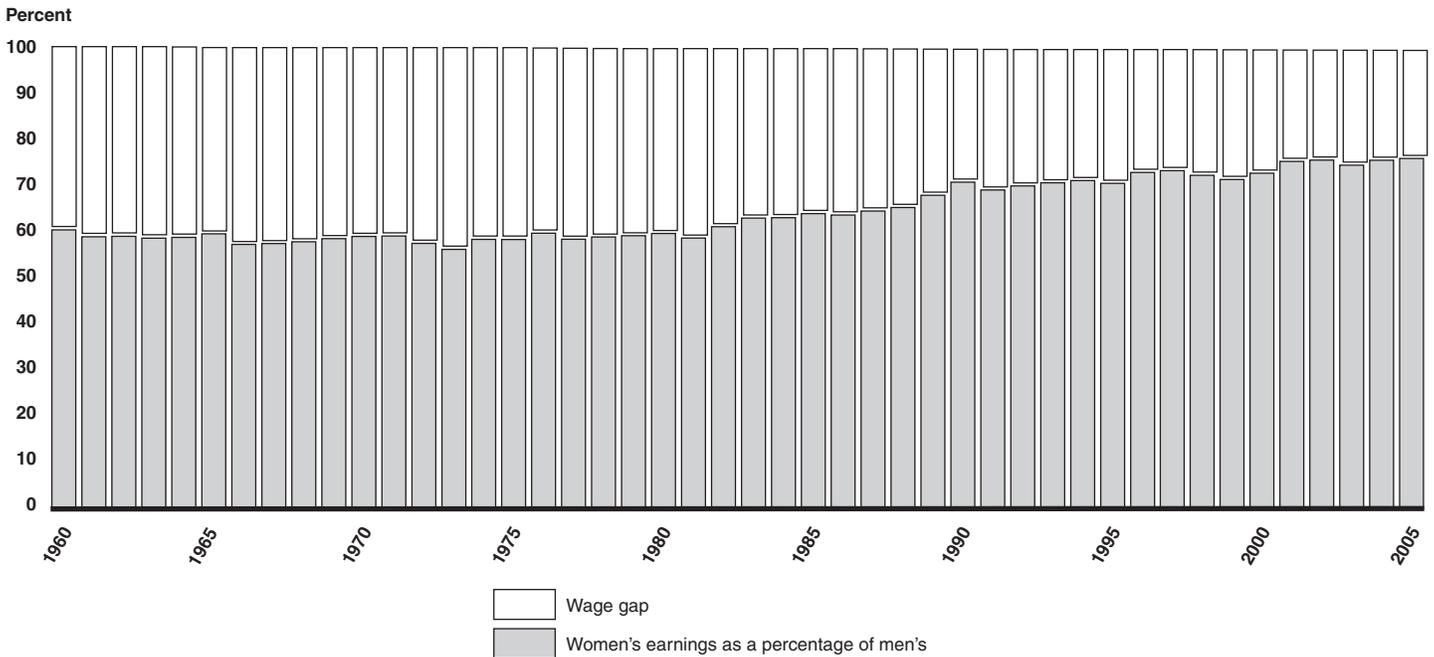
In addition to their spending less time in the workforce overall, women earn less than men when they are working.²⁷ Although women's earnings have risen relative to men's over time, women nevertheless continue to earn less than men. According to Census Bureau data, in 2005, women earned 77 percent of what men earned for full-time, year-round work. (See fig. 7.)

²⁵GAO, *Women's Earnings: Work Patterns Partially Explain Difference between Men's and Women's Earnings*, [GAO-04-35](#) (Washington, D.C.: Oct. 31, 2003).

²⁶U.S. Department of Labor, Bureau of Labor Statistics, *Women in the Labor Force: A Databook*, Report 996 (Washington, D.C.: September 2006).

²⁷U.S. Department of Labor, Bureau of Labor Statistics, *Women in the Labor Force: A Databook*.

Figure 7: Women’s Median Earnings For Full-time, Year-Round Work as a Percentage of Men’s, 1960 to 2005



Source: U.S. Census Bureau.

Note: Based on median earnings of full-time, year-round workers 15 years old and over. Before 1989 earnings are for civilian workers only.

This difference may be due, in part, to the fact that women continue to take primary responsibility for family care and those who work outside the home may trade some career advancement for schedule flexibility. In fact, in prior work we found that work patterns are a key factor in explaining the differences in men’s and women’s earnings. However, even after accounting for these and other behavioral factors—such as educational attainment—unexplained differences remained.²⁸

Changes in women’s labor force participation have also increased their participation in employer-provided pension plans, according to one study,²⁹ though, as noted earlier, their overall rates of participation are still lower than men’s. Women who worked full-time throughout the year

²⁸GAO-04-35.

²⁹Alicia Munnell and Pamela Perun, “An Update on Private Pensions,” *Issue Brief No. 50* (Center for Retirement Research, Boston College: August 2006).

actually had higher pension participation rates than men with similar work schedules in 2005,³⁰ but women's overall rates remain lower because, in part, of their lower rate of full-time work and lower earnings, according to the Employee Benefit Research Institute. While the increase suggests that a larger share of women in younger cohorts will likely qualify for pensions based on their own earnings, many women may continue to receive spousal or survivor benefits through their husbands' pensions. In addition, the general shift from DB to DC plans may have both positive and negative consequences for women. Women may especially benefit from the greater portability afforded by DC plans because of their more intermittent labor force participation. However, another consequence of this general shift is that with many DC plans, individuals have a greater responsibility to make prudent investment decisions and to make their retirement savings last over their lifetimes, which for women, on average, are longer than for men.

Changes in women's labor force participation have also increased the percentage of women who are insured under Social Security based on their own work history, even though many women continue to receive dependent benefits as spouses. According to SSA, women who were eligible to receive benefits based on their own work records increased from 22 percent to 84 percent between 1950 and 2006. Nevertheless, in December of 2005, approximately 60 percent of retired women received Social Security benefits based, at least in part, on their marital history.³¹ Moreover, nearly all spousal and survivor beneficiaries were women in 2005. Further, as women's labor force participation increases, many will find that benefits based on their own work records are more generous than the spousal benefit. However, when many of these same women become widows, they will likely begin to collect benefits based on their marital status, as the survivor's benefit, at 100 percent of their deceased spouse's benefit, is likely to be greater than their own.

Data on current retirees reflect the fact that those retirees comprise older generations of workers, in which women's labor force participation rates

³⁰Employee Benefit Research Institute, "Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2005," *Issue Brief No. 299*, November 2006.

³¹More than 19 million women aged 65 and older received benefits for December 2005. About 39 percent were entitled solely to a retired worker benefit. Almost 30 percent were dually entitled to a retired worker benefit and a wife's or widow's benefit. About 31 percent were receiving wife's or widow's benefits only.

were lower than those of current workers. In the future, data that include later generations of women, with greater labor force participation rates, may show greater percentages of women eligible for and collecting benefits based on their own work records. Nevertheless, the key factor contributing to the difference in men's and women's Social Security income levels will continue to be the difference in their lifetime work histories and earnings. Women's continued intermittent labor force participation and lower median earnings than men's result in lower benefit amounts, even though Social Security replaces a greater percentage of preretirement earnings for lower-wage workers.³²

Certain Life Events May Reduce Women's Retirement Resources More Than Men's

Certain life events—including changes in marital status, labor force interruptions, and long-term care needs—can significantly reduce the amount of pension income and Social Security benefits for both men and women. However, because of women's lower earnings and labor force participation, these events may exacerbate the deficiency of women's financial resources in retirement. Divorce often results in economic loss for both men and women, but women tend to experience more economic loss than men. In addition, women are most often the family members who provide unpaid care, which can reduce their career earnings as well. The death of a spouse can also reduce retirement income for the survivor, and because they generally live longer, women have higher rates of widowhood than men at older ages. While declining health at older ages has significant implications for both men's and women's financial security, because of life expectancy differences, women more often require costly long-term care assistance.

³²Benefit levels are determined by averaging the highest 35 years of indexed covered earnings. Years spent out of the labor force are represented by zeros. Consequently, an intermittent work history and lower wages result in a lower benefit level.

Divorce May Reduce Women's Retirement Income

Research has shown that married couples generally have greater household wealth than nonmarried men and women and that marital disruption negatively affects both men's and women's economic statuses.³³ While divorce may result in a reduced standard of living for both men and women, divorced women, as a group, experience more economic loss than divorced men.³⁴ For example, the Census Bureau reported that in 2001, 23 percent of recently divorced women, in comparison to nearly 8 percent of recently divorced men, had income below the poverty level.³⁵ One study found that marital disruption, including divorce, resulted in a substantial drop in women's income and loss of assets.³⁶ Another study projected in 2000 that most divorced women are more likely than never-married, married, and widowed women to be in the bottom 40 percent of the income distribution at age 67.³⁷ As shown in figure 5, elderly divorced women have higher rates of poverty, at over 20 percent, than elderly divorced men, at 12 percent.

In retirement, divorce has the potential to reduce Social Security benefits because Social Security's eligibility rules require that the marriage last at least 10 years for a divorced spouse to claim benefits from an ex-spouse's

³³Janet Wilmoth and Gregor Koso, "Does Marital History Matter? Marital Status and Wealth Outcomes among Pre-Retirement Adults," *Journal of Marriage and Family* 64 (February 2002): 254-268; Patricia A. McManus and Thomas A. DiPrete, "Losers and Winners: The Financial Consequences of Separation and Divorce for Men," *American Sociological Review* 66, no. 2 (April 2001): 246-268; Richard W. Johnson, Gordon B.T. Mermin, and Cori E. Uccello, *When the Nest Egg Cracks: Financial Consequences of Health Problems, Marital Status Changes, and Job Layoffs at Older Ages*, (Urban Institute: January 2006).

³⁴Rose M. Kreider, "Number, Timing, and Duration of Marriages and Divorces: 2001," *Current Population Reports P70-97*, (U.S. Census Bureau, Washington, D.C.: February 2005); Richard Peterson, "A Re-Evaluation of the Economic Consequences of Divorce," *American Sociological Review* 61, no. 3 (June 1996): 528-536; Jay D. Teachman and Kathleen M. Paasch, "Financial Impact of Divorce on Children and Their Families," *The Future of Children* 4, no. 1, (Spring 1994): 63-83; Karen C. Holden and Pamela J. Smock, "The Economic Costs of Marital Dissolution: Why Do Women Bear a Disproportionate Cost?" *Annual Review of Sociology* 17 (1991): 51-78.

³⁵Kreider, "Number, Timing, and Duration of Marriages and Divorces: 2001," 13.

³⁶Jacqueline L. Angel, Cynthia J. Buckley, Ronald J. Angel and Maren A. Jimenez, *The Economic Consequences of Marital Disruption for Pre-Retirement Age: African-American, Hispanic and Non-Hispanic White Women*, University of Texas at Austin. Paper presented at the Population Association of America Annual Meeting, Minneapolis, Minnesota (May 2003).

³⁷Barbara A. Butrica and Howard M. Iams, "Divorced Women at Retirement: Projections of Economic Well-Being in the Near Future," *Social Security Bulletin* 63, no. 3 (2000): 8.

earnings record.³⁸ However, Census Bureau data from 2001 show that more than half of first and second marriages that ended in divorce lasted less than 10 years.³⁹

Unlike Social Security benefits, divorced spouses can, under certain circumstances, receive all or part of their former spouses' private pension benefits, regardless of the marriage's duration. Although the Employee Retirement Income Security Act of 1974 (ERISA)⁴⁰ generally does not allow workers to assign their benefits to another person in this way, Congress amended the law in 1984 through the Retirement Equity Act (REA)⁴¹ to permit the payment of pension benefits to a worker's former spouse under a qualified domestic relations order (QDRO). A QDRO, which meets certain statutory requirements, including approval by a court and the plan administrator, may be used to satisfy certain obligations, such as child support, alimony, or the division of marital property.⁴² However, the worker's pension benefits may be reduced. Additionally, women often forgo the protection provided by QDRO's. This may happen for a variety of reasons, in some cases women may be unaware that their spouses are covered by a pension, while others may not know that they can receive benefits while their spouses are alive.

³⁸While the majority of women receive Social Security retirement benefits based, at least in part, on their own work record, among women age 65 and older who received Social Security benefits in December 2005, 31 percent received benefits based exclusively on their marital history, and about 30 percent were "dually entitled"; i.e., benefits were based on both their own work record and their marital history. In comparison, the percentage of women who received divorced spousal benefits was relatively small. Whereas close to 15 million women received benefits as a retired worker in December 2005, less than 500,000 received benefits as either a divorced spouse or divorced widow. See Social Security Administration, *Annual Statistical Supplement to the Social Security Bulletin, 2006*, SSA Publication No. 13-11700, Washington, D.C., June 2007, pp. 2, 5.3, 5.10, and 5.17.

³⁹Kreider, "Number, Timing, and Duration of Marriages and Divorces: 2001," 9.

⁴⁰The Employee Retirement Income Security Act of 1974, as amended, governs areas such as pension coverage, vesting periods, benefit accrual and distribution, and survivor's benefits.

⁴¹Pub. L. No. 98-397.

