



# **How Would the President's Fiscal Commission's Social Security Proposals Affect Future Beneficiaries?**

Melissa M. Favreault

Nadia S. Karamcheva

November 21, 2011

# **How Would the President's Fiscal Commission's Social Security Proposals Affect Future Beneficiaries?**

## **ABSTRACT**

Using the Dynamic Simulation of Income Model, we project how Social Security benefits and payroll taxes would change were Congress to enact the National Commission on Fiscal Responsibility and Reform's proposal. We show benefits at several points in time and relative to pre-retirement income, a low-income standard, and lifetime payroll tax contributions. The proposal's projected effects are particularly deep relative to current law scheduled for those reaching retirement in several decades. Projected benefit reductions relate closely to lifetime earnings: Lower earners are largely shielded, higher earners face significant reductions. Projections are sensitive to workers' assumed responses to certain proposal provisions.

# **How Would the President's Fiscal Commission's Social Security Proposals Affect Future Beneficiaries?**

## **EXECUTIVE SUMMARY**

In December 2010, the National Commission on Fiscal Responsibility and Reform (NCFRR) released a set of recommendations to help place the Social Security program on a sounder long-run financial footing. These recommendations included the following provisions that reduce the long-run fiscal imbalance through increased payroll tax contributions or reduced benefits:

- Increase the earnings subject to the Social Security payroll tax;
- Modify the benefit formula to slow the growth of future benefits;
- When calculating the cost-of-living adjustment (COLA), replace the current version of the consumer price index (CPI), the CPI for urban wage earners and clerical workers, or CPI-W, with the chained consumer price index (C-CPI-U, also known as the superlative CPI);
- Index the Early Eligibility Age (EEA) and the Full Retirement Age (FRA) to life expectancy to maintain a roughly constant ratio of retirement years to work years; and
- Cover newly hired state and local workers under Old-Age, Survivors, and Disability Insurance (OASDI).

Additional provisions aim to shore up benefit adequacy and, in some cases, mitigate effects of the prior provisions. These adjustments include the following:

- A minimum benefit for full-career low-wage workers;
- A benefit enhancement for the long-lived and longtime disabled;
- A hardship exemption from increases in the EEA and FRA for individuals with low lifetime earnings and relatively long careers; and
- An option for beneficiaries subject to increases in EEA and FRA (because the hardship exemption does not apply to them) to start receiving up to one-half of the benefit for which they would be eligible at age 62.

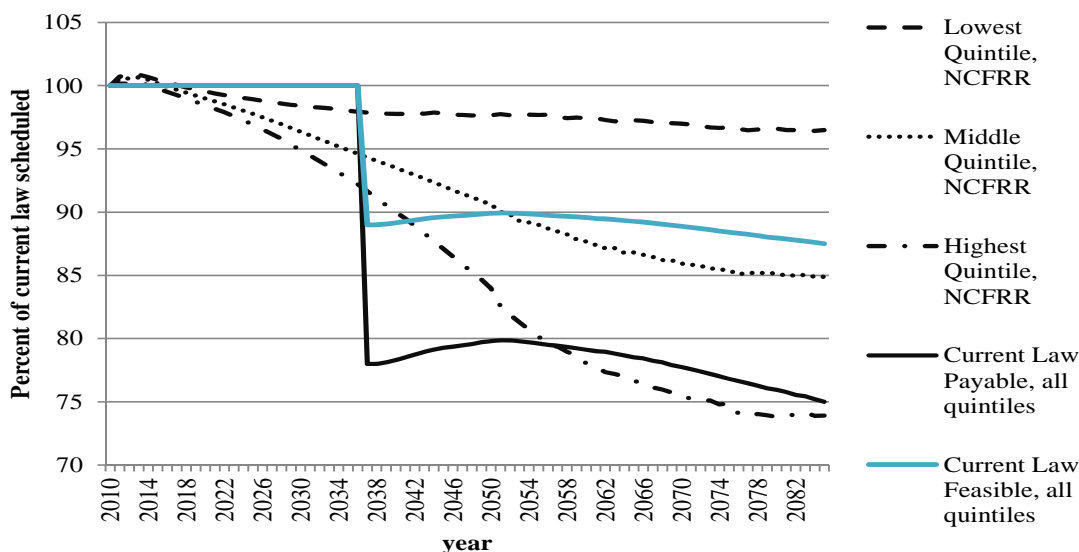
This report presents distributional estimates of the effects of the commission's proposal on future Social Security beneficiaries. All projections rely on the Urban Institute's Dynamic Simulation of Income Model (DYNASIM), a model of the retirement resources of the U.S. population based on the 1990–1993 panels of the Survey of Income and Program Participation (SIPP).

Our distributional analysis reveals that the projected effects of NCFRR's proposal are particularly deep relative to current law scheduled for those reaching retirement age several decades from now, when reductions are phased in. In addition, projected benefit reductions are

closely related to lifetime earnings, with those at the bottom of the lifetime earnings distribution largely shielded and those at the top experiencing significant reductions.

Figure ESUM-1 displays this pattern by contrasting projected outcomes under the proposal as a share of current law scheduled benefits in each year of the simulation for the top, bottom, and middle lifetime earnings quintiles. It also compares projected benefits under the proposal to two alternatives: a payable baseline under which Social Security is not changed at all in the near term and beneficiaries face across-the-board benefit reductions once the trust funds are exhausted, and a “feasible” baseline under which action is similarly deferred until trust fund exhaustion, but at that point balance is restored through an even division between benefit reductions and payroll tax increases. Individuals in the lowest quintile are projected to be least affected by the NCFRR proposal—their average projected benefits remain consistently above 95 percent of current law scheduled—while those in the middle and highest quintiles see considerably larger projected percentage reductions. In later years of the simulation, projected benefits for those in the highest quintile are less than those under the payable option, while those for the middle quintile begin to fall below feasible benefits.

**Figure ESUM-1: Average Social Security Benefits as a Percentage of Current Law Scheduled under NCFRR’s Proposal, Current Law Payable, and Current Law Feasible by Shared Lifetime Earnings Quintile, 2010–2085**



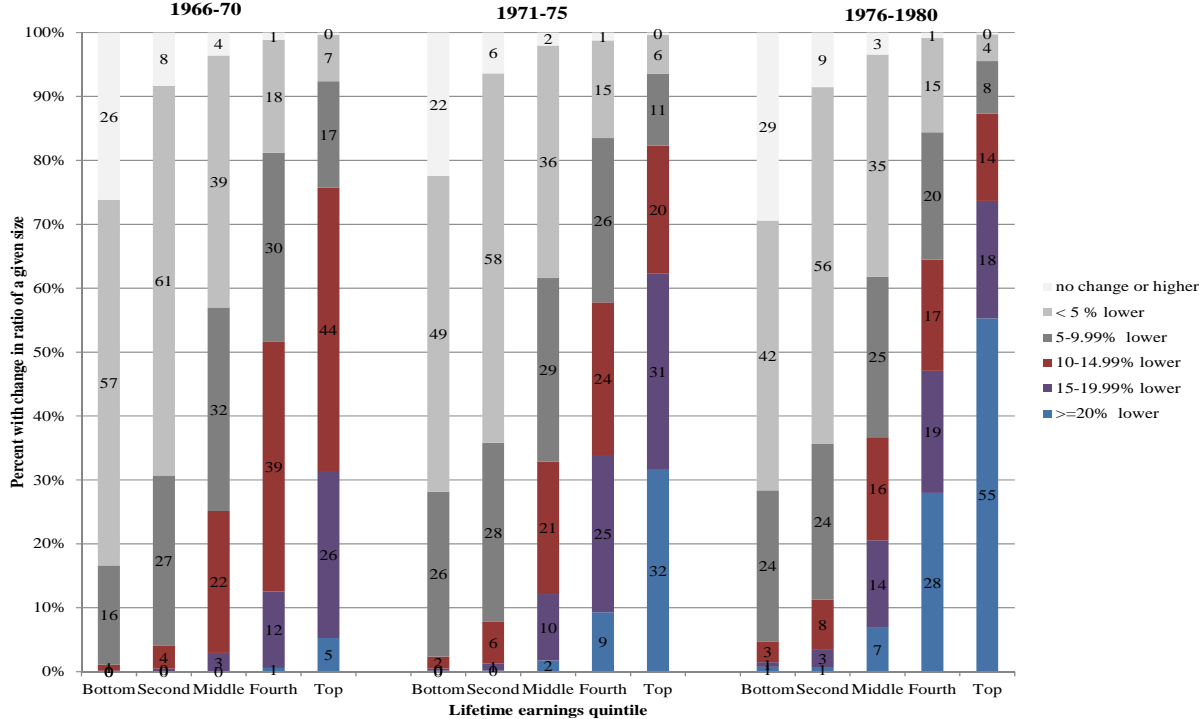
Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Projections in this figure do not include claiming of the optional half benefit. See full text for information on the sensitivity of projections to this assumption. Payable and feasible projections assume that the reductions occur when the combined OASDI trust funds fall below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

Averages can mask the diversity of projected experiences for beneficiaries within a lifetime earnings quintile. Figure ESUM-2 displays this range by contrasting projected

outcomes by lifetime earnings quintile for three sets of birth years for younger workers today (those born from 1966 to 1970, 1971 to 1975, and 1976 to 1980). The variable we examine here is the ratio of lifetime Social Security benefits to payroll tax contributions (relative to current law scheduled), so it takes into account changes to both the payroll tax and benefit sides of the program the NCFRR proposal incorporates. With each successive generation, reductions in projected benefits relative to contributions grow deeper compared to current law scheduled, especially for those with higher lifetime earnings, under the NCFRR proposal. For example, more than half of the beneficiaries born from 1976 through 1980 who are in the highest lifetime earnings quintile are projected to receive reductions of greater than 20 percent in their benefit to tax ratios relative to current law.

**Figure ESUM-2: Projected Change in Ratio of Lifetime Individual Social Security Benefits to Contributions under NCFRR’s Proposal Relative to Current Law Scheduled for Individuals Born Between 1966 and 1970, 1971 and 1975, and 1976 to 1980 by Shared Lifetime Earnings Quintile**



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the cohort, not the overall population. The real discount rate for accumulating both contributions and benefits is 2 percent.

Our full report shows a wider range of outcomes—including mean and median benefits, replacement rates, and share of beneficiaries with income less than 25 percent of the Average Wage Index (a measure of wage-indexed poverty status)—for more groups over the full simulation horizon (through 2085). Each measure provides additional important information about the proposal’s projected effects. We also examine separate provisions of the proposal

incrementally to show how the provisions interact. The picture, while more detailed, tends to be fairly consistent across measures—the effects of the proposal relative to current law scheduled grow markedly over time and across birth years and with lifetime earnings.

Ultimately, how one evaluates outcomes under the commission plan depends on the alternatives to which one compares it, coupled with one’s views about the best way to share the burden of bringing OASDI into long-run fiscal balance within and between generations. An important aspect of this inter- and intragenerational sharing is the chosen balance between increased payroll taxes and benefit reductions. The proposal generally leaves beneficiaries in the bottom four lifetime earnings quintiles with higher benefits than they would have under a payable baseline. Compared to a “feasible” baseline, relatively fewer beneficiaries have higher benefits, but the lower two quintiles still have comparably high benefits.