⁴²29 U.S.C. § 1056(d)(3).

Family Caregiving, Which Can Reduce Lifetime Earnings, Is More Common for Women Than for Men

Family caregiving, which encompasses important child care and elder care responsibilities, is more often provided by women. In order to meet these family needs, some caregivers reduce work hours or leave the labor force altogether. For example, one Census Bureau study shows that 45 percent of women who worked during pregnancy with their first child between 1996 and 2000 took unpaid leave and one-quarter quit their job.⁴³ Bureau of Labor Statistics data indicate that, among parents with children under age 6, almost 92 percent of fathers, compared to over 58 percent of mothers, were employed in 2005.⁴⁴ Research shows that in addition to caring for children, women provide unpaid care for a family member or friend more often than men. In 2002, daughters or daughters-in-law provided care to frail, older adults living in the community more often than sons or sons-in-law, according to one study.⁴⁵ Similarly, another study found that employed women were more likely than employed men to provide care for a child, spouse, or partner with a disability.⁴⁶ Finally, one study reported that wives tend to reduce their work hours when a husband experiences a severe health shock, such as a stroke.⁴⁷

Caregiving can negatively affect the provider's career earnings and, consequently, retirement income. Although many caregivers are employed, research shows that caregivers can experience substantial losses in career development and workforce earnings as well as significant out-of-pocket expenses.⁴⁸ For example, one study showed that women age 46 and older

⁴³Unpaid leave includes all unpaid maternity, sick, and vacation leave, and other unpaid leave. See Julia Overturf Johnson and Barbara Downs, "Maternity Leave and Employment Patterns of First-Time Mothers: 1961-2000," *Current Population Reports P70-103*, U.S. Census Bureau, Washington, D.C., October 2005, p. 9.

⁴⁴U.S. Department of Labor, Bureau of Labor Statistics, *Women in the Labor Force: A Databook*, Report 996 (Washington, D.C.: September 2006).

⁴⁵Richard W. Johnson and Joshua M. Wiener, "A Profile of Frail Older Americans and Their Caregivers," *Occasional Paper 8*, Urban Institute: (February 2006).

⁴⁶Institute for Women's Policy Research, "The Widening Gap: A New Book on the Struggle to Balance Work and Caregiving," *Research in Brief C349* (October 2001).

⁴⁷Courtney C. Coile, "Health Shocks and Couples' Labor Supply Decisions," *National Bureau of Economic Research Working Paper 10810* (September 2004).

⁴⁸Mature Market Institute at Metropolitan Life Insurance Company, *MetLife Juggling Act Study: Balancing Caregiving with Work and the Costs Involved*. Findings from a National Study by the National Alliance for Caregiving and the National Center on Women and Aging at Brandeis University (November 1999); National Alliance for Caregiving and AARP, *Caregiving in the U.S.* (April 2004); Genworth Financial, *The Impact of Long Term Care on Women—An Analysis of Women as Care Providers and Care Recipients*, 2006.

who began caregiving for elderly relatives between 1987 and 1992 experienced an average of over \$3,000 loss in annual earnings.⁴⁹ Another study showed that over half of caregivers who worked while providing care reported that this role required them to adjust their work schedules, such as arriving late, or even quit work. Furthermore, years spent out of the paid labor force can reduce a worker's Social Security benefit amount. Moreover, one study found that caregiving for adult parents can raise women's risk of poverty in later years.⁵⁰

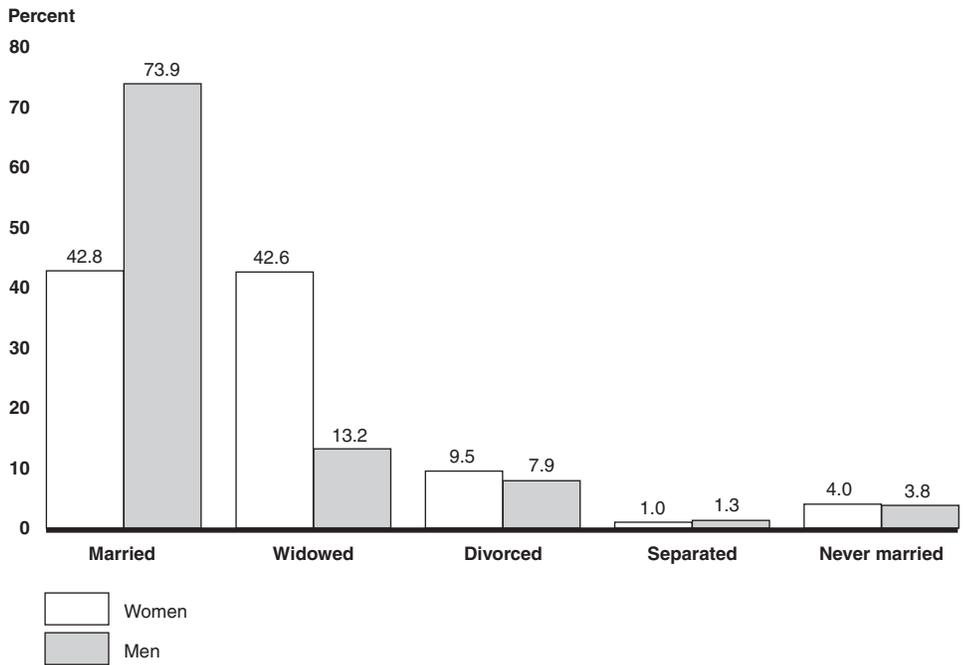
Women Are More Likely to Experience Widowhood, Which Puts Them at Risk for Poverty

Older women are several times more likely than older men to experience widowhood. For example, in 2004 women age 65 and older were as likely to be widowed as married, while men were 5.5 times more likely to be married than widowed. (See fig. 8.)

⁴⁹Chizuko Wakabayashi and Katharine M. Donato, "The Consequences of Caregiving: Effects on Women's Employment and Earnings," *Population Research and Policy Review* 24, no. 5, (October 2005): 482.

⁵⁰Other factors, such as education, marital status, and race, appear to be correlated with whether the female caregivers live in poverty. See Chizuko Wakabayashi and Katherine M. Donato, "Does Caregiving Increase Poverty in Later Life? Evidence from the Health and Retirement Survey." *Journal of Health and Social Behavior* 47 (September 2006): 264.

Figure 8: Marital Status of the Population Age 65 and Older, 2005



Source: U.S. Census Bureau.

Note: "Married" refers to now married, except separated.

Despite changes to the Social Security system in the 1970s that improved widows' financial outcomes, research shows that widows continue to be at risk for poverty in old age.⁵¹ As noted earlier, widows age 65 and older had over three times the poverty rate of married women or men in 2004. Widowhood may cause Social Security and pension income to decrease at the household level, which can be a hardship if certain fixed costs, such as

⁵¹Richard W. Johnson, Gordon B.T. Mermin, and Cori E. Uccello, "How secure are retirement nest eggs?" Issue in Brief No. 45, Center for Retirement Research at Boston College (April 2006); Purvi Sevak, David R. Weir, and Robert J. Willis, "The Economic Consequences of a Husband's Death: Evidence from the HRS and AHEAD," *Social Security Bulletin* 65, no. 3 (2003/2004): 31-44; and Catherine D. Zick and Karen Holden, "An Assessment of the Wealth Holdings of Recent Widows," *Journal of Gerontology: Social Sciences* 55B, no. 2 (2000): S90-S97.

Note: While research has shown that widowhood increases the incidence of poverty among women who were not poor when married, some research indicates that many widows in poverty also had poor economic status in marriage as well. (See, Sevak, Weir, and Willis, "The Economic Consequences of a Husband's Death"; Zick and Holden, "An Assessment of the Wealth Holdings of Recent Widows.")

Simulated Retirement Income for Women with Varying Workforce Attachment and Marital Status

To illustrate the potential impact of workforce attachment and marital status on women's retirement income, we used the Policy Simulation Group's retirement income models to estimate Social Security and pension income for individuals in a sample of a simulated 1985 birth cohort at ages 67 and 85. The Policy Simulation Group's model incorporates information on the estimated effects of various factors on retirement income and is useful for illustrating potential differences in outcome under the current policy environment. (For a discussion of limitations of the model, see app. I.)

The simulation projected that women who worked full-time for 36 or more years would have median annual Social Security benefits of nearly \$25,000 at age 67, while those who worked full-time between 1 and 5 years had a median annual benefit of about \$13,000. In another example, median annual pension benefits for women who worked full-time for 36 or more years were almost \$21,000, while median pension benefits among women with 1 to 5 years of full-time work were less than \$900.

The simulation also projected that among those who had worked for at least 36 years, married women's median Social Security benefits were over \$26,000 at age 67 and widow's benefits were slightly lower. Median benefit levels for divorced women were nearly \$22,000 and for never married women, just over \$20,000. Also, median Social Security benefit levels for women in our simulated sample who were married and worked between 1 and 5 years were nearly \$17,000, while those of never married women with similar work histories were not quite \$9,000.

Among women who worked for at least 36 years, the simulation projected that married women's median pension benefits were about \$19,000 at age 67 and widow's benefits were just over \$24,000. Median benefit levels for divorced women were over \$21,000, and for never married women, over \$20,000. In addition, median pension benefit levels for women in our simulated sample who were married and worked full-time between 1 and 5 years were over \$2,000, while those of never married or divorced women who had worked full-time between 1 and 5 years in general did not have any pension income.

Source: GAO analysis of GEMINI and PENSIM data.

Note: All dollar values are in 2007 dollars.

housing, remain the same. More specifically, household Social Security income is reduced by one-third if the couple's benefits had been based on one spouse's work history and by up to 50 percent if both spouses had been receiving retired worker benefits.⁵² In addition, pension income is likely to be reduced for the surviving spouse.

The REA helped protect spouses and widows by requiring employers to obtain a spouse's written consent in order for a worker to decline the joint and survivor annuity default option. A common default for the joint and survivor annuity provides a 50 percent benefit level to the surviving spouse. However, the shift from DB pension plans to DC pension plans has the potential to provide even less income security for widows who rely on a spouse's pension income. Although DC plans generally must provide that an employee's vested account balance is payable in full on death to the surviving spouse, the employee may, during his or her lifetime, make withdrawals from the account or roll over the balance into an IRA without spousal consent.

⁵² A widow or widower who meets eligibility requirements is entitled to receive a percentage of the deceased spouse's Social Security benefits ("survivor benefits") or benefits based on his or her own work history—which ever is greater. Generally, the survivor is entitled to a benefit in the amount of the deceased spouse's PIA. However, the survivor's benefit amount may be reduced if the deceased spouse retired before reaching full retirement age, or increased if the deceased spouse delayed retirement beyond the full retirement age.

Health Care Costs May Deplete Elderly Women's Retirement Resources

Declining health at older ages has significant implications for women's financial security. At least in part because women have longer average life spans than men, women are more likely than men to become disabled and need long-term care as they age. In 2003, among Medicare enrollees age 65 and older, more women than men reported an inability to perform at least one of five certain physical functions, such as the ability to walk two to three blocks.⁵³ Women are significantly more likely than men to develop severe disabilities, and one study estimated that women age 65 have a 44 percent chance of entering a nursing home, compared to 27 percent for men.⁵⁴ Women represented 72 percent of all nursing home residents in 1999 and 70 percent of home care consumers in 2000.⁵⁵ Research shows that nursing home entry has important financial consequences for the elderly, especially for unmarried women.⁵⁶ In 2006, Genworth Financial estimated that the average annual cost for nursing home care was \$70,912 and for assisted living facilities, \$32,294.⁵⁷ In addition, out-of-pocket medical costs during the last years of a spouse's life can deplete the couple's resources substantially and contribute to poverty among surviving spouses, who are most often widows.⁵⁸

⁵³Federal Interagency Forum on Aging-Related Statistics. *Older Americans Update 2006: Key Indicators of Well-Being*. Federal Interagency Forum on Aging-Related Statistics. Washington, D.C.: U.S. Government Printing Office, May 2006, p. 29.

⁵⁴Jeffrey R. Brown and Amy Finkelstein, "Supply or Demand: Why is the Market for Long-Term Care Insurance So Small?" National Bureau of Economic Research, *Working Paper 10782* (September 2004).

⁵⁵Adrienne Jones, *The National Nursing Home Survey: 1999 summary*. National Center for Health Statistics. *Vital Health Stat 13(152)*. 2002; *Current Home Health Care Patients*. National Center for Health Care Statistics, Centers for Disease Control and Prevention, February 2004. <http://www.cdc.gov/nchs/about/major/nhhcsd/nhhcshomecare3.htm>

⁵⁶Kathleen McGarry and Robert F. Schoeni, "Medicare Gaps and Widow Poverty," *Social Security Bulletin* 66, no. 1, (2005) and Genworth Financial, *The Impact of Long Term Care on Women*; Johnson, Mermin, and Uccello, "When the Nest Egg Cracks."

⁵⁷Genworth Financial, *The Impact of Long Term Care on Women*.

⁵⁸McGarry and Schoeni, "Medicare Gaps and Widow Poverty."

Specific Changes to Social Security and Employer-Sponsored Pensions Will Affect Women Differently than Men Because of Differences in Lifetime Work Histories

The specific changes to Social Security and pensions that we modeled had different effects on women and men, and among different subgroups of women, because of differences in lifetime work histories. Some of the proposed modifications to Social Security that we analyzed are in fact designed to increase the benefits of targeted groups by accounting for differences in workforce participation patterns. On one hand, our model results showed that modifications that compensate for low earnings or time spent out of the workforce for caregiving tend to increase benefits for beneficiaries overall, and particularly those in lower income quintiles. On the other hand, our results showed that modifications that focus on changes in family structure, such as more two-earner couples and an increased incidence of divorce, tend to increase the benefits of groups targeted by the change, but produce mixed results for others. A number of pension modifications proposed in the last several years take into account changes in the labor force and the changing norms of employer-provided retirement plans; while these reforms are gender-neutral, they may provide important new opportunities for women to increase their retirement income.

While the costs associated with each of the Social Security program modifications modeled in this report vary, all but one⁵⁹ would have a negative effect on trust fund solvency regardless of the benchmark used. Because we have analyzed each modification in isolation, we present the solvency impact for each modification in isolation; as part of a larger package of reforms, the solvency impact of each change may vary. For a summary of the solvency impact of each simulated change under both the “promised benefits” and “funded benefits” benchmarks, see appendix IV. For more information on both the “promised benefits” and the “funded benefits” benchmark, see appendix I.

⁵⁹Under the “Promised Benefits” benchmark, the “increased survivor benefits with decreased spousal benefits” modification resulted in a positive impact on the 75 year actuarial balance. For all solvency results, see appendix IV.

System Modifications Designed to Increase Social Security Benefits for Specific Populations Do So, but Sometimes Only Marginally

Using the Policy Simulation Group's GEMINI and SSASIM models,⁶⁰ we assessed the effects of certain specific modifications that were designed to enhance Social Security benefits for specific subgroups of beneficiaries at age 70.⁶¹ We used both a family equivalence scale and individual level analysis to be able to both compare between married and unmarried individuals and to assess the impact of modifications on individuals alone. Each of the changes discussed below increases benefits for the targeted group, but the size of the increase projected varies with the number of people affected; generally, the smaller the population that was targeted by the reform, the larger the change in benefits and vice versa. While some of the individual modifications modeled below have no benefit impact outside of the targeted group, for those that do have broader effects, the impact on other beneficiaries can vary. The results of our analyses reflect outcomes for individuals in the simulated populations and do not attempt to estimate outcomes for an actual population.

Implement Dependent Care Credits

Dependent care credit proposals seek to compensate those who spend some years out of the workforce to care for dependents or those with low or reduced earnings while attending to caregiving responsibilities. Fewer years in the workforce or reduced earnings during caregiving years tend to lower a caregiver's average lifetime earnings and, thus, his or her Social Security benefit levels in retirement. Many advocates have proposed dependent care proposals that either modify Social Security's traditional benefit formula, which uses a 35-year span of time to average lifetime earnings or credit caregivers with additional earnings. These proposals vary in design and do not necessarily produce similar results. Either option would require data collection and computation beyond SSA's current practices, a potential administrative complication.

- **Specified earnings credit:** This approach would assign to the caregiver one half of average earnings for each year in which there was a child in care and the actual earning was zero or reduced from prior earnings for a fixed number of years. Those who already earn the credit amount would not benefit. Research has shown that a caregiver credit

⁶⁰For more information on the Policy Simulation Group's models, see appendix I.

⁶¹Outcomes from each reform could be different for individuals at ages other than 70, particularly as the incidence of widowhood in the population increases at higher ages.

model based on crediting earnings does a better job of targeting lower earners than excluding care years from earning averages.⁶²

- **Excluding care years from earning averages:** This approach would reduce the standard 35-year basis for determining a worker's average indexed monthly earnings by subtracting the number of years spent providing care. It generally also specifies a limit for the number of years that can be dropped from the calculation of average earnings. Because the design specifies years of zero earnings, this approach may not target financially needy populations who lack sufficient resources to take full years off from work. High-income caregivers may be more likely to benefit from such an approach if economic necessity drives low-income caregivers back to the workforce, while those in high-income families are able to stay out of the workforce longer.

GAO Simulation of a Dependent Care Credit

We simulated the effect of a dependent care credit similar to one evaluated by the Urban Institute⁶³ that would credit a worker's earnings record with one-half of average wages in years in which there was a child under 5 years of age⁶⁴ in the household and the worker's earnings were less than one half of average wages.⁶⁵ We evaluated the impact on the Social Security benefits of two simulated populations—one cohort born in 1950 and another born in 1985.⁶⁶

⁶²Melissa Favreault and Eugene Steuerle, *Social Security Spouse and Survivor Benefits for the Modern Family* (Washington DC: Urban Institute, 2006).

⁶³Melissa Favreault and Frank Sammartino, *The Impact of Social Security Reform on Low-Income and Older Women* (Washington D.C.: Urban Institute, 2002).

⁶⁴Some dependent care proposals might also provide enhanced benefits to individuals caring for dependent adults. However, for ease of modeling we simulated a proposal in which the benefits were limited to those with young dependent children. Proposals that do include benefits for adult caregivers would likely affect a larger number of beneficiaries than the version we simulated.

⁶⁵Individuals in the sample population that met these criteria were credited with one-half of average wages (as measured by the Average Wage Index used by the Social Security Administration) for up to 5 years. If both parents meet these criteria in any given year, only the lower-earning parent would receive the credit; if parents had identical earnings, the credit is split evenly. The credit would not contribute to quarters of coverage for eligibility purposes. The design of this reform effectively would provide a limited minimum benefit for workers with children under 5.

⁶⁶We used the 1950 and 1985 simulated birth cohorts in all of the simulations of Social Security reform elements presented in this report.

Using the GEMINI model, we found that this particular dependent care credit resulted in positive median benefit changes for both women and men, though it provided a larger increase in median benefits for women. The credit was more beneficial for those born in 1950 than in 1985. As shown in table 1, its outcome was progressive for those affected by the change, with women in the lowest earnings quintile showing the highest proportionate gain in their Social Security benefits. In both cohorts, never-married women had the largest median change in benefits.⁶⁷ The effect of this change was also broad; for both birth cohorts, it affected the largest number of beneficiaries, both men and women, of any of our simulations.

⁶⁷This reform would reduce the 75-year solvency achieved by the “promised benefits” benchmark by 0.19 percent. The “promised benefits” benchmark achieves 75-year solvency by increasing payroll taxes by the amount of Social Security’s actuarial deficit as a percentage of payroll. For more information on this and the “funded benefits” benchmark see appendix I. For a summary of the solvency impact of all simulated modification under both the “promised benefits” and the “funded benefits” benchmarks see appendix IV.

Table 1: Median Percentage Change in Benefits for Individuals Whose Benefits Changed after Addition of the Dependent Care Credit—Promised Benefits Benchmark

Numbers in percent

Birth cohort	All men	All women
1950	2.60	3.24
1985	2.06	2.63

Women by income quintile

Birth cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
1950	7.96	4.16	2.80	1.68	0.92
1985	6.88	3.50	2.12	1.14	0.72

Women by marital status

Birth cohort	Never married	Divorced	Married	Widowed
1950	7.95	5.05	2.64	2.87
1985	6.69	4.18	2.19	2.43

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I). Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female). For percentage of population affected and results using the “Funded benefits” benchmark, see appendix II.

Table 2: Percentage of Total Simulation Population Whose Benefits Changed after Addition of the Dependent Care Credit—Promised Benefits Benchmark

Numbers in percent

	Birth Cohort	
	1950	1985
All men	28.43	35.06
All women	30.93	30.99

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I).

Increase Minimum Benefit

Minimum benefit proposals aim to ensure Social Security benefit adequacy for low earners. Under current law, Social Security includes a Special Primary Insurance Amount (also referred to as the Special Minimum

Benefit) intended to reduce poverty among retired lifetime low-wage workers. The Special Primary Insurance Amount targets retirees with a low benefit based on a steady, long-time, low wage work record, rather than on those with a low benefit based on intermittent workforce attachment;⁶⁸ the Special Primary Insurance Amount makes this distinction by basing the calculation on years worked rather than earnings level. Very few people currently receive benefits based on the Special Primary Insurance Amount; however, the majority of those who do are women. Additionally, the benefit provided by the Special Primary Insurance Amount is less than the official poverty level for aged persons, and because the benefit is indexed to price inflation rather than wage growth, it has provided a less generous benefit over time relative to the traditional wage-indexed Social Security benefit. Because of this, SSA has projected that the Special Primary Insurance Amount will phase out as early as 2013. A newly designed minimum benefit could expand benefits for low earners across all demographic groups, including women, who are more likely than men to be at the bottom of the income distribution. Expanded minimum benefits may also be of renewed importance to benefit adequacy as part of a broad Social Security reform scenario that reduces benefits for all beneficiaries, including low earners.

Several Social Security reform proposals include a new minimum benefit that would guarantee a benefit equal to a set percentage of the poverty level, dependent on the number of years worked across a lifetime. For example, Estimated OASDI Financial Effects of the “Bipartisan Retirement Security Act of 2005”—legislation introduced as H.R. 440 by Representative Jim Kolbe and Representative Allen Boyd would provide low earners who had 40 years of minimum wage earnings a benefit equal to 120 percent of the federal poverty level when fully phased in.⁶⁹

GAO Simulation of an Increased Minimum Benefit

To simulate the effect of an increased minimum benefit, we modeled a change to set a minimum benefit of 120 percent of the federal poverty level for 30-year workers, linearly phased to zero for workers with 20 years or

⁶⁸Previous to the Special Primary Insurance Amount, Social Security had a Minimum Benefit that did not target lifetime low earners; this benefit was criticized for providing windfall benefits for workers with only a minimal attachment to the Social Security system.

⁶⁹See Office of the Chief Actuary, Social Security Administration, *Estimated OASDI Financial Effects of the "Bipartisan Retirement Security Act of 2005"* (Nov. 4, 2005) at http://www.ssa.gov/OACT/solvency/Kolbe_20051104.pdf.

less of covered employment. Slightly fewer men than women in the simulation were affected by the change, and those who were had a slightly lower median benefit changes than women affected by the change. As expected, the outcome of this change was largely progressive. In both cohorts, a larger share of women in the lower two income quintiles had benefit changes resulting from this modification than women in the upper three income quintiles.⁷⁰ Moreover, the median percentage changes in benefits for women in the bottom quintile was much larger than those for women in the higher quintiles. (See table 3.)

Table 3: Median Percentage Change in Benefits for Individuals Whose Benefits Changed after Addition of the Increased Minimum Benefit—Promised Benefits Benchmark

Numbers in percent					
Birth cohort	All men			All women	
1950	8.47			9.89	
1985	6.20			6.70	

Women by income quintile					
Birth cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
1950	22.83	9.65	5.21	3.51	2.55
1985	8.26	2.46	2.27	0.09	0

Women by marital status				
Birth cohort	Never married	Divorced	Married	Widowed
1950	22.80	17.13	7.43	8.34
1985	19.01	14.50	4.55	6.48

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I). Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female). For percentage of population affected and results using the “Funded benefits” benchmark, see appendix II.

⁷⁰For data, see appendix II, table 30.

Table 4: Percentage of Total Simulation Population Whose Benefits Changed after Addition of the Increased Minimum Benefit—Promised Benefits Benchmark

Numbers in percent		
	Birth Cohort	
	1950	1985
All men	7.71	8.77
All women	1.18	1.28

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I).

While the share of women affected by the minimum benefit was fairly similar across marital statuses (never-married, divorced, married and widowed) in each cohort (for data, see app. II, table 30), never-married and divorced women had much larger percent changes in median benefits. For never married women affected by the modification, the percent change in median benefits was more than double under the minimum benefit than under any other modification.⁷¹

The impact of the minimum benefit is larger in the 1950 cohort versus the 1985 cohort because the minimum benefit is linked to the poverty line, which is indexed to prices, while Social Security initial benefits are indexed to wages; over time, this results in a lower minimum benefit relative to Social Security benefits. This effect could be reduced by indexing the poverty level to wages rather than prices, as was done in the Kolbe-Boyd proposal.

A minimum benefit following parameters such as we simulated may increase benefits for both part-time and full-time workers. Because Social Security only tracks annual earnings rather than wages or hours worked, a higher-earning, part-time worker could receive the same benefit as a full-

⁷¹The increased minimum benefit, as we've modeled it, would reduce the 75-year actuarial balance achieved by the "Promised benefits" benchmark by 0.05 percent. For more information on this and the "Funded benefits" benchmark, see appendix I. For a summary of the solvency impact of all simulated reforms under both the "Promised benefits" and the "Funded benefits" benchmarks see appendix IV.

year, low-income worker; enhanced benefits may therefore also be provided to individuals who work part-time by choice.⁷²

Increase Survivor Benefits

One way that some proposals address the vulnerability of widows or widowers to poverty is by raising survivor benefits to a set percentage of a married couple's prior combined benefit (for example, two-thirds or three-fourths of the level of benefits received by the couple while both were living). Under current law, a survivor receives the larger of his or her own benefit or the benefit of the deceased spouse. Thus, survivor benefits for many dually entitled women or women receiving only spousal benefits would replace approximately 67 percent of the couple's prior total benefit level. Researchers have expressed concern about whether this decline in total household benefits is too large to maintain the survivor's previous standard of living. On the other hand, for survivors of two-earner couples where both spouses received retired worker benefits on their own record, a widow's benefit under current law may range between 50 percent and 67 percent of the couple's prior total benefits upon the death of a spouse, causing an even greater decline in total household benefit income.