These analyses of the NCFRR proposal and the payable and feasible counterfactuals that describe Social Security benefits when action is deferred until the Trust Fund becomes insolvent clearly illustrate the importance of early action on Social Security’s fiscal challenges. If Congress waits until the Trust Fund is exhausted, as is assumed under the feasible and payable benchmarks, the required adjustments to OASDI benefits and/or payroll taxes would need to be considerable. Congress could avert these sorts of adjustments by starting to phase in provisions that would improve the program’s long-run financial status over the next two and a half decades.

Finally, we present sensitivity analyses that illustrate how important choices about measures and behavioral response can be and how uncertain projections into the distant future are. We show that integrating the proposed provision to allow claiming of a partial benefit at the current law early eligibility age for those not fully covered by the hardship exemption is particularly challenging, and that projection results differ significantly at a point in time depending on what one assumes about take up of this benefit. While the bottom line story about the NCFRR proposal is fairly consistent across the sensitivity analyses and alternative measures, it is clear that values for any particular projected outcome can differ markedly depending on details of how the measure is calculated or which underlying assumptions analysts select. This high degree of sensitivity underscores the importance of focusing on relative differences across options, including counterfactuals like payable or feasible benefits, using consistent metrics, rather than focusing on any particular percentage or other value to summarize a complex set of interacting provisions like those in the NCFRR proposal.

# How Would the President’s Fiscal Commission’s Social Security Proposals Affect Future Beneficiaries?<sup>1</sup>

## Introduction

President Obama established the National Commission on Fiscal Responsibility and Reform (NCFRR) in 2010 to recommend policy reforms to address the nation’s long-run fiscal challenges. The president appointed six members drawn from both major political parties, and Democratic and Republican congressional leaders each appointed six elected members—half from the House and half from the Senate. Former White House Chief of Staff Erskine Bowles and former Senator Alan Simpson chaired the commission. In November of 2010, these co-chairs released a detailed advance proposal. The overall commission released its recommendations, which closely reflected key components of the co-chairs’ proposal, in December 2010.<sup>2</sup> Ultimately, only 11 of the commission’s 18 members voted in favor of the recommendations in the report—three short of the 14 required votes for the report to be issued to Congress. Still, the fact that such politically difficult recommendations received majority support was widely reported to be a notable achievement.

One of NCFRR’s key proposals was to improve Social Security’s long-run fiscal status through both benefit reductions and tax increases. The reasons for proposing changes to Social Security—the Old-Age, Survivors, and Disability Insurance (OASDI) program—are well known.<sup>3</sup> The program is currently running a 75-year deficit, estimated at about \$6.5 trillion, equivalent to about 2.2 percent of payroll (OASDI Board of Trustees 2011).<sup>4</sup> If no changes are made to the program, Social Security will be able to pay only about 77 percent of scheduled benefits starting in 2036, the year the trust fund is projected to become insolvent.<sup>5</sup>

Five commission recommendations focus on improving Social Security’s financial outlook:

- Increase the earnings subject to the Social Security payroll tax;
- Modify the benefit formula to slow the growth of future benefits;
- When calculating the cost-of-living adjustment (COLA), replace the current version of the consumer price index (CPI), the CPI for urban wage earners and clerical workers, or

---

<sup>1</sup> We thank Richard W. Johnson, C. Eugene Steuerle, and Sheila R. Zedlewski of the Urban Institute; Mark Sarney of the Social Security Administration; Julie Topoleski of the Congressional Budget Office; Mikki Waid of AARP; Debra Whitman of the Senate Aging Committee; and one additional external reviewer for helpful comments on earlier drafts. We are also grateful to Douglas Murray and Karen Smith for their tireless work on our model. All errors remain our own. The views expressed are those of the authors and not the Urban Institute, its board, or sponsors. Please direct correspondence to Melissa Favreault (mfavreault@urban.org).

<sup>2</sup> See Palmer and Penner (2011) for a comparison of the fiscal commission proposals for tackling the deficit with those from the Bipartisan Policy Center’s Deficit Reduction Task Force.

<sup>3</sup> We use the terms Social Security and OASDI interchangeably throughout this report.

<sup>4</sup> The longer term (or “infinite horizon”) deficit is projected to be about \$17.9 trillion, equivalent to about 3.6 percent of future taxable payroll or 1.2 percent of future gross domestic product (GDP) (OASDI Board of Trustees 2011).

<sup>5</sup> The Congressional Budget Office (2011) projects a somewhat later insolvency date (2038) for the combined OASDI Trust Fund and a somewhat lower actuarial deficit (between 1.58 and 2.00 percent of payroll depending on assumptions about future parameters in the income tax system), but the qualitative picture is similar.

CPI-W, with the chained consumer price index (C-CPI-U, also known as the superlative CPI);

- Index the Early Eligibility Age (EEA) and the Full Retirement Age (FRA) to life expectancy to maintain a roughly constant ratio of retirement years to work years; and
- Cover newly hired state and local workers under OASDI.

Several additional provisions aim to shore up benefit adequacy, as follows:

- A minimum benefit for full-career low-wage workers;
- A benefit enhancement for the long-lived and longtime disabled;
- A hardship exemption from increases in the EEA and FRA for individuals with low lifetime earnings; and
- An option for beneficiaries subject to increases in EEA and FRA to start receiving up to one-half of the benefit for which they would be eligible at age 62.<sup>6</sup>

This report presents distributional estimates of the effects of the commission's proposal on future Social Security beneficiaries. All projections rely on the Urban Institute's Dynamic Simulation of Income Model (DYNASIM). After discussing each of the provisions in the NCFRR's proposal in greater detail, we explain our methods and measures and present the simulation results. Our distributional analysis reveals that the projected effects of NCFRR's proposal are particularly deep relative to current law scheduled for those reaching retirement age several decades from now, when reductions are phased in. In addition, projected benefit reductions are closely related to lifetime earnings, with those at the bottom of the lifetime earnings distribution largely shielded and those at the top experiencing significant reductions.

## **NCFRR's Proposal**

The fiscal commission proposal includes both increases in revenues and reductions in costs over time relative to those currently scheduled. Social Security actuaries estimate that the NCFRR proposal would close the program's 75-year actuarial imbalance (Goss 2010). Benefit reductions eliminate more than half of the shortfall, while revenue increases eliminate the remainder.<sup>7</sup>

### ***Gradually increase the taxable earnings cap to cover 90 percent of wages by 2049***

---

<sup>6</sup> Our core simulations of the impact of the NCFRR Social Security proposal do not include this provision for two reasons: 1) the proposal lacked sufficient detail on how this provision is intended to affect auxiliary benefits; and 2) Social Security's Office of the Chief Actuary (OACT) estimates this provision would have only negligible effects on both the long-range OASDI actuarial deficit and annual deficits (Goss 2010). We show how this exclusion affects our results in sensitivity analyses which represent the half benefit in a simplified way.

<sup>7</sup> Authors' calculation based on information in table A, Goss (2010). Estimates of individual provisions cannot be summed to determine the precise ratio of savings from the benefit and revenue sides because provisions interact. The respective roles that revenue increases and benefit reductions play under the NCFRR proposal change markedly over time: in early years, most improvement in actuarial balance is due to increased revenue, while benefit reductions dominate the changes in later years.



Under current law, most U.S. workers contribute 6.2 percent of earnings to Social Security, up to a cap.<sup>8</sup> Their employers pay an equal amount. (Self-employed workers pay both halves of the payroll tax). The cap was \$106,800 in 2011, and it increases each year by the percent change in the national average wage.<sup>9</sup> In 1982, about 90 percent of earnings in OASDI-covered employment were subject to the Social Security payroll tax. This share has decreased markedly since then as wages above the cap grew faster than average earnings, falling to about 83 percent in 2007 (before the recession hit). The commission proposes to gradually increase this cap (by 2 percent per year) so that by 2049 it again covers 90 percent of total wages. These newly covered earnings do count toward Social Security benefits, though typically at a relatively low rate, as described below.<sup>10</sup>

### ***Benefit formula change***

In return for their Social Security contributions, workers (and their dependents) receive benefits when they retire, die, or become disabled. Retirement benefits are based on the highest 35 years of a worker's earnings as long as the worker has accumulated at least 40 quarters, or about 10 years, of covered earnings. When calculating benefits, annual earnings are capped at the taxable maximum, indexed to the change in the national average wage, averaged, and divided by twelve to arrive at an average indexed monthly earnings (AIME) figure. AIME is converted into a primary insurance amount (PIA) so that benefits replace a higher percentage of earnings for workers with lower lifetime earnings.<sup>11</sup> Specifically, the current-law base Social Security benefit is calculated using a progressive three-bracket formula that replaces 90 percent of the first \$756 (wage-indexed) average monthly lifetime earnings, 32 percent of the next \$3,800, and 15 percent of the remaining earnings, up to the taxable maximum. The points at which the replacement percentages change are referred to as the *bend points*. Expressed as annual amounts, the 2011 bend points are \$9,072 and \$54,672. The monthly retirement benefit for a worker who begins collecting at the FRA equals the PIA.<sup>12</sup>

NCFRR recommends gradually transitioning from this three-bracket formula to a five-bracket formula by adding an additional bend point at the taxable maximum in 2013 and breaking the middle bracket into two at the median AIME from 2017 forward.<sup>13</sup> Additionally, the replacement percentages are gradually reduced from 90, 32, and 15 percent to 90, 30, 10, and 5 percent in 2050. As a result, this provision on its own leaves those workers with lifetime

---

<sup>8</sup> In 2008, 6.4 percent of workers held jobs that were not covered by OASDI (Aging Committee 2010). These jobs are concentrated in the public sector, and include some federal workers hired before 1984 and some state and local workers who receive public pensions but not Social Security. Other uncovered groups include students, low-earning household workers, and railroad workers.

<sup>9</sup> By law, the cap is not raised in years in which there is no COLA. In 2012, it will increase to \$110,100.

<sup>10</sup> In recent years, about 6 percent of covered workers (around 9 percent of men and 2 percent of women) have had earnings above the cap. Many earners exceed the cap just once in their career, while others exceed it in many years of their career. How these additional earnings would affect OASDI benefits under the NCFRR proposal depends on how they contribute to lifetime earnings.