GAO Simulation of an Increased Survivor Benefit

GAO modeled a survivor benefit that would provide a surviving spouse with the higher of 75 percent of the couple's previous combined benefit level, capped at the average benefit level for all new retirees, or the current law survivor benefit. We did not simulate the effect of the current provision ensuring surviving spouses a minimum of 82.5 percent of the deceased worker's PIA; had this been included, results may be slightly higher. This simulation resulted in increased benefits for both men and women. (See table 5.) While about three times the number of women as men were affected, the magnitude of the benefit change was larger for men who were affected by the program modification; their median percentage change in benefits was nearly 29 percent in both cohorts. This is attributable to the increased survivor benefit modification compared to current law. Current law allows survivors the greater of their own benefit or their spouse's benefit. As most men receive a larger benefit than their spouses, a survivor benefit of the larger of 75 percent of the couple's combined benefit (capped at the average benefit level for all new retirees)

⁷²A potential unintended consequence of a more generous minimum benefit is that higher benefits may disqualify certain individuals from Supplemental Security Income (SSI) eligibility. This is significant for some beneficiaries living in states that provide automatic Medicaid eligibility for SSI recipients.

or the husband's benefit would provide a higher benefit level than current law to lower-earning men who outlive their wives.

Table 5: Median Percentage Change in Benefits for Individuals Whose Benefits Changed after Addition of Increased Survivor Benefits—Promised Benefits Benchmark

Numbers in percent					
Birth cohort	All men			All women	
1950	28.78			15.71	
1985	28.98			18.36	

Women by income quintile					
Birth cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
1950	14.81	16.28	15.77	13.69	24.44
1985	19.39	18.36	16.00	16.00	8.67

Women by marital status				
Birth cohort	Never married	Divorced	Married	Widowed
1950	0	16.67	0	15.58
1985	0	18.42	0	18.35

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I). Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female). For percentage of population affected and results using the "Funded benefits" benchmark, see appendix II.

Table 6: Percentage of Total Simulation Population Whose Benefits Changed after Addition of Increased Survivor Benefits—Promised Benefits Benchmark

Numbers in percent		
	Birth Cohort	
	1950	1985
All men	0.78	0.46
All women	2.11	1.13

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I).

In both the 1985 and 1950 cohorts, the increased survivor benefit modification increased the number of women who never fell below the microsimulation model's low benefit threshold by about 6 percentage points versus current law. For those women affected by the benefit in our simulation, the median percentage change in benefits was about 16 percent in the 1950 cohort and about 18 percent in the 1985 cohort.⁷³ As expected, for both cohorts, the majority of women with benefit changes resulting from this change are widows and divorced women. Additionally, in terms of number of people affected, the impacts of this change were concentrated primarily in the bottom two income quintiles.⁷⁴

By capping this program modification at the level of average benefits, this modification targets the increased survivor's benefit to lower-earning widows and widowers. Although exempting wealthier beneficiaries from this benefit enhancement creates fiscal savings, it may limit many survivors from two-earner couples from benefiting from the change.

Reduce Spousal Benefits and Increase Survivor Benefits

An increase in survivor benefits is sometimes paired with a decrease in spousal benefits, from one-half the retired worker's benefit to one-third. This pairing provides nearly the same average percentage change in benefits to widows as the modification above, but contains costs by reducing the spousal benefit while the worker is still living.

GAO Simulation of a Reduction in Spousal Benefits with Increased Survivor Benefits

Our simulation of this modification resulted in nearly the same benefit changes for widows as the "Increase survivor benefits" projection described above, while the benefits of affected married women and divorced women—recipients of spousal benefits—had a generally negative change. When all women affected by this modification are sorted into quintiles by lifetime household income, the median percentage change in benefit levels is similar across quintiles, and is in all cases negative. (See

⁷³For the 1985 cohort, this reform had an impact on twice the number of widows in the "Funded benefits" framework than in the "Promised benefits" framework; this is because the "Funded benefits" results in lower benefit levels and more survivors have incomes below the cap of average PIA.

⁷⁴As simulated, this change would reduce the 75-year solvency achieved by the "Promised benefits" benchmark by 0.07 percent. For more information on this and the "Funded benefits" benchmark see appendix I. For a summary of the solvency impact of all simulated changes under both the "Promised benefits" and the "Funded benefits" benchmarks see appendix IV.

table 7.) Despite this, the low benefit avoidance rates were quite similar to those produced by the survivor benefit increase modification for all cohorts, indicating that both modifications have nearly the same positive impact on our proxy for poverty avoidance (see app. III).

Table 7: Median Percentage Change in Benefits for Individuals Whose Benefits Changed after Addition of Decreased Spousal Benefits Paired with Increased Survivor Benefits—Promised Benefits Benchmark

Numbers in percent					
Birth cohort	All men			All women	
1950	-2.81			-2.66	
1985	-9.14			-8.78	

Women by income quintile					
Birth cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
1950	-2.55	-2.55	-2.66	-2.67	-2.67
1985	-9.82	-8.06	-8.21	-8.45	-9.27

Women by marital status				
Birth cohort	Never married	Divorced	Married	Widowed
1950	0	-8.00	-2.67	15.58
1985	0	-24.11	-9.01	18.91

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I). Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female). For percentage of population affected and results using the “Funded benefits” benchmark, see appendix II.

Table 8: Percentage of Total Simulation Population Whose Benefits Changed after Addition of Decreased Spousal Benefits Paired with Increased Survivor Benefits—Promised Benefits Benchmark

Numbers in percent		
	Birth Cohort	
	1950	1985
All men	11.45	11.58
All women	11.78	11.31

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I).

This proposal would both smooth household benefit levels before and after widowhood and provide savings to the Social Security system to offset costs of the increased survivor benefit.⁷⁵

Reduce Duration of Marriage Requirement for Divorced Spouse Benefit Eligibility

Proposals to shorten the current requirement for 10-year marriage duration to be eligible for divorced spouse and survivor benefits would expand eligibility for benefits to divorced spouses from marriages that do not meet the 10-year milestone.⁷⁶ Timing of divorce can have a large impact on retirement benefits, as an individual divorced one day before the 10 year anniversary would not be eligible for benefits, while another individual who waited one more day would be eligible for a full spousal or survivor benefit. Reducing the 10-year marriage requirement would make more divorced individuals eligible for divorced spouse and survivor benefits but would also increase the probability that an individual with several former spouses could have several spouses receive benefits on one worker's earnings record.

⁷⁵Based on our simulation, this change would improve the 75-year actuarial balance achieved by the "Promised benefits" benchmark by 0.02 percent. The "Funded benefits" benchmark does not fully offset; the solvency impact of this reform on the "Funded benefits" benchmark is -0.06%

⁷⁶In 1995, 30 percent of marriages ended in divorce within the first 10 years.

GAO Simulation of a Reduced Marriage Requirement

GAO simulated a modification that would reduce the duration of marriage requirement for receiving divorced spouse benefits from 10 to 7 years.⁷⁷ In the 1950 and 1985 cohorts, among women who had a benefit change due to the reduced marriage requirement, the median percentage change in benefits was about 65 percent and 45 percent respectively (see table 9), the largest median change in benefits for women among all reforms modeled. The scope of impact, however, was extremely small: In both cohorts, those affected made up less than 1 percent of the model sample.

The changes in this simulation also resulted in a handful of newly eligible beneficiaries: In the 1950 cohort, three individuals who were not previously eligible for Social Security benefits became eligible under the reform scenario, and in the 1985 cohort, 43 individuals became eligible. Among the seven simulations that we ran, this was the only one that resulted in new beneficiaries. This is because individuals who were not eligible on their record became eligible as spouses or survivors under the shorter duration of marriage requirement. These newly eligible beneficiaries are not included in the median percent change measures.

⁷⁷Based on our simulation, this change would reduce the 75-year solvency achieved by the “Promised benefits” benchmark by 0.02 percent of payroll.

Table 9: Median Percentage Change in Benefits for Individuals Whose Benefits Changed after Reduction in Marriage Requirement from 10 to 7 Years—Promised Benefits Benchmark

Numbers in percent

Birth cohort	All men	All women
1950	0.85	65.32
1985	37.22	45.05

Women by income quintile

Birth cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
1950	85.18	54.66	162.36	33.33	0
1985	53.99	34.41	33.33	36.31	25.14

Women by marital status

Birth cohort	Never married	Divorced	Married	Widowed
1950	0	65.32	0	0
1985	0	45.05	0	0

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I). Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female). For percentage of population affected and results using the “Funded benefits” benchmark, see appendix II.

Table 10: Percentage of Total Simulation Population Whose Benefits Changed after Reduction in Marriage Requirement from 10 to 7 Years—Promised Benefits Benchmark

Numbers in percent

	Birth Cohort	
	1950	1985
All men	0	0.03
All women	0.04	0.51

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I).

Pension Modifications That Address the Changing Pension Landscape and Changing Workforce Patterns May Serve Women Better than Traditional Pension Models

In addition to the Social Security proposal elements above, we simulated two pension modifications that address challenges related to the shift to DC plans and changing workforce patterns.⁷⁸ Both modifications modeled by GAO generally resulted in higher pension benefits, and address issues that may be of particular concern to women. In particular, in DC plans,⁷⁹ contributing early and maintaining an account over time has a significant positive impact on the balance of that account and the resulting retirement benefit. Decreasing vesting requirements would allow workers who change jobs more frequently to attain increased benefits from pension plans. Automatically rolling over accounts at a job's end increases the probability that accrued retirement balances will in fact be saved for retirement. The GEMINI/PENSIM models do not account for behavioral responses to program changes; therefore, data do not take into account possible employer or employee responses to the program modifications below.

Lowering Vesting Requirements

Under current law, eligible employees must be allowed to participate in a plan as of age 21 and after completing 1 year of service, subject to certain exceptions. An employee's own contributions to their pension plan are nonforfeitable, as are employer contributions once an employee's benefits have vested. ERISA, as amended, requires cliff vesting⁸⁰ in DBs within 5 years and full vesting under a graduated vesting⁸¹ schedule within 7 years. cash balance plans ("hybrid" plans) generally will require vesting within 3 years. Beginning in 2008 employer contributions to DC plans⁸² must vest in

⁷⁸Pension reforms were modeled using only the 1985 cohort, as PENSIM model data are not valid for cohorts born before 1975 (per PENSIM documentation).

⁷⁹Defined benefit plans promise to provide a benefit that is generally based on an employee's salary and years of service. Defined contribution plans have individual accounts to which the employer, employees, or both make periodic contributions. For more information, see GAO, *Answers to Key Questions about Private Pension Plans*, [GAO-02-745SP](#) (Washington, D.C.: Sept. 18, 2002).

⁸⁰Plans with cliff vesting have a specified point at which participants have a right to benefits accrued to date and benefits accrued thereafter. For more information, see [GAO-02-745SP](#).

⁸¹Plans with graduated vesting give participants a right to an increasing percentage of their total accrued benefit over time. For more information, see [GAO-02-745SP](#).

⁸²The Pension Protection Act of 2006 accelerated some vesting requirements for DC plans.

either a 3-year cliff or 6-year phased schedule (includes service prior to 2007).⁸³

GAO Simulation of Lowered Vesting Requirements for Employer-Provided Pensions

Using the PENSIM microsimulation model, we projected the impact of a reduced vesting schedule on retirement benefits. For DB plans we specified 2-year cliff vesting, and for DC plans we specified 2-year cliff, and 3-year graduated vesting schedules. For the 1985 cohort, the median percentage change in benefit levels for women who were affected by the change was an increase of 6.29 percent. Similarly, men's median percentage change in benefits for those affected was of 5.74 percent.⁸⁴ (See table 11.) While the number of women affected by this change was fairly evenly distributed across the top four income quintiles with fewer in the lowest, the median percentage change in benefits is much larger for the women in the lowest quintile than in higher quintiles; for those in the lowest quintile, the median percentage change in benefit levels was more than four times the change for women in the highest quintile and nearly twice that of women in the second lowest income quintile. This suggests that increases in pension benefits gained as a result of this change represent a larger portion of total pension accumulation for less affluent women. Similarly, while the number of married women affected was larger than the number affected in other marital classifications, the median percentage change in benefits for never married and divorced women was almost twice the median percentage change in benefits for married and widowed women.

⁸³One survey found that the most frequently cited reason for not participating in a retirement plan when a plan was offered by employers was an insufficient period of employment (39 percent of male employees versus 35 percent of female employees).

⁸⁴We simulated pension income only for the 1985 birth cohort because the current version of PENSIM does not have a realistic characterization of pre-1996 employer pension offerings and therefore should not be used to simulate lifetime pension accumulation for cohorts born before 1975.

Table 11: Median Percentage Change in Pension Benefits for Individuals Born in 1985 Whose Benefits Changed After Lowered Vesting Schedules

Numbers in percent				
All men		All women		
5.74		6.29		
Women by income quintile				
Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
16.37	8.90	6.18	5.11	3.51
Women by marital status				
Never married	Divorced	Married	Widowed	
11.14	11.30	5.35	6.81	

Source: GAO analysis based on the PENSIM model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I). Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female). For percentage of population affected and results using the “Funded benefits” benchmark, see appendix II.

Table 12: Percentage of Total Simulation Population Whose Benefits Changed after Implementation of Lowered Vesting Schedules

Numbers in percent	
	Birth Cohort
	1985
All men	14.34
All women	12.62

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I).

Automatic Rollover upon Leaving Employment Prior to Retirement Age

“Automatic rollover” proposals would maintain the level of accrued retirement benefits in DC plans when an individual switches jobs before retirement by automatically contributing retirement balances to a qualified retirement savings account. According to research conducted by the Employee Benefit Research Institute in 2003, under 50 percent of recipients of lump sum distributions between the ages of 30 and 50 reported using the entire portion for reinvestment into a qualified

account.⁸⁵ For those aged 21 to 30, the percentage using the entire distribution for tax-qualified financial savings drops to under 35. This modification would provide greater retirement income for men and women. However, some research shows that women roll over a lower percentage of their accrued balances than men do; because of this, requiring automatic rollover may have a larger effect on women overall.

GAO Simulation of 100 Percent Automatic Rollover for Employer-Provided Pensions

GAO used the GEMINI microsimulation model to determine what the impact could be on retirement benefit levels if 100 percent of accrued retirement balances were reinvested into qualified accounts after every job change until retirement. For the 1985 cohort, the median percentage change in benefits for those affected was quite similar for men and women, 7.3 percent and 7.63 percent, respectively. (See table 13.) This assumes that those affected would not make any changes in their savings or spending behavior to offset the requirement. Among women who were affected by the change, those who were never married or who were divorced had the largest percentage median increases in benefits. Additionally, while the number of women affected by this change again was fairly evenly distributed across the top four income quintiles with fewer in the lowest, those in the lowest two income quintiles had substantially larger median percentage changes in benefits than those in the highest two quintiles.

⁸⁵"Lump-Sum Distributions," *EBRI Notes, Volume 16, no. 12* (Employee Benefit Research Institute, December 2005).

Table 13: Median Percentage Change in Pension Benefits for Individuals Born in 1985 Whose Benefits Changed after Implementation of 100 Percent Automatic Rollover

Numbers in percent				
All men		All women		
7.30		7.63		
Women by income quintile				
Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
16.94	11.85	8.50	5.97	3.62
Women by marital status				
Never married	Divorced	Married	Widowed	
15.04	12.09	6.74	7.48	

Source: GAO analysis based on the PENSIM model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I). Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female). For percentage of population affected and results using the “Funded benefits” benchmark, see appendix II.

Table 14: Percentage of Total Simulation Population Whose Benefits Changed after Implementation of 100 Percent Automatic Rollover

Numbers in percent	
	Birth Cohort
	1985
All men	12.26
All women	11.21

Source: GAO analysis based on the GEMINI model.

Note: Simulations calculated benefits for individuals at age 70 and were based on benefits adjusted for household size (for more information, see discussion of Family Equivalence Scale in appendix I).

Concluding Observations

Despite the increases in women’s labor force participation over the past 55 years, certain groups of women will continue to be vulnerable to economic insecurity in retirement. While women are working more than in the past, they remain the primary source of family caregiving and are more likely than men either to reduce their workforce participation or never to enter

the paid workforce. Consequently, despite elements of the Social Security and employer-sponsored pension systems that provide retirement income for low- or non-earning spouses, the remaining gaps between women's and men's labor force participation, earnings, and pension participation will continue to leave many women with fewer financial resources in retirement than men. In addition to the choices many women make to stay out of the workforce or to reduce the amount of their work, certain life events (such as divorce and widowhood) are likely to exacerbate this disparity. Ultimately, women's roles in the workplace and within a family may hinder them from building sufficient retirement resources, leaving them at greater risk of poverty in old age.

Other trends can exacerbate the vulnerability of women in retirement. Many proposed reforms for Social Security and employer-provided pensions have focused on long-term solvency and financing issues. Research has shown that many of these types of reforms have the potential to reduce retirement income from levels scheduled in current law for a large number of beneficiaries. This is of particular concern for women because of their reliance on Social Security as a main source of retirement income. Changes in the structure of employer-sponsored pensions, which can have some benefits for women, may also have some negative consequences. Although the shift to DC type plans can have a positive impact on people who change jobs frequently or work intermittently, such plans can transfer more of the responsibility to make prudent investment decisions and to manage longevity risk to individuals. While this is true for both men and women, it is of particular concern for women because of their greater longevity. Moreover, the original design of the Social Security system was based on a particular household structure—single earner families—and that structure is no longer the norm in America. If policy makers wish to design a system that adequately and equitably compensates all retirees, then it will be necessary to design a system that reflects the diversity of employment patterns and family structure within the population it serves. In fact, several past reform proposals included modernization elements that would target benefit enhancements to various subgroups.

In contemplating modifications to Social Security or employer-provided pensions, it is helpful to understand all possible effects, including the impact on Social Security solvency or costs to employers. Each of the Social Security changes that we modeled would have small, but negative, effects on program solvency. Small effects such as these, when included in a larger package of reforms, could be overwhelmed by the effects of other changes. Nevertheless, the trade-offs between enhanced benefits and costs

are always important to consider. It is also helpful to understand how changes may affect different types of individuals with different work and earnings histories—for example, women who never enter the workforce or choose to reduce their work, possibly to care for children or other family members. Changes to benefit structures may also have different effects on individuals within different family structures, such as single-earner married couples, dual-earner households, or unmarried heads of household. Recognizing these differences is important not only in terms of improving adequacy and equity in the benefit structure, but also in understanding how different benefit structures might affect the choices individuals make regarding their own workforce attachment. With such knowledge, policy makers have the potential to mitigate both existing disparities in retirement income as well as the differential effects of reforms.

Agency Comments

We provided a draft of this report to the departments of Labor and the Treasury, the Internal Revenue Service, and the Social Security Administration. The departments of Labor and the Treasury and the Social Security Administration provided technical comments, which we incorporated where appropriate.

We are sending copies of this report to the Secretary of Labor, the Commissioner of Internal Revenue, the Commissioner of Social Security, the Secretary of the Treasury, and appropriate congressional committees, and other interested parties. We will also make copies available to others upon request. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-7215 or at bovbjergb@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix V.



Barbara D. Bovbjerg, Director
Education, Workforce, and
Income Security Issues

Appendix I: Methodology

To identify the effects of individual reform elements on Social Security and pension benefit levels for women, we used the Policy Simulation Group's (PSG) microsimulation models to simulate Social Security benefits and pension income.

For our simulations, we used PSG's Social Security and Accounts Simulator (SSASIM), Genuine Microsimulation of Social Security Accounts (GEMINI), and Pension Simulator (PENSIM) simulation models. GEMINI simulates Social Security benefits and taxes for large representative samples of people born in the same year. GEMINI simulates all types of Social Security benefits including retired workers', spouses', survivors', and disability benefits. It can be used to model a variety of changes to Social Security. GEMINI uses inputs from SSASIM, which has been used in numerous GAO reports, and PENSIM, which was developed for the Department of Labor. GEMINI relies on SSASIM for 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.¹ Life histories include educational 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, the Current Population Survey, Modeling Income in the Near Term (MINT3),² and the Panel Study of Income Dynamics. 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 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.

GEMINI can be operated as a free-standing model or it can operate as a SSASIM add-on. When operating as an add-on, GEMINI is started automatically by SSASIM for one of two purposes. GEMINI can enable the SSASIM macro model to operate in the Overlapping Cohorts (OLC) mode

¹While 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 individuals in the simulated populations and do not attempt to estimate outcomes for an actual population.

²MINT3 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 for the 1931 to 1960 birth cohorts.

or it can enable the SSASIM micro model to operate in the Representative Cohort Sample (RCS) mode. The SSASIM OLC mode requests GEMINI to produce samples for each cohort born after 1934 in order to build up aggregate payroll tax revenues and (Old-Age, Survivors, and Disability Insurance) OASDI benefit expenditures for each calendar year, which are used by SSASIM to calculate standard trust fund financial statistics. In either mode, GEMINI operates with the same logic, but typically with smaller cohort sample sizes in OLC mode than in the RCS or stand-alone-model mode.

Using the GEMINI model, we estimated Social Security benefits at age 70 for approximately 2 percent of individuals born in each of two illustrative birth cohorts, 1950 (resulting in a sample of 63,813 individuals) and 1985 (resulting in a sample of 78,857 individuals). We also used the PENSIM model to estimate pension income for those born in 1985.³ We simulated Social Security benefits for two cohorts in order to identify differences in the effects of modifications that could be due to variations in labor force participation across generations. We also used the microsimulation models to simulate Social Security benefits, pension income, and the earnings of spouses not yet retired, in order to explore the relationships between benefit levels and workforce attachment and marital status. For this analysis we simulated benefit levels at ages 67 and 85 for the 1985 birth cohort. These models do not include measures of personal savings, earnings in retirement, health benefits, or income from other income support programs.

Additionally, we evaluated the effect of Social Security modifications on a “low benefit avoidance rate,” a measure produced by the model that proxies for poverty avoidance. However, it does not include pension income or savings, and so cannot be called a poverty avoidance measure. The low benefit avoidance rate is expressed as the percentage of retirement years in which an individual’s Social Security benefits (plus any earnings) are above a low-benefit threshold in the GEMINI model (the thresholds are \$9,669 for individuals and \$12,186 for couples, in 2007 dollars). Both income and the threshold are based on individual data when unmarried and on couple data when married.

³We did not simulate pension benefits for the 1950 birth cohort because the current version of PENSIM does not have a realistic characterization of pre-1996 employer pension offerings, and therefore, should not be used to simulate lifetime pension accumulation for cohorts born before 1975.

Benefits and taxes were simulated under our tax increase only (promised benefits) and proportional benefit reduction (funded benefits) benchmarks (described below) and certain specific individual programmatic changes. These simulations are based on the Social Security Trustees' 2007 intermediate economic and actuarial assumptions. While our simulations provide projections of future retirement income, there is a considerable amount of uncertainty involved with these estimates. Since these estimates could change significantly, depending on assumptions used and behavior responses, they should not be considered predictions. Furthermore, because simulations are sensitive to economic and demographic assumptions, it is generally more appropriate to compare benefits across the scenarios than to focus on the actual estimates themselves. Therefore, to avoid inappropriate comparisons, we evaluated the effects of modifications based on the changes in benefit levels rather than comparing actual benefit levels.

In general, GAO has suggested that policy makers should consider three basic criteria when evaluating reform proposals⁴

- the extent to which the proposal achieves sustainable solvency and how the proposal would affect the economy and the federal budget;
- the balance struck between the goals of individual equity⁵ (rates of return on individual contributions) and income adequacy⁶ (level and certainty of monthly benefits); and
- how readily such changes could be implemented, administered, and explained to the public.

Moreover, changes to the system should be evaluated as packages that strike a balance among the individual elements of the proposal and the interactions among these elements. The overall evaluation of any

⁴See GAO, *Social Security: Criteria for Evaluating Reform Proposals*, [GAO/T-HEHS-99-94](#) (Washington, D.C.: Mar. 25, 1999), and GAO, *Social Security: Evaluating Reform Proposals*, [GAO/AIMD/HEHS-00-29](#) (Washington, D.C.: Nov. 4, 1999).

⁵For a discussion of individual equity issues, see GAO, *Social Security: Issues in Comparing Rates of Return with Market Investments*, [GAO/HEHS-99-110](#) (Washington, D.C.: Aug. 5, 1999).

⁶[GAO-02-62](#).

particular reform proposal depends on the weight individual policy makers place on each of the above criteria.

However, for the purposes of this study we evaluated only specific individual modifications. We looked at certain specific changes in order to focus on those that account for more recent shifts in family structure and labor force composition. In particular, we wanted to identify the direction of the impact of modifications that might be used to mitigate the effects of broad reform packages likely to reduce benefits. Nevertheless, we recognize that there could be important interaction effects with any set of reforms and maintain the importance of considering all possible effects of any reform package as a whole. The solvency impact of any single programmatic change may be marginal and, as part of a package, could be overwhelmed by other changes. Nevertheless, in appendix IV, we have provided the impact of each change on the Social Security Trust Fund balance, after achieving 75-year solvency with the benchmark scenarios. Additionally, because we simulated programmatic changes in isolation we could not calculate traditional equity measures, which relate benefits received to taxes paid. Because we simulated programmatic changes in isolation on top of solvent benchmark scenarios, the results did not achieve long-term solvency. We did not speculate on how the changes would be paid for in the context of overall reform. Without information on total contributions or benefits under each simulation, traditional equity measures would not be meaningful. Finally, given the limited scope of the changes we simulated, we did not address issues of implementation, administration, or public comprehension.