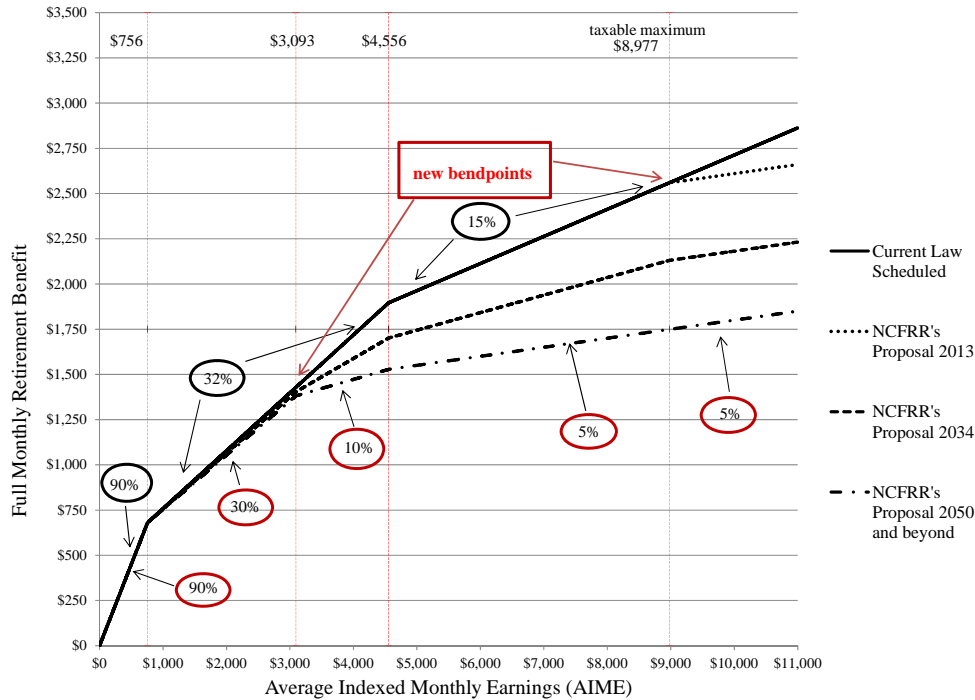
<sup>11</sup> For details on calculating AIME and PIA, see Social Security Administration (2010). Special calculations apply to workers entitled to employer pensions based on work that is not covered by Social Security.

<sup>12</sup> Actuarial reductions apply for claiming early, and delayed retirement credits for postponing past one's FRA.

<sup>13</sup> When we model this change, we follow the Social Security's Office of the Chief Actuary's approach by setting the new bend point equal to the first bend point plus 61.5 percent of the difference between the current two bend points, rather than using a projected median AIME level from our microsimulation model or from OACT.

earnings below the median essentially unharmed, while reducing benefit replacement rates for those above the median.<sup>14</sup> Figure 1 compares the current and proposed benefit formulas.

**Figure 1: Social Security Benefit Formula under NCFRR’s Proposal and Current Law (with Replacement Percentages (in circles) and Bend Points)**



Source: Authors’ calculations.

Note: Dollar amounts are in 2011 average-wage-indexed terms. No major changes take place in 2034. The figure displays that year to illustrate the benefit formula’s features about halfway through the reform’s implementation.

Figure 2 provides another perspective on this formula by displaying the overall share of average lifetime earnings OASDI replaces at the FRA under current law and this provision in various years.<sup>15</sup> The benefit formula change does not affect the lowest earners—their benefit replaces 90 percent of their AIME both under current law and NCFRR’s proposal. In contrast, the highest earners’ replacement rate drops about 10 percentage points (from 29 percent to 19 percent) when the commission’s proposal is fully phased in (2050). In the middle of the distribution (\$3,093 in AIME, the newly introduced bend point), replacement rates at FRA drop by about 1 percentage point (from 46 to 45 percent) under the fully phased-in option.

**Retirement age changes**

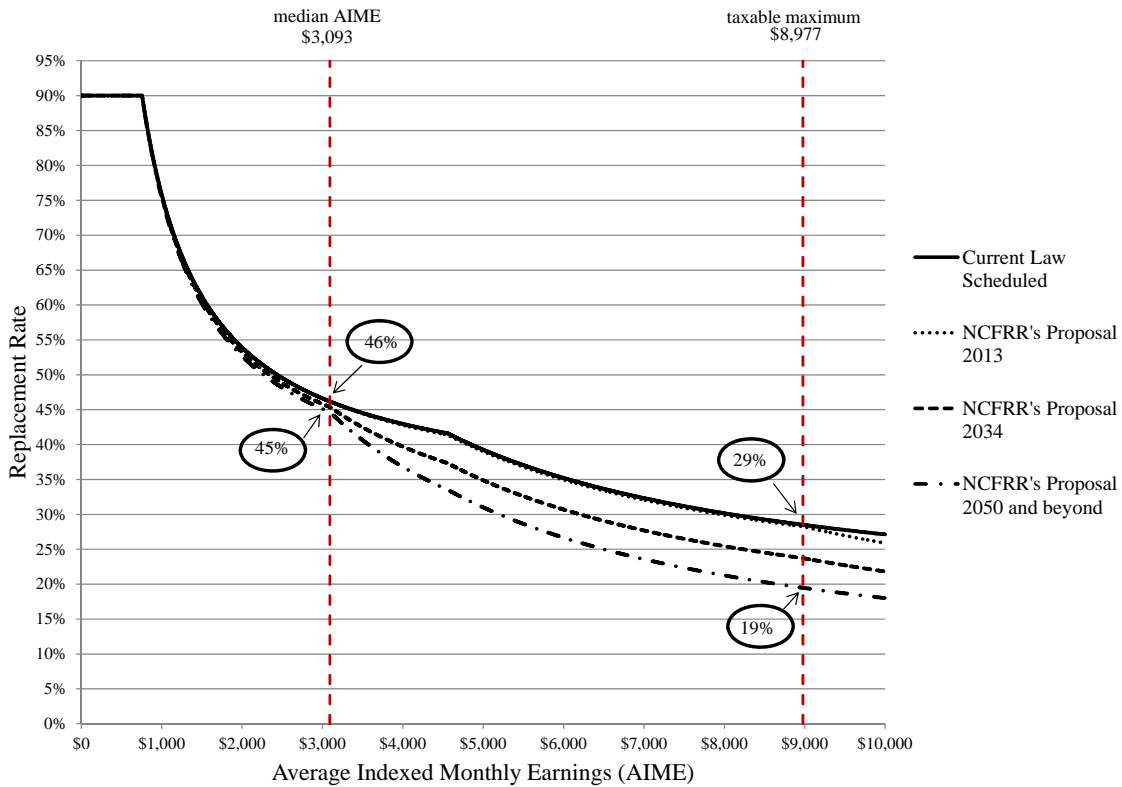
Under current law, a worker can receive a retirement benefit equal to 100 percent of the PIA at the FRA, which ranges between 65 and 67 depending on birth year (with a higher FRA for those born later). Retired workers can claim benefits as early as age 62, the EEA. However, benefits are reduced for each month the worker receives benefits before the FRA to compensate

<sup>14</sup> However, low-wage workers receiving benefits on their spouse’s records would see a benefit cut if the spouse’s earnings exceeded the new bend point at the median AIME.

<sup>15</sup> As one includes additional provisions from the NCFRR proposal, these rates change further.

for the extra months of benefits. Total reductions for claiming at age 62 range from 20 to 30 percent, again depending on birth year. Benefits are not reduced for disabled workers. Nondisabled workers who delay benefit receipt until after the FRA receive increased monthly benefits to account for the reduced number of payments. (For a convenient summary of how actuarial reductions and delayed retirement credits change across birth years, see Table 1-26 in Committee on Ways and Means [2008].)

**Figure 2: Social Security Benefit Level at the Full Retirement Age under NCFRR’s Proposal and Current Law, as a Percentage of AIME**



Source: Authors’ calculations.

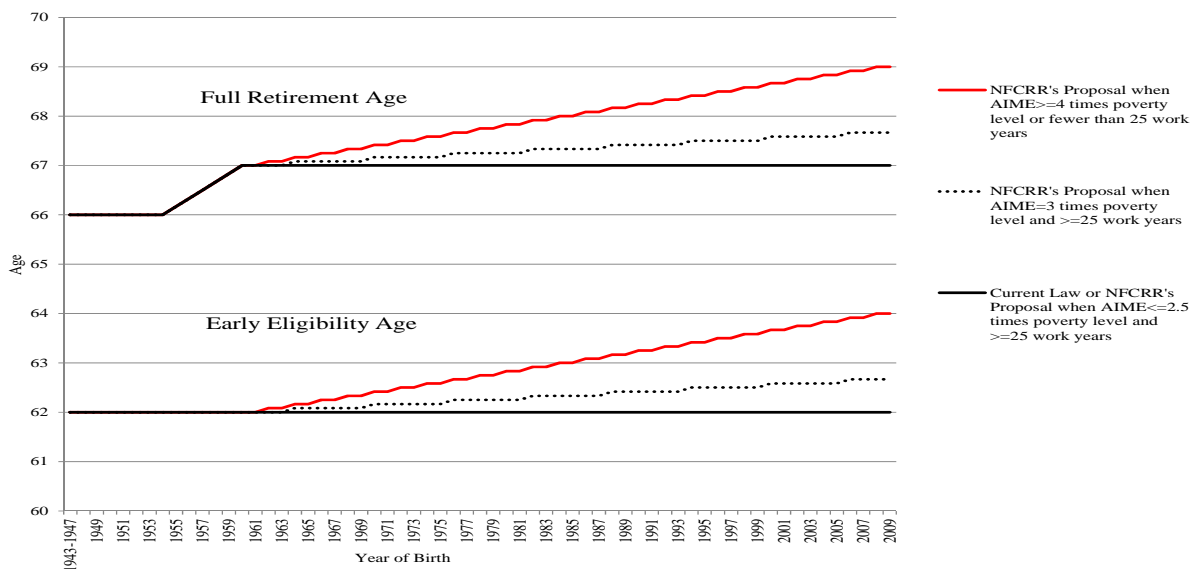
Note: Dollar amounts are in 2011 average-wage-indexed terms. No major changes take place in 2034. The figure displays that year to illustrate the benefit formula’s features about halfway through the reform’s implementation.

Proponents of increasing retirement ages point to increasing longevity and improved health at older ages. For example, a woman born in 1949 who reaches age 62 in 2011 (when she qualifies for retirement benefits) can expect to live another 23 years. In contrast, a woman born 30 years later (in 1979) who survives to age 62 can expect to live another 25 years, whereas a woman born 60 years later (in 2009) can expect to live nearly another 27 years beyond age 62. Projected longevity improvements are similar for men. Yet, under current law, both the EEA and the FRA are the same for those in the last two cohorts (and for all those born 1960 and later). The commission recommends indexing the retirement ages to approximate longevity gains. It would increase both retirement ages by one month every two years after FRA reaches age 67 under current law. At this pace, the FRA would reach 68 in 2046 and 69 in 2070, while the EEA would increase to 63 and 64 in those years.

One concern with increases in retirement age is that longevity gains have been very uneven in recent decades, with less educated individuals and those in low-income communities experiencing far smaller gains than others (e.g., Meara, Richards, and Cutler 2008, Singh and Siahpush 2006, Waldron 2007). To shield those with shorter life expectancies who are least likely to be able to work beyond the current EEA, the commission proposal includes a hardship exemption. The proposed exemption would shield workers from the increase in the EEA and FRA if they have at least 25 years of work before age 62 and have AIMEs below 250 percent of the aged federal poverty level (FPL).<sup>16</sup> The proposed exemption would phase out for workers with AIMEs between 250 and 400 percent of the poverty threshold.<sup>17</sup>

Figure 3 compares current-law retirement ages with the NCFRR’s proposal. Adults with 25 work years and AIME that is four or more times the poverty threshold face the full increase in both EEA and FRA, as do those with fewer than 25 work years. Those with 25 work years and AIME below 2.5 times the poverty threshold are fully exempt, so current-law EEA and FRA apply to them. Those with 25 work years but AIME between 2.5 and 4 times the poverty threshold face an EEA and FRA that fall somewhere in between.