Assumptions and Limitations

Simulating retirement income almost 50 years into the future requires many assumptions and simplifications, and consequently, our simulations have a number of limitations. A primary limitation of our analysis is that it does not include important components of retirement income such as personal savings, earnings in retirement, health benefits, and other public assistance programs such as Supplemental Security Income (SSI). To facilitate our modeling analysis, we made a variety of assumptions regarding economic and demographic trends. In choosing our assumptions, we focused our analysis to illustrate relevant points about distributional effects and hold equal as much as possible any variables that were either not relevant to or would unduly complicate that focus. As a result of these assumptions, as well as issues inherent in any modeling effort, our analysis has some key limitations.

2007 Social Security Trustees' Assumptions

The simulations are based on economic and demographic assumptions from the 2007 Social Security Trustees' report.⁷ We used the Trustees' intermediate assumptions for inflation, real wage growth, mortality decline, immigration, labor force participation, and interest rates.

Family Equivalence Scale

For some of our analyses, we used a measure of income adjusted to account for household size and economies of scale. We did this to facilitate comparisons between nonmarried persons and married persons whose household income includes income from both spouses that can vary significantly between them. For instance, although a married couple may need approximately twice as much for food and clothing as a single person, other needs, such as housing and transportation, are not additive in the same way. However, the effect of using data adjusted for household size on a reform targeted at married couples, such as a change in spousal benefits, is that the change in benefits resulting from the program modification is shared by both the husband and the wife. Thus, population data based on the adjusted measure describe the number of people whose household had a benefit change resulting from the modification. For example, in the "Decreased Spousal Benefit and Increased Survivor Benefit" modification, the family equivalence data indicate that a nearly equal percent of men and women are affected by the modification because the effect of the benefit change is shared by both spouses. Therefore, in order to identify just the percent of men and women who had changes to their own benefit as a result of the program change, percentages are also calculated based on benefits not adjusted for household size.

The adjustment is made by dividing household benefit levels by a "family equivalence scale."⁸ This equivalence scale reflects both differences in consumption by adults and children under 18 and the economies of scale that benefit families. The family equivalence scale in the GEMINI model (shown below) and its default parameters are based on the

⁷The Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, *The 2007 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds* (Washington, D.C.: Apr. 23, 2007).

⁸There are both advantages and disadvantages of using such measures. For additional information on the development, use, and limitations of equivalence scales see, Constance F. Citro and Robert T. Michael (eds.), *Measuring Poverty: A New Approach*, Washington, DC: National Academy Press, 1995, and GAO, *Social Security: Program's Role in Helping Ensure Income Adequacy*, [GAO-02-62](#) (Washington, D.C.: Nov 30, 2001).

recommendations of the National Academy of Sciences' Panel on Poverty and Family Assistance.

$$\text{Family equivalence scale} = (A + P*k)^f$$

where A is the number of adults in the family,

k is the number of children, each of whom is treated as a proportion P of an adult, and

f is the scale economy factor.

Thus, the formula calculates the number of adult equivalents (A + P*k) and raises the result to a power f that reflects economies of scale for families. We used the default parameters in the model, so that both P and f are 0.70.

Description of Simulated Social Security Modifications

Dependent Care Credit—Analyzing Impact of Inserting a “Credit”

To simulate a dependent care credit we provided a “credit” in the OASDI work record that would top off a year’s earnings to the level of half of average wages. In a given year, the OASDI work records of individuals with a child 5 years of age or under and who had earnings less than one-half of average wages were credited with one half of average wages (as measured by the Average Wage Index used by the Social Security Administration). A lifetime maximum of five credits was allowed. If both parents met these criteria in any given year, only the lower-earning parent received the credit; if both parent’s earnings were identical in any given year, the credit was split evenly. Credits were not counted toward benefit eligibility. In our simulation the reform went into effect in 2010.

This change as specified has not been scored publicly by OCACT. Using the OLC mode of SSASIM that mimics the intermediate assumptions of the 2007 Trustees’ report, we estimated this modification as increasing the size of the long-range actuarial deficit by 0.19 percent under the “promised benefits” benchmark and by 0.17 under the “funded benefits” benchmark.

Decrease Spousal
Benefit/Increase Survivor
Benefit

To simulate the effects of a decrease in spousal benefits paired with an increase in survivor benefits, we reduced spousal benefits from one-half to one-third of the retired worker's benefit. We also increased the survivor benefit to 75 percent of the couple's previous combined benefit level, if higher than the survivor benefit available under current law. The benefit of this reform is capped at the average PIA for all new retirees. Our simulation of the reform went into effect in 2010.

These changes as specified have not been scored publicly by OCACT.⁹ Using the OLC mode of SSASIM that mimics the intermediate assumptions of the 2007 Trustees' report, we estimated this modification as decreasing the size of the long-range actuarial deficit by 0.02 percent under the "promised benefits" benchmark and increasing the size of the long range actuarial deficit by 0.06 under the "funded benefits" benchmark.

Increased Survivor Benefit
Only

We also simulated the effects of an increase in survivor benefits independently. To do this, as above, we increased the survivor benefit to 75 percent of the couple's previous combined benefit level, if higher than the survivor benefit available under current law. The benefit of this reform is capped at the average PIA for all new retirees. Our simulation of the reform went into effect in 2010.

This change is similar to one scored by OCACT as part of the *OASDI Financial Effects of the Social Security Guarantee Plus Act of 2005 (May 12, 2005)*, which estimated a 0.08 percent increase to the long-range actuarial deficit, and *Estimated OASDI Financial Effects of the Bipartisan Retirement Security Act of 2005 (November 4, 2005)*, which also estimated a 0.08 percent increase to the long-range actuarial. Using the OLC mode of SSASIM that mimics the intermediate assumptions of the 2007 Trustees' report, we estimated this modification as increasing the size of the long-range actuarial deficit by 0.07 percent under the "promised benefits" benchmark and by 0.14 percent under the "funded benefits" benchmark.

⁹This change is similar to one scored by OCACT as part of the *1994-96 Advisory Council Report*, which estimates a 0.32 percent increase to the long-range actuarial deficit. However, the OCACT scoring of the similar change in the *1994-96 Advisory Council Report* did not include a cap at the level of average benefits, so the impact on long-range solvency was greater. A capped version of an increase in survivors' benefits was presented as part of *Estimates of Financial Effects for Three Models Developed by the President's Commission to Strengthen Social Security* in January 2002; for these outcomes, please see the description of "increase survivor benefit" change.

Reduce 10-Year Marriage Requirement

To simulate the effects of a reduced marriage requirement to qualify for divorced spouse benefits, we reduced duration of marriage requirements from 10 to 7 years. In our simulation, this reform took effect in 2010.

This change as specified has not been scored publicly by OCACT. Using the OLC mode of SSASIM that mimics the intermediate assumptions of the 2007 Trustees' report, we estimated this change as increasing the size of the long-range actuarial deficit by 0.02 percent under the "promised benefits" benchmark and increasing the size of the long-range actuarial deficit by 0.06 under the "funded benefits" benchmark.

Increase/Strengthen Minimum Benefit

To simulate an increased minimum benefit, we provided a partial benefit enhancement for workers with more than 80 quarters of coverage and provide a full benefit enhancement to workers with 120 quarters of coverage. It would equal 120 percent of the aged poverty threshold for workers with 120 quarters of coverage and be linearly prorated to zero for workers with 80 quarters of coverage. These provisions would also apply in determining the PIA levels used for calculating auxiliary benefits and DI benefits. The first year of full implementation is 2010.

This modification as specified has not been scored publicly by OCACT. Using the OLC mode of SSASIM that mimics the intermediate assumptions of the 2007 Trustees' report, we estimated this change as increasing the size of the long-range actuarial deficit by 0.05 percent under the "promised benefits" benchmark and increasing the size of the long range actuarial deficit by 0.13 percent under the "funded benefits" benchmark as well.

Description of Simulated Pension Modifications

Decrease Vesting Requirements

In our modeling of this modification, we reduced maximum allowable vesting periods to 2 years for all pension programs with cliff vesting and 3 years for all pension programs with graduated vesting. If plans within the model already used shorter vesting schedules, those vesting schedules remained unchanged. In our simulation, this change took effect in 2010.

Automatic Rollover

In order to consider the potential upper bound of impact for a modification that would ensure full rollover of retirement assets at preretirement job terminations, we modeled a full rollover of retirement balances into qualified accounts. In our simulation, this change took effect in 2010.

Data Reliability

To assess the reliability of simulated data from GEMINI, we reviewed PSG's published validation checks, examined the data for reasonableness and consistency, and compared our solvency estimates, where applicable, with published results from the actuaries at the Social Security Administration.

PSG has published a number of validation checks of its simulated life histories. For example, simulated life expectancy is compared with projections from the Social Security Trustees; simulated benefits at age 62 are compared with administrative data from SSA; and simulated educational attainment, labor force participation rates, and job tenure are compared with values from the Current Population Survey. We found that simulated statistics for the life histories were reasonably close to the validation targets.

Benchmark Policy Scenarios

According to current projections of the Social Security Trustees for the next 75 years, revenues will not be adequate to pay full benefits as defined by the current benefit formula. Therefore, estimating future Social Security benefits should reflect that actuarial deficit and account for the fact that some combination of benefit reductions and revenue increases will be necessary to restore long-term solvency.

To illustrate a full range of possible outcomes, we developed hypothetical benchmark policy scenarios that would achieve 75-year solvency either by only increasing payroll taxes or by only reducing benefits.¹⁰ In developing these benchmarks, we identified criteria to use to guide their design and

¹⁰These benchmarks were first developed for our report [GAO-02-62](#). We have since used them in other studies, including [GAO-03-310](#); GAO, *Social Security Reform: Analysis of a Trust Fund Exhaustion Scenario*, [GAO-03-907](#) (Washington, D.C.: July 29, 2003); GAO, *Social Security and Minorities: Earnings, Disability Incidence, and Mortality Are Key Factors That Influence Taxes Paid and Benefits Received*, [GAO-03-387](#) (Washington, D.C.: Apr. 23, 2003); [GAO-04-747](#); and GAO, *Social Security Reform: Implications of Different Indexing Choices*, [GAO-06-804](#) (Washington, D.C.: Sept. 14, 2006).

selection. Our tax-increase-only benchmark simulates “promised benefits,” or those benefits promised by the current benefit formula, while our benefit-reduction-only benchmark simulates “funded benefits,” or those benefits for which currently scheduled revenues are projected to be sufficient. Under the latter policy scenario, the benefit reductions would be phased in between 2010 and 2040 to strike a balance between the size of the incremental reductions each year and the size of the ultimate reduction.

Social Security Administration (SSA) actuaries scored our original 2001 benchmark policies and determined the parameters for each that would achieve 75-year solvency.¹¹ Table 8 summarizes our benchmark policy scenarios. For our benefit reduction scenario, the actuaries determined these parameters assuming that disabled and survivor benefits would be reduced on the same basis as retired worker and dependent benefits. If disabled and survivor benefits were not reduced at all, reductions in other benefits would be greater than shown in this analysis.

Table 15: Summary of Benchmark Policy Scenarios

Benchmark policy scenario	Description	Phase-in period	Ultimate new benefit reductions ^a (percent)
Tax increase only (promised benefits)	Increases payroll taxes in 2008 by amount necessary to achieve 75-year solvency (0.98 percent of payroll each for employees and employers)	Immediate	0
Proportional benefit reduction (funded benefits)	Reduces benefit formula factors proportionally across all earnings levels	2013-2043	27

Source: GAO.

^aThese benefit reduction amounts do not reflect the implicit reductions resulting from the gradual increase in the full retirement age that has already been enacted.

¹¹The Social Security actuaries provided these scorings for a previous report and used assumptions from the 2001 trustees’ report. The actuaries did not believe it was necessary to provide new scorings using updated assumptions for the purposes of our study, since the assumptions and the estimates of actuarial balance on which they are based have changed little from the 2001 report. In particular, they did not believe that the differences in assumptions would materially affect the shape of the distribution of benefits, which is the focus of our analysis. All estimates related to the indexing scenarios and benchmark policy scenarios were simulated using the SSASIM OLC mode.

Criteria

According to our analysis, appropriate benchmark policies should ideally be evaluated against the following criteria:

1. *Distributional neutrality*: The benchmark should reflect the current system as closely as possible while still restoring solvency. In particular, it should try to reflect the goals and effects of the current system with respect to redistribution of income. However, there are many possible ways to interpret what this means, such as
 - a. producing a distribution of benefit levels with a shape similar to the distribution under the current benefit formula (as measured by coefficients of variation, skewness, kurtosis, and so forth);
 - b. maintaining a proportional level of income transfers in dollars;
 - c. maintaining proportional replacement rates; and
 - d. maintaining proportional rates of return.
2. Demarcating upper and lower bounds: These would be the bounds within which the effects of alternative proposals would fall. For example, one benchmark would reflect restoring solvency solely by increasing payroll taxes and therefore maximizing benefit levels, while another would solely reduce benefits and therefore minimize payroll tax rates.
3. Ability to model: The benchmark should lend itself to being modeled within the GEMINI model.
4. Plausibility: The benchmark should serve as a reasonable alternative within the current debate; otherwise, the benchmark could be perceived as an invalid basis for comparison.
5. Transparency: The benchmark should be readily explainable to the reader.