**Figure 3: Retirement Ages under NCFRR’s Proposal and under Current Law**



Source: Authors’ calculations.

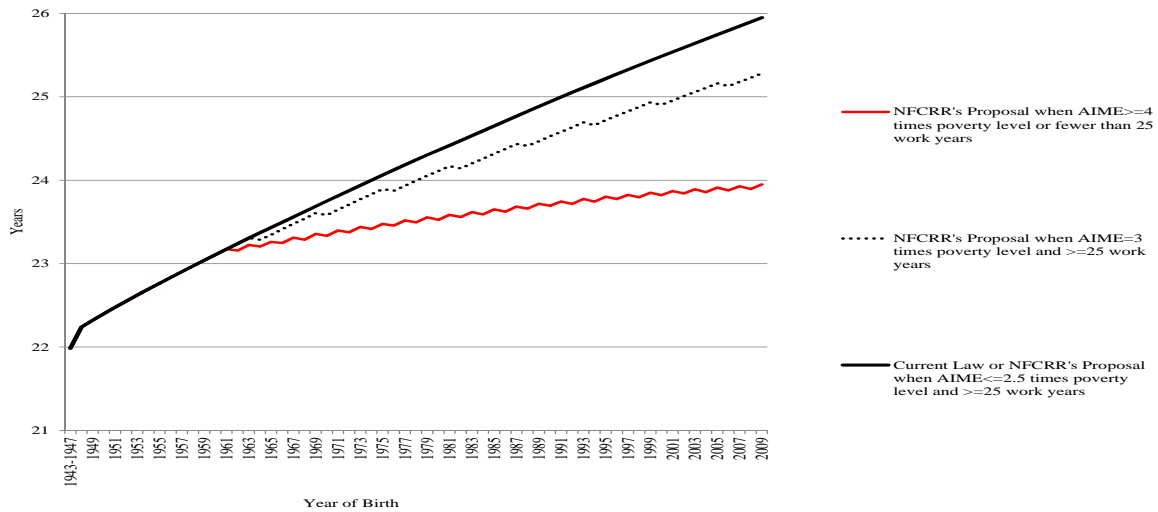
Note: We chose the case of an individual with an AIME equal to three times the poverty rate for illustrative purposes. Adults with 25 work years and AIME that is four or more times the poverty threshold face the full increase in both EEA and FRA, as do those with fewer than 25 work years. Those with 25 work years and AIME below 2.5 times the poverty threshold are fully exempt, so the current law EEA and FRA apply to them. Those with 25 work years but AIME between 2.5 and 4 times the poverty threshold face an EEA and FRA that fall somewhere in between.

<sup>16</sup> For this exemption, a year of work is defined as one in which an individual has earned four quarters of coverage. A worker in 2011 earns a quarter of coverage for every \$1,110 of earnings, up to a maximum of four quarters for the year. Covered quarters no longer need to be earned in distinct calendar quarters.

<sup>17</sup> AIME measures economic well-being and risk imperfectly. While other measures of advantage like education and wealth tend to be closely correlated with lifetime earnings, some advantaged or highly able individuals do choose not to work or to work relatively few years or hours. Testing for work years, as in this proposal, helps with targeting to some degree, but this measure is still just a proxy of long-term workforce attachment at low wages.

Interestingly, the proposed increases in EEA and FRA do not fully compensate for projected longevity increases, and under NCFRR’s proposal overall years spent receiving benefits will continue to increase for future generations, even though at a slower rate than under current law.<sup>18</sup> Figure 4 describes this trend. Expected years in retirement are calculated as of age 62 and assume that the individual claims at his or her EEA. These calculations do not adjust for differential mortality by gender and socioeconomic status, which complicates this picture. Women have significantly longer life expectancy than men, but also lower lifetime earnings. Within gender, researchers estimate recent differences in life expectancy between the highest and lowest deciles of well-being at age 60 averaged two years (a bit more for men, a bit less for women) (Singh and Siahpush 2006). This implies that the gap between the high and low lines is likely to be far narrower within genders, assuming recent trends continue.

**Figure 4:** Expected Years of Benefit Receipt as of Age 62 if Claiming at EEA under NCFRR’s Proposal and Current Law Assuming Uniform Life Expectancy by AIME



Source: Authors’ calculations.

Note: We chose the case of an individual with an AIME equal to 3 times the poverty rate for illustrative purposes. Adults with 25 work years and AIME that is four or more times the poverty threshold face the full increase in both EEA and FRA, as do those with fewer than 25 work years. Those with 25 work years and AIME below 2.5 times the poverty threshold are fully exempt, so the current law years in retirement apply to them. Those with 25 work years but AIME between 2.5 and 4 times the poverty threshold fall somewhere in between. Since EEA is the same for both men and women, we used population-weighted life expectancy by cohort, to calculate expected years in retirement.

***Allow beneficiaries subject to increases in EEA and FRA to start receiving up to one-half of the benefit for which they would be eligible at age 62***

Under this provision, all beneficiaries subject to an increase in the EEA would be allowed to start receiving one-half of the benefit for which they would be eligible as soon as they turn age 62, with the other half available independently starting at the revised EEA. Additional actuarial reductions would apply to the portion of the benefit taken at age 62, based on the FRA in effect at the time. This provision does not affect individuals who are already protected by the

<sup>18</sup> According to OACT intermediate forecasts, the difference in life expectancy at age 62 between the 1960 cohort (when EEA is 62 and FRA is 67) and the 2008 cohort (when EEA is 64 and FRA is 69) is about three years (2.98 for men and 2.89 for women), which exceeds the two-year difference in retirement ages.

increases in the EEA and FRA through the hardship exemption (i.e., those who have at least 25 years of work and relatively low average lifetime earnings, AIMEs below 250 percent of the aged FPL). Instead, its effects would be concentrated among two very different groups of beneficiaries—relatively high lifetime earners, who worked more than 25 years and for whom the full increases in EEA and FRA apply, but choose to start receiving benefits early; and individuals who have relatively low lifetime earnings but do not meet the years of work criteria to be exempt from EEA increases. Because the provision includes actuarial adjustments to attain actuarial neutrality, on a lifetime basis its distributional effects should be minimal even though significant changes could appear in cross-sectional projections.

### ***Adopt an alternative measure of CPI, effective in 2012***

Most parameters in the OASDI benefit formula (for example, those that determine PIA and the contribution and benefit base) are indexed to wages and updated annually. After initial benefit determination, however, benefits subsequently grow with price inflation, again on an annual basis. The commission suggests basing this cost-of-living adjustment on the chained CPI for all urban workers (C-CPI-U) rather than the standard CPI for urban wage earners and clerical workers (CPI-W). This is consistent with the Bureau of Labor Statistics' assessment that the chained CPI better approximates true changes in the cost of living, though some analysts point out that older Americans' spending patterns tend to differ from those of the population as a whole.<sup>19</sup>

### ***Provide an enhanced minimum benefit for low-wage workers***

Minimum benefits aim to shore up the payments the lowest-wage workers earn. OASDI currently provides a special minimum PIA, but its parameters are not wage-indexed so its impact is minimal. It now reaches less than 0.15 percent of the caseload.<sup>20</sup>

To protect long-term workers from poverty after they retire, the commission proposed a new special minimum benefit that provides 30-year minimum-wage workers with a benefit equivalent to 125 percent of the FPL in 2017 and wage-indexed thereafter.<sup>21</sup> The minimum benefit would phase down proportionately for workers with fewer than 30 but more than 10 years of earnings, as Figure 5 illustrates.<sup>22</sup> The required number of coverage years to qualify for the minimum benefit is proportionately adjusted downward for workers who die or become disabled before reaching age 62. As the figure also illustrates, the benefit will increase as a share of the poverty level over time (though not as a share of pre-retirement earnings) because it is indexed to wages, while the FPL is indexed to prices, which are projected to grow more slowly than wages.

---

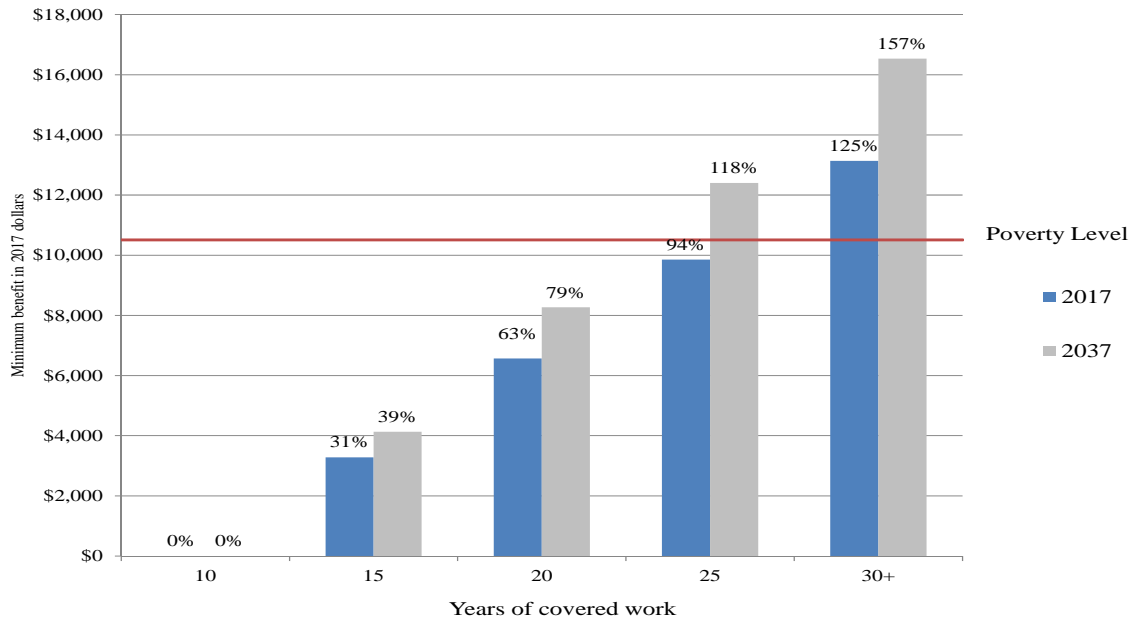
<sup>19</sup> The Social Security actuaries project that the chained CPI is 0.3 percentage points lower than the CPI-W. The Congressional Budget Office (2011) estimates that the chained CPI would be 0.25 percentage points lower than the standard CPI over the next decade. For our analyses, we use Social Security's estimate. See Penner (2010) for discussion of differences between inflation indices.

<sup>20</sup> Authors' calculations from Social Security Administration (2011). See tables 5.A1 and 5.A8.

<sup>21</sup> Again, a qualifying year of work is one in which the individual has earned four quarters of coverage. No credit is given for partial work years.

<sup>22</sup> Research suggests that the way the benefit grows with work years is important because low-benefit workers tend to have comparatively short work careers. See, for example, Favreault (2010), Favreault and Steuerle (2008).

**Figure 5: Minimum Benefit for Nondisabled Workers under the NCFRR’s Proposal, in 2017 Dollars and as a Share of the Federal Poverty Level, in 2017 and 2037**



Source: Authors’ calculations.

***Enhance benefits for the very old and the long-time disabled***

The oldest population is projected to expand rapidly over the coming decades. For example, the number of people over age 85 is projected to increase from 5.8 million in 2010 to 19 million in 2050. To reduce the risk that these retirees will outlive their resources, the commission proposes a new 20-year benefit bump-up that equals 5 percent of the average benefit.<sup>23</sup> It would begin 20 years after initial eligibility.<sup>24</sup> The enhancement is phased in one percentage point per year over five years.

***Cover newly hired state and local workers after 2020***

Even though OASDI now covers about 94 percent of all workers, some states and localities exclude their employees from Social Security and instead maintain separate retirement systems.<sup>25</sup> The commission report contends that relying on this pension model has become riskier for both government sponsors and plan participants as the workforce ages and state fiscal challenges mount. To increase Social Security’s universality and potentially reduce the risk of a federal bailout of state pension plans, the commission proposes to mandate coverage

<sup>23</sup> The average benefit is defined as the benefit that a worker who has been earning the Average Wage Index throughout his lifetime would be entitled to at the FRA.

<sup>24</sup> Eligibility is defined by the earlier of one’s EEA or year of disability onset, implying that this will increase with longevity for retired workers affected by EEA increases under the NCFRR proposal.

<sup>25</sup> States where more than half of state and local government employees were not covered by OASDI in 2007 included California, Colorado, Louisiana, Massachusetts, Nevada, Ohio, and Texas (Special Committee on Aging 2010).

for all state and local workers newly hired after 2020.<sup>26</sup> Such an expansion would boost revenues in the short term while incurring obligations over the longer term.

The proposed changes to Social Security were just a subset of the commission's many recommendations to address the nation's fiscal challenges. Among other recommendations, the NCFRR report also proposed overhauling the tax code, which has important implications for OASDI and older Americans. However, we do not address those issues in this report. Instead, our analysis focuses on expected changes in gross (pre-tax) benefits, rather than net (post-tax) benefits. Tax changes would have additional, differential impacts on retirees' economic well-being. (For example, benefit reductions for those with incomes above the threshold for taxation of OASDI benefits tend to be partially mitigated by lower personal income tax liability under proposals that on net reduce benefits.) Tax liabilities would change markedly even under current law should Congress enact these—or other substantive—tax proposals.

## Methods and Analytical Measures

We analyze the effects of the NCFRR proposal using the Urban Institute's DYNASIM3, a nationally representative, Social Security-focused long-term dynamic microsimulation model. DYNASIM starts with a population of about 110,000 individuals and ages them year by year through 2086. The model's starting sample is based on the 1990 to 1993 panels of the Survey of Income and Program Participation (SIPP), statistically matched to publicly available earnings records (from 1951 through baseline), which allows us to compute OASDI benefits.<sup>27</sup> Tables A.1 and A.2 in the appendix summarize the data and models used in DYNASIM's demographic and economic aging processes, respectively. Many of DYNASIM's economic and demographic outcomes are calibrated to match assumptions used in the 2010 trustees' report (OASDI Board of Trustees 2010).<sup>28</sup>

We compare the simulated proposal with three alternative representations of current law. The first, termed *scheduled*, assumes that benefits are paid according to current law, using existing benefit formulas and provisions. However, because of the system's long-range actuarial imbalance, funds are projected to be insufficient to pay scheduled benefits after 2036. The Social Security Administration (SSA) is bound by law to pay benefits only to the extent that money is available in the Social Security system to do so.<sup>29</sup> The second representation, termed *payable*, assumes that only benefits that can be financed with current-law payroll taxes plus trust fund assets will be paid. Since current law contains no statutory or regulatory guidance on how to cut benefits to payable levels, we assume that all benefits paid in a given year would receive the same percentage reduction (based on SSA actuarial estimates using the

---

<sup>26</sup> Our analyses simplify this provision's implementation. DYNASIM does not currently model the effects of the Windfall Elimination Provision and Government Pension Office.

<sup>27</sup> The earnings records are constructed from the Panel Study of Income Dynamics and a public-use match of Current Population Survey data and administrative earnings records (Smith, Scheuren, and Berk 2002). For more detailed information on DYNASIM, see Favreault and Smith (forthcoming).

<sup>28</sup> When simulating over lengthy time horizons such as this, one should be mindful of the uncertainty of key assumptions both in the trustees' assumptions and elsewhere in the model. (For discussion, see, for example, Technical Panel on Assumptions and Methods 2011.)

<sup>29</sup> Scott (2009) discusses the complexities of benefit payment under OASDI Trust Fund exhaustion in detail.



2010 trustees' assumptions). These reductions are applied to the final benefit amounts, not the AIME or PIA.<sup>30</sup> They are not phased in, and they apply equally to current and near beneficiaries starting in 2037 (the exhaustion date in the 2010 trustees' report). The third, termed *feasible* (Bosworth, Burtless, and Keys 2003), assumes that the system is brought into long-range balance through an approximately equal combination of benefit reductions and payroll tax increases similarly starting in 2037, analogously applying to all beneficiaries and taxpayers with no phase in.

These options provide a reasonable range of possibilities. One (*scheduled*) optimistically assumes that the program can pay full benefits without any changes to benefits, the second (*payable*) assumes that benefit reductions shoulder the full burden of bringing the system back into fiscal balance, and the third (*feasible*) lies in between. Each has features that are not realistic given historical experience, where grandfathering and phase-in provisions have typically been important, but they nonetheless provide usual points of comparison.<sup>31</sup>

One important aspect of these simulations is that we assume no behavioral responses to the commission's proposed changes to OASDI, except where explicitly noted. Workers in our model do not change their work, savings, or Social Security claiming behavior in response to the change in available credits or benefits.<sup>32</sup> However, we need to modify this assumption when we simulate an increase in the EEA, because certain beneficiaries would no longer be able to claim at 62. We assume that those individuals who under current law would have chosen to claim their benefits earlier than the new EEA would instead claim benefits as soon as they qualify. Because of the uncertainties over how people in their early sixties would respond to an increase in the EEA, the simulation results should be interpreted cautiously for this age group.<sup>33</sup>

Our tables and charts describe individuals who are projected to be beneficiaries under both current law scheduled and the proposal. Those who gain eligibility but would not qualify under current law, or those who lose eligibility under the proposal, do not appear in our analysis until they begin receiving benefits. This symmetry facilitates consistent comparison of benefits under current law and NCFRR's proposal, but importantly do not fully capture the effects of benefit deferrals (for example due to the EEA increase). Because our results are sensitive to these measurement choices and the assumption about behavioral response to the EEA increase for those mentioned in the prior paragraph, we display results from a sensitivity analysis in which we integrate the commission's provision for a half benefit available between age 62 and an individual's EEA (when it is greater than age 62).

---

<sup>30</sup> We use OACT projections (using the 2010 trustees' assumptions) of the combined OASDI trust fund to adjust benefits for both OASI and DI recipients, rather than adjusting benefits based on the timing of insolvency and financial position of each trust funds separately (i.e., we assume that the funds may borrow from each other).

<sup>31</sup> A fourth counterfactual, presented in a number of OACT publications, is a baseline that resolves solely through payroll tax hikes. We do not include this option here, largely for ease of presentation because our analyses focus on benefits, with only a subset of tables and figures referencing the payroll tax side. Nor do we include counterfactual options that bring the system into balance through changes that take effect earlier than the projected year in which the Trust Fund becomes insolvent.

<sup>32</sup> We make these simplifying assumptions in part because of the uncertainty surrounding the magnitude of possible behavioral responses.

<sup>33</sup> Previous research has found that Social Security retirement ages have significant effects on labor force participation and Social Security claiming decisions. See, for example, Gustman and Steinmeier (2009), Manchester and Song (2008), and Mastrobuoni (2009).

As with the other provisions in the proposal, we assume no behavioral responses to the sensitivity analyses. Workers do not change their labor force participation or age of claiming. If an individual chooses to claim benefits after age 62 but before his EEA, he will get 50 percent of the benefit for which he is eligible as of that age immediately, and the other 50 percent with a smaller actuarial reduction as soon as he reaches EEA. We make other detailed assumptions about the Retirement Earnings Test (RET) and auxiliary benefits under the half benefit provision given ambiguity in the specification.<sup>34</sup>

We use a range of measures to capture the effects of the changes that the commission co-chairs propose. Some of our measures are absolute (such as annual benefit levels measured in constant dollars), while others are relative (such as benefits measured as a percentage of those that would be paid under current law or as some multiple of the average wage index). Both types provide valuable information, given the importance both of meeting absolute economic needs and understanding replacement levels and rankings in retirement. This diversity of measures and counterfactuals distinguishes our work from earlier studies which used fewer metrics (for example, Reno and Walker 2011, Ruffing and Van de Water 2011).

When analyzing effects of the proposal on individuals falling in different earnings groups, we use a shared lifetime earnings measure. We define this as the average of indexed earnings from ages 22 through 61 (or year of disability, whichever is first). For married people, we average both spouses' lifetime earnings during a marriage. The index we use is Social Security's Average Wage Index. Quintiles are defined for the OASDI beneficiary population in the selected year by birth cohort, not the overall population. The total income measure that we use to evaluate changes in the relative income position of OASDI beneficiaries over time includes income from earnings (of both spouses, if married), OASDI benefits, Supplemental Security Income (SSI) benefits, defined benefit pensions, annuitized financial assets (including 401(k)-type assets), income from defined benefit pensions, and income of any adult co-residents.

## **Effect on Annual Benefits**

Figures 6 and 7 present cross-sectional projections of NCFRR's proposal, comparing benefits in the years 2030, 2050, and 2070.<sup>35</sup> While Figure 6 focuses on the average benefit under the proposal as a percentage of current law scheduled, Figure 7 shows the projected difference in average benefits, expressed in real 2010 dollars.<sup>36</sup> The proposal would reduce benefits less for lower earnings quintiles than for higher quintiles, in both percentage terms and dollar amounts. Moreover, the impact becomes more closely related to earnings the further out we project. For

---

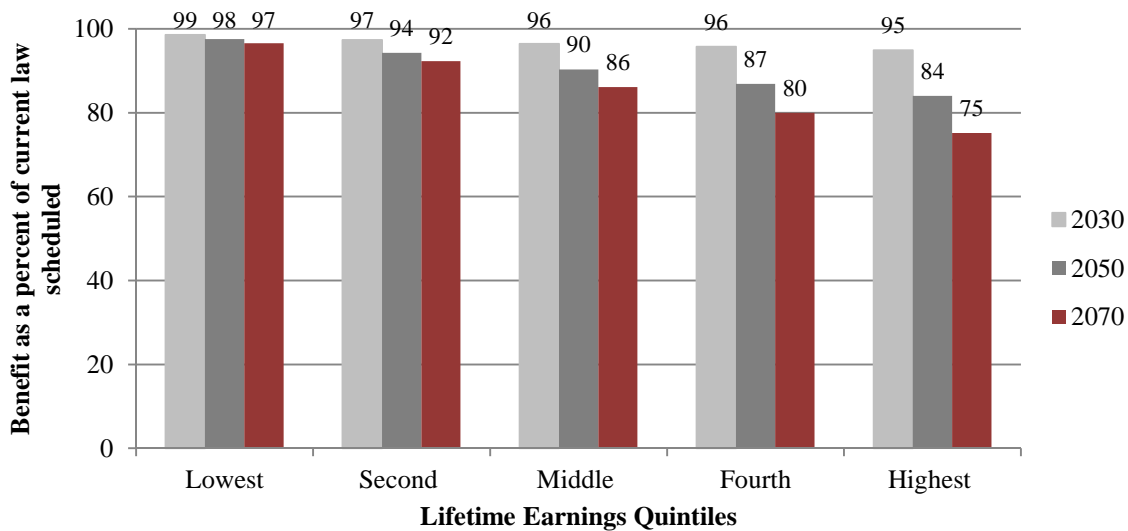
<sup>34</sup> Implementing the RET is always challenging. The earnings test is "overapplied" here, as it is applied to the full benefits between age 62 and EEA rather than to half the benefit. In our simulation spousal benefits are affected by this provision, only as long as the spouse claims benefits after 62 but before reaching his/her EEA, in which case she/he will be also eligible for one half of the benefit. Survivor benefits are affected to the extent that the effective age of claiming for the deceased spouse is considered to be the age at which he/she claimed his half benefit.