Tax-Increase-Only or
“Promised Benefits,”
Benchmark Policies

Our tax-increase-only benchmark would raise payroll taxes once and immediately by the amount of Social Security’s actuarial deficit as a percentage of payroll. It results in the smallest ultimate tax rate of those we considered and spreads the tax burden most evenly across generations; this is the primary basis for our selection. The later that taxes are increased, the higher the ultimate tax rate needed to achieve solvency, and

in turn the higher the tax burden on later taxpayers and lower on earlier taxpayers. Still, any policy scenario that achieves 75-year solvency only by increasing revenues would have the same effect on the adequacy of future benefits in that promised benefits would not be reduced. Nevertheless, alternative approaches to increasing revenues could have very different effects on individual equity.

**Benefit-Reduction-Only, or
“Funded Benefits,”
Benchmark Policies**

We developed alternative benefit reduction benchmarks for our analysis. For ease of modeling, all benefit reduction benchmarks take the form of reductions in the benefit formula factors; they differ in the relative size of those reductions across the three factors, which are 90, 32, and 15 percent under the current formula. Each benchmark has three dimensions of specification: scope, phase-in period, and the factor changes themselves. For our analysis, we apply benefit reductions in our benchmarks very generally to all types of benefits, including disability and survivors’ benefits as well as old-age benefits. Our objective is to find policies that achieve solvency while reflecting the distributional effects of the current program as closely as possible. Therefore, it would not be appropriate to reduce some benefits and not others. If disabled and survivor benefits were not reduced at all, reductions in other benefits would be deeper than shown in this analysis.

Phase-in Period

We selected a phase-in period that begins with those becoming initially entitled in 2013 and continues for 30 years. We chose this phase-in period to achieve a balance between two competing objectives: (1) minimizing the size of the ultimate benefit reduction and (2) minimizing the size of each year’s incremental reduction to avoid “notches,” or unduly large incremental reductions. Notches create marked inequities between beneficiaries close in age to each other. Later birth cohorts are generally agreed to experience lower rates of return on their contributions already under the current system. Therefore, minimizing the size of the ultimate benefit reduction would also minimize further reductions in rates of return for later cohorts. The smaller each year’s reduction, the longer it will take for benefit reductions to achieve solvency, and in turn the greater the eventual reductions will have to be. However, the smallest possible ultimate reduction would be achieved by reducing benefits immediately for all new retirees by 13 percent; this would create a notch.

In addition, we feel it is appropriate to delay the first year of the benefit reductions for a few years because those within a few years of retirement would not have adequate time to adjust their retirement planning if the reductions applied immediately. The Maintain Tax Rates (MTR)

benchmark in the 1994-1996 Advisory Council report also provided for a similar delay.¹²

Finally, the timing of any policy changes in a benchmark scenario should be consistent with the proposals against which the benchmark is compared. The analysis of any proposal assumes that the proposal is enacted, usually within a few years. Consistency requires that any benchmark also assumes enactment of the benchmark policy in the same time frame. Some analysts have suggested using a benchmark scenario in which Congress does not act at all and the trust funds become exhausted.¹³ However, such a benchmark assumes that no action is taken, while the proposals against which it is compared assume that action is taken, which is inconsistent. It also seems unlikely that a policy enacted over the next few years would wait to reduce benefits until the trust funds are exhausted; such a policy would result in a sudden large benefit reduction and create substantial inequities across generations.

Defining the PIA Formula
Factor Reductions

When workers retire, become disabled, or die, Social Security uses their lifetime earnings records to determine each worker’s PIA, on which the initial benefit and auxiliary benefits are based. The PIA is the result of two elements—the Average Indexed Monthly Earnings (AIME) and the benefit formula. The AIME is determined by taking the lifetime earnings record, indexing it, and taking the average of the highest 35 years of indexed wages.¹⁴ To determine the PIA, the AIME is then applied to a step-like formula, shown here for 2007.

$$\begin{aligned}
 \text{PIA} = & 90\% \cdot (\text{AIME}_1 \leq \$680) \\
 & + 32\% \cdot (\text{AIME}_2 > \$680 \text{ and } \leq \$4100) \\
 & + 15\% \cdot (\text{AIME}_3 > \$4100)
 \end{aligned}$$

where AIME_i is the applicable portion of AIME.

¹²Advisory Council on Social Security. *Report of the 1994-1996 Advisory Council on Social Security*, Vols. 1 and 2. Washington, D.C.: Jan. 1997.

¹³See [GAO-03-907](#), in which we analyzed such a policy scenario under a congressional request.

¹⁴The highest 35 years of salary are used in the calculation of a retired worker benefit. The disabled worker benefit is calculated using the number of years between the age of entitlement and age 21, divided by 5.

All of our benefit-reduction benchmarks are variations of changes in PIA formula factors.

Proportional reduction: Each formula factor is reduced annually by subtracting a constant proportion of that factor's value under current law, resulting in a constant percentage reduction of currently promised benefits for everyone. That is,

$$F_{t+1}^i = F_t^i - (F_{2008}^i \cdot x)$$

where

F_t^i represents the three PIA formula factors in year t and

x = constant proportional formula factor reduction.

The value of x is calculated to achieve 75-year solvency, given the chosen phase-in period and scope of reductions.

The formula for this reduction specifies that the proportional reduction is always taken as a proportion of the current law factors rather than the factors for each preceding year. This maintains a constant rate of benefit reduction from year to year. In contrast, taking the reduction as a proportion of each preceding year's factors implies a decelerating of the benefit reduction over time because each preceding year's factors get smaller with each reduction. To achieve the same level of 75-year solvency, this would require a greater proportional reduction in earlier years because of the smaller reductions in later years.

The proportional reduction hits lower earners harder than higher earners because the constant x percent of the higher formula factors results in a larger percentage reduction over the lower earnings segments of the formula. For example, in a year when the cumulative size of the proportional reduction has reached 10 percent, the 90 percent factor would then have been reduced by 9 percentage points, the 32 percent factor by 3.2 percentage points, and the 15 percent factor by 1.5 percentage points. As a result, earnings in the first segment of the benefit formula would be replaced at 9 percentage points less than the current

formula, while earnings in the third segment of the formula would be replaced at only 1.5 percentage points less than the current formula.¹⁵

Table 9 summarizes the features of our benchmarks.

Table 16: Summary of Benchmark Policy Scenario Parameters

Benchmark policy scenario	Phase-in period	Annual PIA factor reduction (percentage point)			Ultimate PIA factor (2043) (percent)		
		90 percent factor	32 percent factor	15 percent factor	90 percent factor	32 percent factor	15 percent factor
Tax increase only (promised benefits)	2008	0	0	0	90.00	32.00	15.00
Proportional benefit reduction (funded benefits)	2013-2043	0.80	0.28	0.13	65.28	23.21	10.88

Source: GAO's analysis as scored by SSA actuaries.

Note: Annual PIA factor reductions rounded to the nearest hundredth of a percent.

¹⁵Other analyses have addressed the concern about the effect of the proportional reduction on low earners by modifying that offset to apply only to the 32 and 15 percent formula factors. The MTR policy in the 1994 to 1996 Advisory Council report used this approach, which in turn was based on the individual account (IA) proposal in that report. However, the MTR policy also reflected other changes in addition to PIA formula changes.

Appendix II: Simulation Results for Social Security Modifications

To account for differences in household size and economies of scale associated with larger households, we based our analyses on benefit levels adjusted for household size (see app. I for more information). However, the effect of using data adjusted for household size on a reform targeted at married couples, such as a change in spousal benefits, is that the change in benefits resulting from the program modification is shared by both the husband and the wife. Thus, population data based on the adjusted measure describe the number of people whose household had a benefit change resulting from the modification. For example, in the “Decreased Spousal Benefit and Increased Survivor Benefit” modification, the family equivalence data indicate that a nearly equal percent of men and women are affected by the modification because the effect of the benefit change is shared by both spouses. Therefore, in order to identify only the percent of men and women who had changes to their own benefit as a result of the program change, percentages are also calculated based on benefits not adjusted for household size.

Table 17: Simulation Results of the Dependent Care Credit under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Dependent care credit			
Benchmark	Cohort	All men	All women
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	2.60	3.24
	1985	2.06	2.63
Funded benefits	1950	2.58	3.24
	1985	2.07	2.61
Percentage of specified subpopulation of simulated sample whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	60.71	57.98
	1985	57.05	60.52
Funded benefits	1950	60.47	58.04
	1985	56.94	60.25
Percentage of total simulation population whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	28.43	30.83
	1985	35.06	30.99
Funded benefits	1950	28.32	30.86
	1985	27.79	30.84
Percentage of specified subpopulation of simulated sample whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	47.85	52.56
	1985	44.21	55.59
Funded benefits	1950	47.83	52.60
	1985	44.13	55.27
Percentage of total simulation population whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	22.11	28.27
	1985	21.38	28.71
Funded benefits	1950	22.11	28.29
	1985	21.34	28.54

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Appendix II: Simulation Results for Social Security Modifications

Table 18: Simulation Results for Dependent Care Credit by Income Quintile under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only						
Benchmark	Cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	7.96	4.16	2.80	1.68	0.92
	1985	6.88	3.50	2.12	1.14	0.72
Funded benefits	1950	7.96	4.16	2.82	1.68	0.93
	1985	6.85	3.51	2.10	1.13	0.72
Percentage of women in each income quintile whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	65.03	64.71	59.36	52.63	43.16
	1985	73.41	68.15	58.93	54.00	43.31
Funded benefits	1950	65.06	64.75	59.39	52.72	43.28
	1985	72.78	67.84	58.76	53.95	43.14
Percentage of total simulation population whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	7.25	8.13	6.52	5.30	3.62
	1985	8.09	7.63	6.26	5.33	3.68
Funded benefits	1950	7.25	8.14	6.53	5.31	3.63
	1985	8.02	7.59	6.24	5.32	3.66

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70. Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female).

Appendix II: Simulation Results for Social Security Modifications

Table 19: Simulation Results for Dependent Care Credit by Marital Status under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only					
Benchmark	Cohort	Never married	Divorced	Married	Widowed
Percentage change in median benefits for women whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	7.95	5.05	2.64	2.87
	1985	6.69	4.18	2.19	2.43
Funded benefits	1950	7.95	5.05	2.65	2.87
	1985	6.69	4.15	2.18	2.37
Percentage of women in each marital status whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	21.06	65.71	64.09	52.39
	1985	21.81	67.24	66.85	59.62
Funded benefits	1950	21.06	65.75	64.21	52.39
	1985	21.81	67.08	66.61	58.85
Percentage of total simulation population whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0.97	8.21	15.04	6.61
	1985	1.30	6.89	17.96	4.83
Funded benefits	1950	0.97	8.21	15.07	6.61
	1985	1.30	6.87	17.90	4.77

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Table 20: Simulation Results for Increased Survivor Benefit Only under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Increased survivor benefit only			
Benchmark	Cohort	All men	All women
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	28.78	15.71
	1985	28.98	18.36
Funded benefits	1950	28.36	15.71
	1985	28.57	20.09
Percentage of specified subpopulation of simulated sample whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	1.66	3.97
	1985	0.95	2.20
Funded benefits	1950	1.67	3.97
	1985	1.76	3.96
Percentage of total simulation population whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	0.78	2.11
	1985	0.46	1.13
Funded benefits	1950	0.78	2.11
	1985	0.86	2.03
Percentage of specified subpopulation of simulated sample whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	1.59	3.71
	1985	0.93	2.10
Funded benefits	1950	1.60	3.71
	1985	1.71	3.79
Percentage of total simulation population whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	0.74	2.00
	1985	0.45	1.09
Funded benefits	1950	0.74	2.00
	1985	0.83	1.96

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Appendix II: Simulation Results for Social Security Modifications

Table 21: Simulation Results for Increased Survivor Benefit Only by Income Quintile under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only						
Benchmark	Cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	14.81	16.28	15.77	13.69	24.44
	1985	19.39	18.40	16.00	16.00	8.67
Funded benefits	1950	14.81	16.46	15.77	14.59	24.44
	1985	19.64	22.08	21.03	20.75	11.40
Percentage of women in each income quintile whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	7.48	6.80	2.96	0.72	0.26
	1985	5.02	3.51	1.33	0.31	0.09
Funded benefits	1950	7.48	6.80	2.96	0.72	0.26
	1985	5.63	5.88	4.09	2.49	0.84
Percentage of total simulation population whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	0.83	0.85	0.33	0.07	0.02
	1985	0.55	0.39	0.14	0.03	0.01
Funded benefits	1950	0.83	0.85	0.33	0.07	0.02
	1985	0.62	0.66	0.43	0.25	0.07

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70. Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female).