<sup>35</sup> Table A.3 in the appendix provides more detailed results on Social Security benefits under NCFRR's proposal relative to current law scheduled and current law payable, and across different socioeconomic groups. The table contrasts means and medians.

<sup>36</sup> See the appendix for a discussion of alternative measures.

example, in 2070 adults in the highest quintile of the earnings distribution can expect to receive on average 75 percent of current law scheduled benefits, while those in the bottom quintile will receive around 95 percent. Expressed in real 2010 dollar amounts, that equals projected average benefit reductions of \$8,625 for those in the highest quintile and \$460 for those in the lowest, compared with current law scheduled. However, it is noteworthy that under NCFRR’s proposal, benefits are still projected to continue to grow in real terms for all groups, even though at a slower pace than currently scheduled.

**Figure 6: Projected Average Adult Social Security Benefits under NCFRR’s Proposal as a Percentage of Current Law Scheduled, by Lifetime Earnings Quintiles**



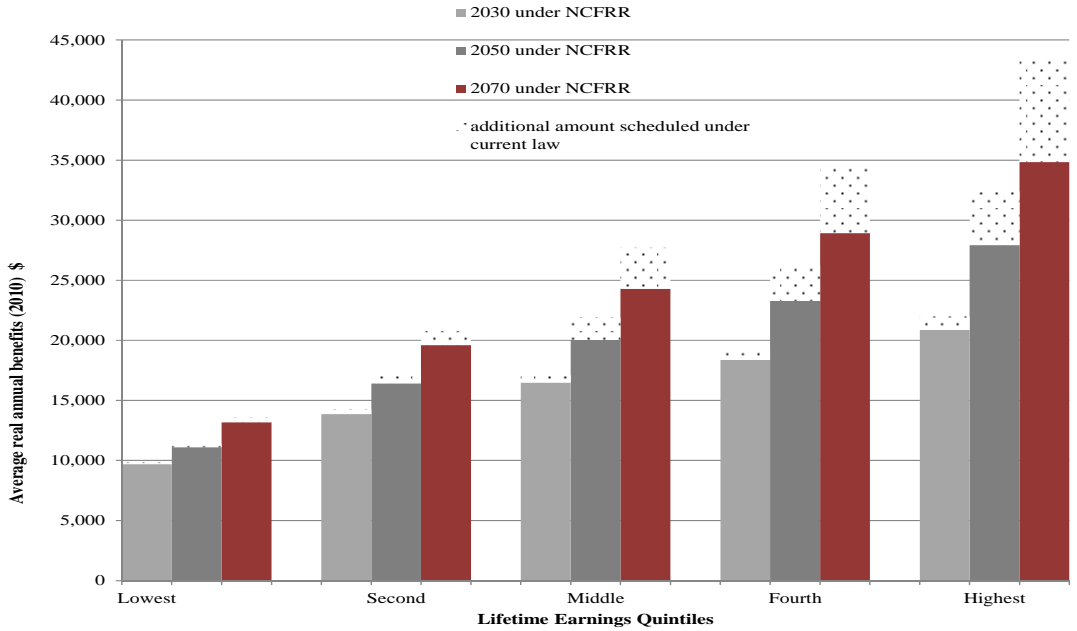
Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever comes first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Computations include retired and disabled worker beneficiaries and auxiliary beneficiaries who are at least age 62.

Figure 8 shows a similar picture, but tracks the effects of the proposal continuously over time. The initial bump in projected average benefit starting in 2011 results from the increase in benefits of up to 5 percent for the very old and the long-time disabled, which the other benefit-reducing provisions overshadow in later years of the simulation. Figure 8 further illustrates how NCFRR’s proposal affects individuals receiving benefits in the lowest, middle, and highest earnings quintiles over time. Individuals in the lowest quintile are the least affected—their average projected benefits remain consistently above 95 percent of current law scheduled—while those in the middle and highest quintiles see considerably larger percentage reductions.

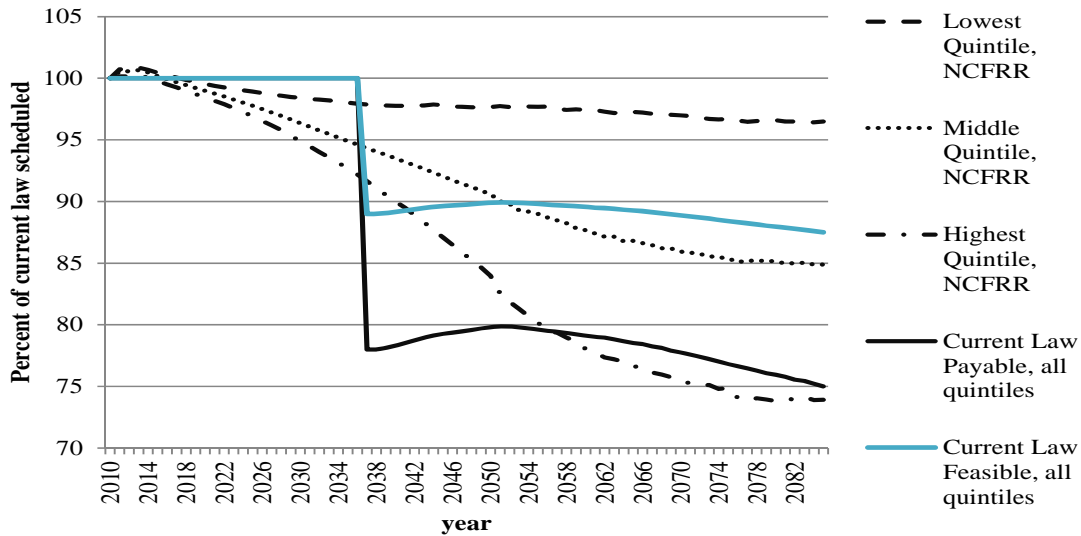
NCFRR’s proposal provides higher benefits for the low-earnings group than the payable scenario, which would reduce benefits by 22 percent starting in 2037, or the feasible scenario, which would impose half the reduction in the same year. However, this is not the case for everyone. Projected benefits under the proposal for those in the top quintile would fall below the payable schedule around 2055. For the middle quintile, benefits under NCFRR exceed those under the payable schedule for all years from 2037 onward, but they are less than feasible benefits starting around 2052.

**Figure 7: Projected Average Annual Real Adult Social Security Benefits under NCFRR’s Proposal and Current Law Scheduled, by Lifetime Earnings Quintile in 2030, 2050, and 2070**



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

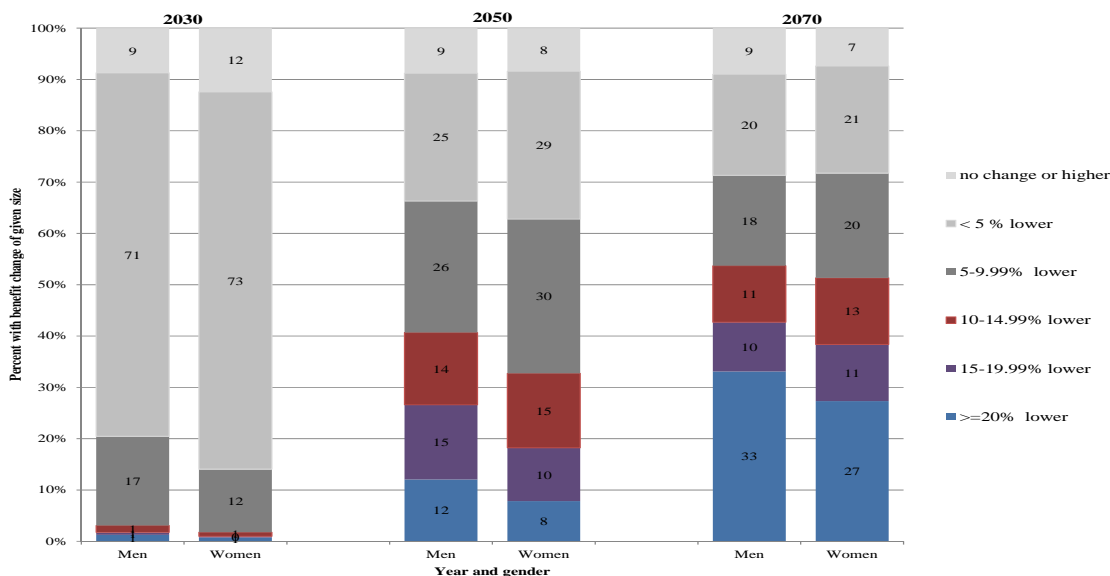
**Figure 8: Average Social Security Benefits as a Percentage of Current Law Scheduled under NCFRR’s Proposal, Current Law Payable, and Current Law Feasible by Lifetime Earnings Quintile, 2010–2085**



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Payable projections assume that the reductions occur when the combined OASDI trust fund falls below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

One important aspect of these proposals is that not all beneficiaries in a given group can expect the same treatment because of many interacting provisions. Figure 9a shows the distribution of projected individual benefit changes relative to current law scheduled in 2030, 2050, and 2070 by gender. In each of the three years shown, men are more likely to experience large reductions in their projected individual benefit than women. Across the years, the prevalence of larger projected losses increases (consistent with the time path Figure 8 shows, where mean benefits as a percentage of current law scheduled benefits decline more in later simulation years, especially for those in the highest lifetime earnings quintile). For example, about a third of men have projected reductions of greater than 20 percent in 2070.