Appendix II: Simulation Results for Social Security Modifications

Table 22: Simulation Results for Increased Survivor Benefit Only by Marital Status under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only					
Benchmark	Cohort	Never married	Divorced	Married	Widowed
Percentage change in median benefits for women whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	16.67	0	15.58
	1985	0	18.42	0	18.35
Funded benefits	1950	0	16.67	0	15.58
	1985	0	21.22	0	19.65
Percentage of women in each marital status whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	2.62	0	14.12
	1985	0	1.60	0	11.86
Funded benefits	1950	0	2.62	0	14.12
	1985	0	2.73	0	21.58
Percentage of total simulation population whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	0.33	0	1.78
	1985	0	0.16	0	0.96
Funded benefits	1950	0	0.33	0	1.78
	1985	0	0.28	0	1.75

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Table 23: Simulation Results for Increased Survivor Benefit and Decreased Spouse Benefit under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Increased survivor benefit and decreased spousal benefit			
Benchmark	Cohort	All men	All women
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	-2.81	-2.66
	1985	-9.14	-8.78
Funded benefits	1950	-2.86	-2.66
	1985	-8.77	-7.98
Percentage of specified subpopulation of simulated sample whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	24.45	22.16
	1985	23.73	22.09
Funded benefits	1950	24.83	22.01
	1985	24.35	23.65
Percentage of total simulation population whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	11.45	11.78
	1985	11.58	11.31
Funded benefits	1950	11.63	11.70
	1985	11.89	12.11
Percentage of specified subpopulation of simulated sample whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	4.82	19.28
	1985	5.22	16.81
Funded benefits	1950	4.71	19.10
	1985	5.83	18.57
Percentage of total simulation population whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	2.23	10.37
	1985	2.53	8.68
Funded benefits	1950	2.18	10.27
	1985	2.82	9.59

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Appendix II: Simulation Results for Social Security Modifications

Table 24: Simulation Results for Increased Survivor Benefit and Decreased Spouse Benefit by Income Quintile under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only						
Benchmark	Cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	-2.55	-2.55	-2.66	-2.67	-2.67
	1985	-9.82	-8.06	-8.21	-8.45	-9.27
Funded benefits	1950	-2.55	-2.54	-2.66	-2.67	-2.67
	1985	-9.52	-6.71	-6.99	-7.73	-9.09
Percentage of women in each income quintile whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	24.40	22.56	20.51	21.37	21.72
	1985	23.25	21.44	22.50	22.75	20.14
Funded benefits	1950	24.33	22.36	20.28	21.22	21.64
	1985	24.31	23.41	24.83	24.74	20.39
Percentage of total simulation population whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	2.72	2.84	2.25	2.15	1.82
	1985	2.56	2.40	2.39	2.24	1.71
Funded benefits	1950	2.71	2.81	2.23	2.14	1.81
	1985	2.68	2.62	2.64	2.44	1.73

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70. Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female).

Appendix II: Simulation Results for Social Security Modifications

Table 25: Simulation Results for Increased Survivor Benefit and Decreased Spouse Benefit by Marital Status under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Benchmark	Cohort	Never married	Divorced	Married	Widowed
Percentage change in median benefits for women whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	-8.00	-2.67	15.58
	1985	0	-24.11	-9.01	18.91
Funded benefits	1950	0	-8.00	-2.67	15.58
	1985	0	-21.31	-8.98	20.75
Percentage of women in each marital status whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	12.84	35.89	13.92
	1985	0	11.91	34.19	11.11
Funded benefits	1950	0	12.80	35.57	13.92
	1985	0	13.13	33.96	20.22
Percentage of total simulation population whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	1.60	8.42	1.76
	1985	0	1.22	9.19	0.90
Funded benefits	1950	0	1.60	8.35	1.76
	1985	0	1.34	9.13	1.64

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Table 26: Simulation Results for Reduced Marriage Requirement for Divorced Spouse Benefits under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Reduced marriage requirement for divorced spouse benefits			
Benchmark	Cohort	All men	All women
Median percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	0.85	65.32
	1985	37.22	45.05
Funded benefits	1950	0	65.32
	1985	40.51	47.97
Percentage of specified subpopulation of simulated sample whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	0	0.07
	1985	0.06	1.00
Funded benefits	1950	0	0.07
	1985	0.06	1.01
Percentage of total simulation population whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	0	0.04
	1985	0.03	0.51
Funded benefits	1950	0	0.04
	1985	0.03	0.52
Percentage of specified subpopulation of simulated sample whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	0	0.06
	1985	0.06	0.96
Funded benefits	1950	0	0.06
	1985	0.06	0.97
Percentage of total simulation population whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	0	0.03
	1985	0.03	0.49
Funded benefits	1950	0	0.03
	1985	0.03	0.50

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Appendix II: Simulation Results for Social Security Modifications

Table 27: Simulation Results for Reduced Marriage Requirement for Divorced Spouse Benefits by Income Quintile under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only						
Benchmark	Cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	85.18	54.66	162.36	33.33	0
	1985	53.99	34.41	33.33	36.31	25.14
Funded benefits	1950	85.18	54.66	162.36	33.33	0
	1985	58.00	37.43	39.34	35.08	25.14
Percentage of women in each income quintile whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	0.07	0.13	0.06	0.05	0
	1985	2.46	1.13	0.70	0.33	0.08
Funded benefits	1950	0.07	0.13	0.06	0.05	0
	1985	2.44	1.17	0.70	0.35	0.08
Percentage of total simulation population whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	0.01	0.02	0.01	0	0
	1985	0.27	0.13	0.07	0.03	0.01
Funded benefits	1950	0.01	0.02	0.01	0	0
	1985	0.27	0.13	0.07	0.03	0.01

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70. Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female).

Appendix II: Simulation Results for Social Security Modifications

Table 28: Simulation Results for Reduced Marriage Requirement for Divorced Spouse Benefits by Marital Status under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only					
Benchmark	Cohort	Never married	Divorced	Married	Widowed
Percentage change in median benefits for women whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	65.32	0	0
	1985	0	45.05	0	0
Funded benefits	1950	0	65.32	0	0
	1985	0	47.97	0	0
Percentage of women in each marital status whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	0.29	0	0
	1985	0	4.99	0	0
Funded benefits	1950	0	0.29	0	0
	1985	0	5.04	0	0
Percentage of total simulation population whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0	0.04	0	0
	1985	0	0.51	0	0
Funded benefits	1950	0	0.04	0	0
	1985	0	0.52	0	0

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Table 29: Simulation Results for Increased Minimum Benefit under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Increased minimum benefit			
Benchmark	Cohort	All Men	All Women
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	8.47	9.89
	1985	6.20	6.70
Funded benefits	1950	8.58	9.94
	1985	8.31	8.62
Percentage of specified subpopulation of simulated sample whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	16.68	16.30
	1985	2.43	2.48
Funded benefits	1950	17.02	16.45
	1985	13.66	12.57
Percentage of total simulation population whose benefits changed, benefits adjusted for household size			
Promised benefits	1950	7.71	8.77
	1985	1.18	1.28
Funded benefits	1950	7.87	8.85
	1985	6.61	6.49
Percentage of specified subpopulation of simulated sample whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	10.60	14.47
	1985	1.79	1.79
Funded benefits	1950	10.63	14.54
	1985	10.28	9.03
Percentage of total simulation population whose benefits changed, individual benefits not adjusted for household size			
Promised benefits	1950	4.90	7.78
	1985	0.86	0.92
Funded benefits	1950	4.91	7.82
	1985	4.97	4.67

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Appendix II: Simulation Results for Social Security Modifications

Table 30: Simulation Results for Increased Minimum Benefit by Income Quintiles under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only						
Benchmark	Cohort	Lowest quintile	Quintile 2	Middle quintile	Quintile 4	Highest quintile
Percentage change in median benefits for individuals whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	22.83	9.65	5.21	3.51	2.55
	1985	8.26	2.46	2.27	0.09	0
Funded benefits	1950	22.83	9.70	5.29	3.57	2.55
	1985	14.59	5.33	2.98	1.70	3.70*
Percentage of women in each income quintile whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	20.68	28.14	15.74	7.18	2.62
	1985	8.17	1.56	0.46	0.15	0.15
Funded benefits	1950	20.80	28.36	15.92	7.36	2.62
	1985	28.46	18.65	6.37	1.67	0.46
Percentage of total simulation population whose benefits changed, benefits adjusted for household size						
Promised benefits	1950	2.85	3.38	1.65	0.69	0.21
	1985	1.03	0.17	0.05	0.01	0.01
Funded benefits	1950	2.87	3.40	1.66	0.71	0.21
	1985	3.60	2.03	0.66	0.16	0.04

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70. Income quintiles are based on the distribution of the present value of family lifetime earnings for the whole population (male and female).

*Contrary to the pattern for the 1950 cohort, the median change for the highest income quintile of the 1985 cohort among women who had a simulated benefit change is larger than the median change for some of the other income quintiles. The median change in this quintile, however, is consistent with our assessment from both cohorts that higher median changes occur in lower income quintiles. Also, it is worth noting that in the highest income quintile, women who had simulated benefit changes accounted for less than 0.25 percent of the population in each cohort.

Appendix II: Simulation Results for Social Security Modifications

Table 31: Simulation Results for Increased Minimum Benefit by Marital Status under Alternative Benchmark Scenarios, for the 1950 and 1985 Birth Cohorts

Women only					
Benchmark	Cohort	Never married	Divorced	Married	Widowed
Percentage change in median benefits for women whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	22.80	17.13	7.43	8.34
	1985	19.01	14.50	4.55	6.48
Funded benefits	1950	22.80	17.14	7.46	8.40
	1985	20.53	15.21	6.87	8.34
Percentage of women in each marital status whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	16.97	14.87	17.52	15.17
	1985	2.93	2.00	2.82	1.59
Funded benefits	1950	16.97	14.88	17.83	15.21
	1985	9.84	9.45	15.01	10.48
Percentage of total simulation population whose benefits changed, benefits adjusted for household size					
Promised benefits	1950	0.81	1.91	4.19	1.86
	1985	0.18	0.21	0.76	0.13
Funded benefits	1950	0.81	1.91	4.27	1.87
	1985	0.61	0.99	4.06	0.84

Source: GAO analysis of GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Appendix III: Low Benefit Avoidance Rates

The low benefit avoidance rate is expressed as the percent of retirement years in which an individual's Social Security benefits (plus any earnings) are above a low-benefit threshold (set at \$9,669 for individuals and \$12,186 for couples, in 2007 dollars). Both income and the threshold are based on individual data when unmarried and on couple data when married.

Table 32: Average Low Benefit Avoidance Rates Before and After Modifications for Individuals with Less Than 100 Percent Low Benefit Avoidance Pre-Modification

Social Security modification	Promised benefits (tax increase only) benchmark									
	1950 cohort					1985 cohort				
	All women	Never married	Divorced	Married	Widowed	All women	Never married	Divorced	Married	Widowed
Current law (no reform)	17.05	0.06	9.77	37.41	11.77	19.21	0	8.87	42.18	12.53
Dependent care credit	21.18	1.33	13.50	42.27	17.70	24.49	1.50	13.32	49.46	20.15
Increased survivor benefit only	23.11	0.06	12.22	47.35	23.16	25.59	0	11.47	53.40	24.79
Decreased spousal benefit with increased survivor benefit	22.76	0.06	11.91	46.75	22.89	24.10	0	9.95	50.83	24.01
Decreased marriage requirement	17.14	0.06	10.03	37.41	11.77	20.72	0	13.57	42.18	12.53
Increased minimum benefit	23.18	6.88	15.29	42.80	19.73	19.66	0	8.87	43.36	12.80

Appendix III: Low Benefit Avoidance Rates

Social Security modification	Funded benefits (proportional benefit reduction only) benchmark									
	1950 cohort					1985 cohort				
	All women	Never married	Divorced	Married	Widowed	All women	Never married	Divorced	Married	Widowed
Current law (no reform)	17.00	0.06	9.63	37.32	11.79	14.82	0	5.83	30.51	7.84
Dependent care credit	21.17	1.33	13.38	42.28	17.70	17.72	0.42	7.52	35.44	10.59
Increased survivor benefit only	23.09	0.06	12.12	47.30	23.17	21.02	0	8.82	40.26	18.01
Decreased spousal benefit with increased survivor benefit	22.67	0.06	11.68	46.60	22.90	20.12	0	8.55	38.37	17.48
Decreased marriage requirement	17.10	0.06	9.89	37.32	11.79	15.51	0	8.23	30.51	7.84
Increased minimum benefit	23.20	6.88	15.18	42.88	19.78	16.58	0	5.84	34.85	8.23

Source: GAO analysis based on GEMINI model.

Note: Simulations calculated benefits for individuals at age 70.

Appendix IV: Effect of Simulated Reform on Social Security System Solvency

Table 33: Changes in the 75-year Actuarial Balance as a Percentage of Taxable Payroll resulting from Program Modifications, after Achieving 75-Year Solvency with Benchmark Scenarios

Modification	Promised benefits (tax increase only)	Funded benefits (proportional benefit reduction only)
Dependent care credit	-0.17	-0.19
Increased survivor benefit only	-0.07	-0.14
Increased survivor benefit with decreased spousal benefit	0.02	-0.06
Reduced marriage requirement (from 10 years to 7 years)	-0.02	-0.06
Increased minimum benefit	-0.05	-0.13

Source: GAO analysis of SSASIM model.

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

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