**Figure 9a:** Projected Adult Social Security Benefit Changes under NCFRR Relative to Current Law Scheduled in 2030, 2050, and 2070, by Gender, No Half Benefit Claiming

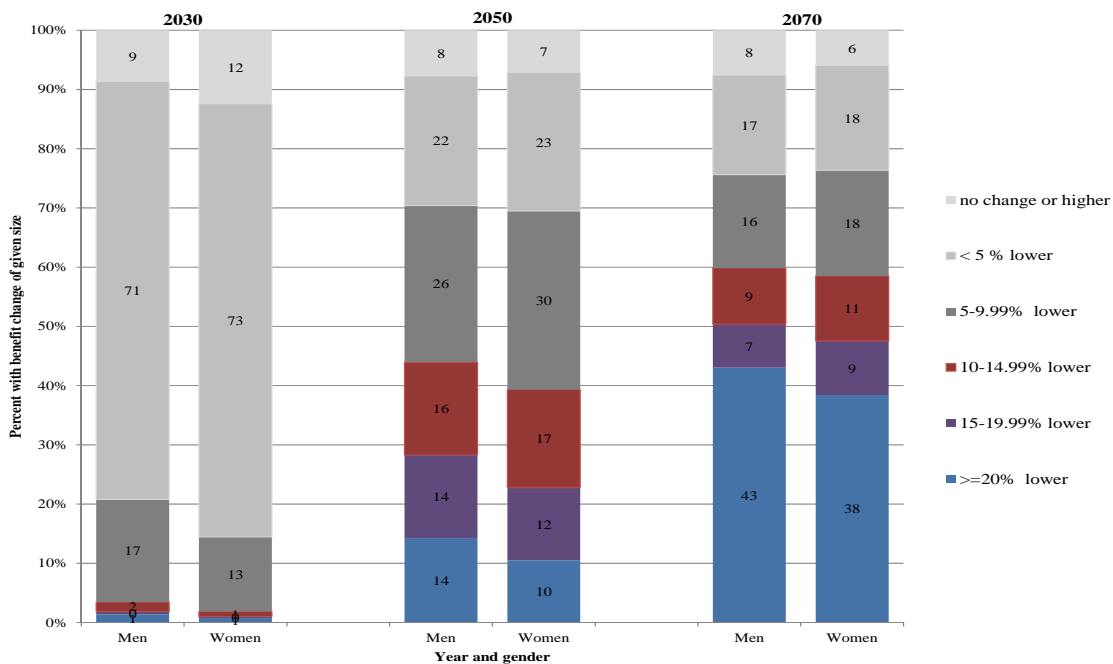


Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
Notes: Benefits for individuals.

These projections of benefit changes are sensitive to assumptions about how Social Security beneficiaries might change their benefit-claiming behavior in response to the proposal. Figure 9b shows the same benefit changes by gender and year, but this time assuming that all individuals who claim their benefits prior to the new EEA under current law who are not eligible for the hardship exemption under the proposal now elect to take the half benefit at their current law claiming age. While the overall story is the same, with benefit reductions of increasing size over time and larger benefit reductions for men than for women, the share of beneficiaries with very large reductions increases fairly substantially in the later simulation years when we allow people to claim the half benefit. For both men and women, the share with a reduction of greater than 20 percent in 2070 increases by about 10 percentage points (somewhat more for men and less for women). This underscores the importance of the population that is included in a distributional table. Individuals not receiving a benefit (because they were assumed not to claim a half benefit) are not included in Figure 9a, but they appear in Figure 9b with a benefit that is reduced by about 50 percent. This increases the share who appear in the category indicating a benefit reduction of 20 percent or greater (in some but not

all cases falling into this reduction category is temporary until they reach the EEA). As a result, a provision intended to make workers who want to claim early better off than they would have been with a stricter EEA increase makes more people appear worse off in the (cross-sectional) distributional table. (On a lifetime basis, we would expect smaller effects, given that the optional half benefit was intended to be roughly actuarially neutral.)

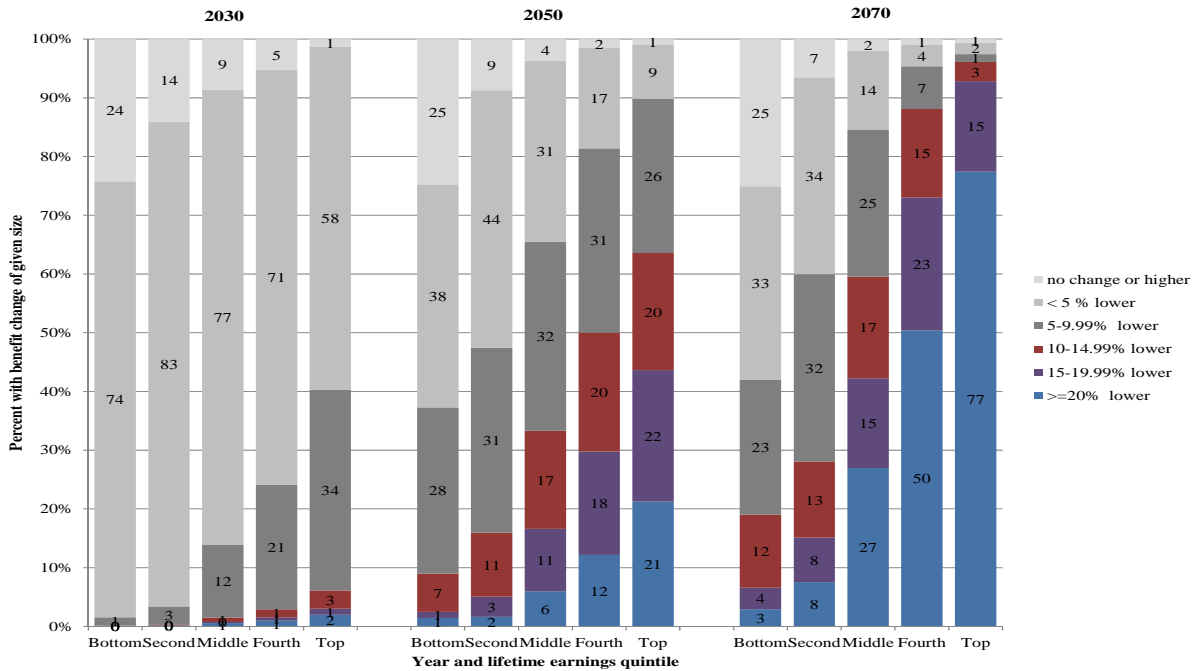
**Figure 9b:** Projected Adult Social Security Benefit Changes under NCFRR Relative to Current Law Scheduled in 2030, 2050, and 2070, by Gender, All Current Law Early Claimants Ineligible for Full Hardship Exemption Claim Half Benefit



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
Notes: Benefits for individuals.

Similarly, within lifetime earnings groups (Figures 10a and 10b), we see increasing prevalence in larger projected benefit reductions in the later years and sensitivity to assumptions about the claiming of the half benefit. Once more, a distinct pattern by lifetime earnings emerges, with far more significant projected reductions more prevalent in the higher lifetime earnings quintile. Again, shares with very large reductions increase notably when individuals are allowed to claim the half benefit. Interestingly, the changes tend to be largest in the lowest lifetime earnings quintile (where a significant fraction of beneficiaries do not qualify for the hardship exemption because of relatively few work years), followed by the third and fourth quintiles. Change tends to be smallest in the highest quintile, where most beneficiaries were already classified as being in the group with a reduction of greater than 20 percent, followed by the second quintile, where a significant share qualify for the hardship exemption. These two figures, considered in tandem with Figures 9a and 9b, reveal that the average or median situation reflects a significant diversity of experiences within these groups, and that projections are sensitive to underlying assumptions.

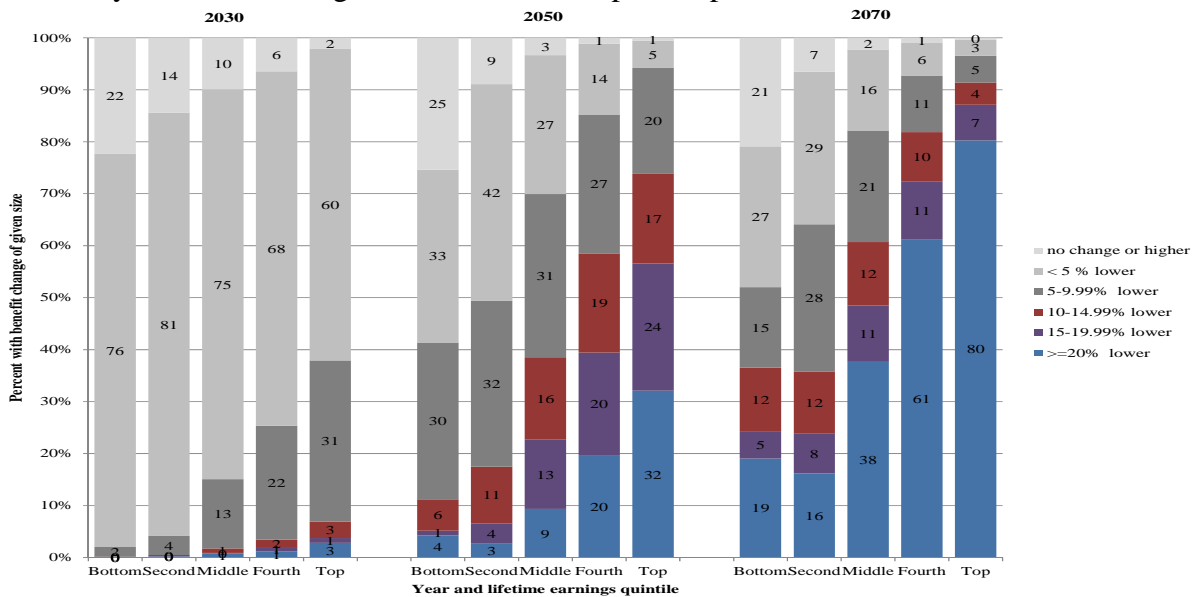
**Figure 10a:** Projected Adult Social Security Benefit Changes under NCFRR Relative to Current Law Scheduled in 2030, 2050, and 2070, by Lifetime Earnings Quintile, No Half Benefit Claiming



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

**Figure 10b:** Projected Adult Social Security Benefit Changes under NCFRR Relative to Current Law Scheduled in 2030, 2050, and 2070, by Lifetime Earnings Quintile, All Current Law Early Claimants Ineligible for Full Hardship Exemption Claim Half Benefit

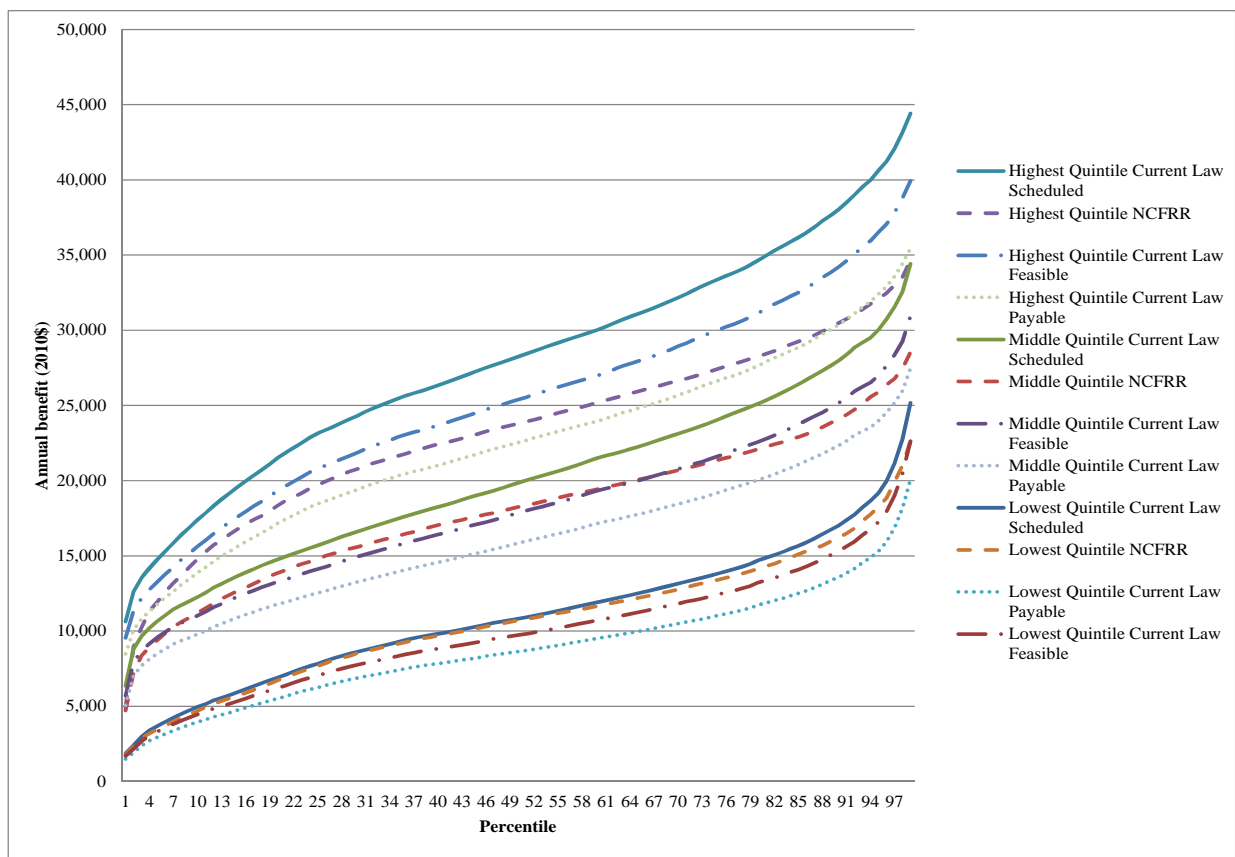


Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

Another way to illustrate how diverse benefits are is to show the full distribution of projected outcomes in a single graph. Figures 11a and 11b do this for benefits in 2050 and 2070, respectively, separately by shared lifetime earnings quintiles. (For ease of presentation, we show results for only the highest, middle, and lowest lifetime earnings quintiles.) The figures contrast benefits under all three versions of current law (scheduled, feasible, and payable) with option benefits. Along the horizontal axis is each successive percentile of the distribution (excluding the 100<sup>th</sup> percentile, again for ease of presentation), while the vertical axis displays the projected value for benefit in real (2010) dollars at that percentile.

**Figure 11a:** Distribution of Annual Social Security Benefits in 2050 under Current Law (Scheduled, Feasible, and Payable) and NCFRR Proposal, by Shared Lifetime Earnings Quintile (Lowest, Middle, and Highest)



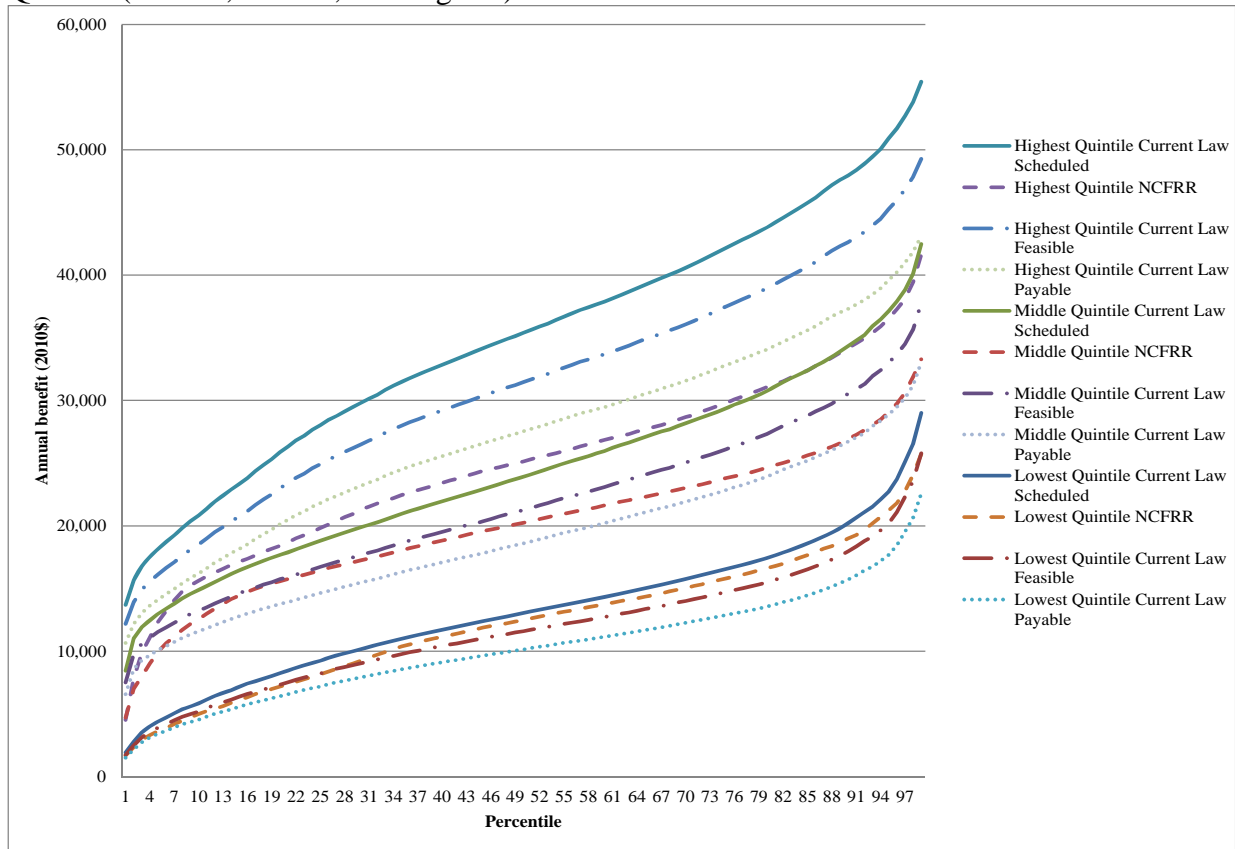
Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

One striking feature of Figures 11a and 11b is how benefits under the NCFRR proposal flatten relative to current law scheduled for the highest lifetime earnings quintile. By 2070, for example, the highest quintile tracks the current law scheduled middle quintile throughout the distribution. In the lowest earnings quintile, in contrast, benefits look quite similar under current law scheduled and the NCFRR option in 2050. Under the option, benefits fall just



below current law scheduled in 2070. In both years, the NCFRR proposal leads to higher benefits than under the feasible or payable counterfactuals for most of the distribution for this lowest quintile. For the middle quintile of the lifetime earnings distribution, those with relatively low benefits (roughly, in the lower three-fifths) have higher benefits under NCFRR than current law feasible in 2050. By 2070, a far greater share, about four-fifths, of middle-quintile beneficiaries would have higher benefits under current law feasible.

**Figure 11b:** Distribution of Annual Social Security Benefits in 2070 under Current Law (Scheduled, Feasible, and Payable) and NCFRR Proposal, by Shared Lifetime Earnings Quintile (Lowest, Middle, and Highest)



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

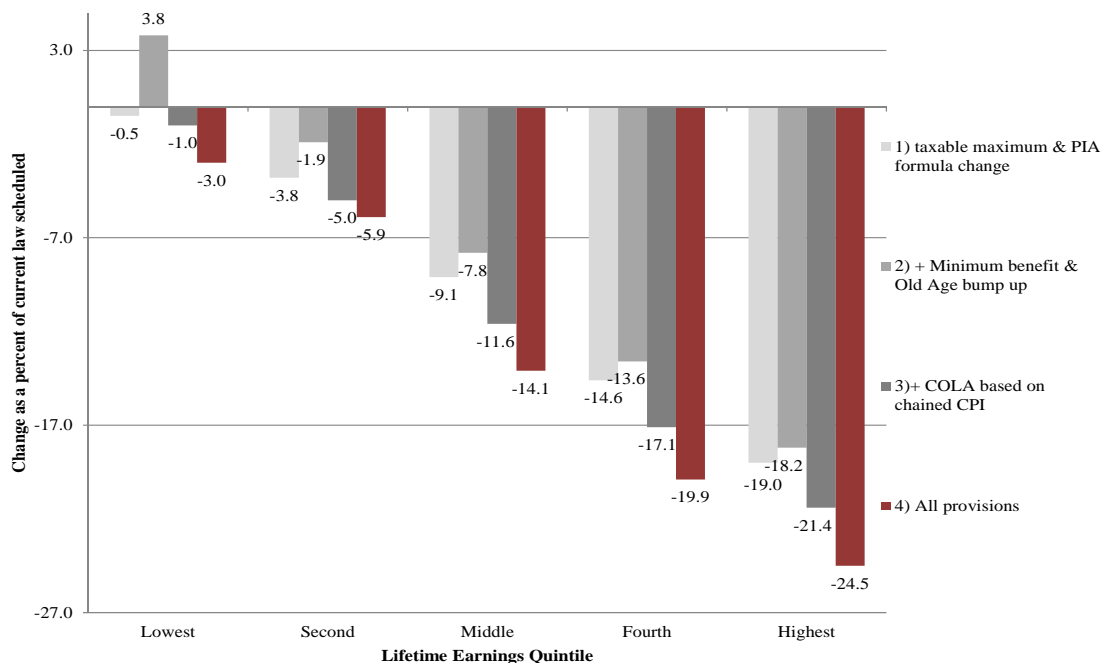
### Incremental Effects of Individual Provisions

To better understand what drives these results, we next look at effects on annual benefits when we implement NCFRR’s provisions sequentially. We consider outcomes in 2070, when the proposals’ provisions have been fully implemented. As Figure 12 shows, increasing the taxable maximum and changing the benefit formula reduce projected benefits for all earnings groups. Because NCFRR’s proposal exempts individuals with AIME values below the median from changes to the benefit formula, the projected effect of this provision on those in the lowest

quintile is small—less than 1 percent of benefits. It increases to 19 percent for those in the highest income quintile.

Next we add the adequacy adjustments in the form of the new minimum benefit and the old-age/disability bump-up. As expected, these have positive effects on benefits across earnings groups and lower the projected benefit reductions. For individuals in the lowest quintile, these two provisions more than offset the effect of the PIA formula change and turn the projected change in 2070 benefits under the proposal from a reduction to an increase of 3.8 percent.

**Figure 12:** Projected Cumulative Effect of NCFRR Provision on Average Social Security Benefits as a Percentage of Current Law Scheduled by Lifetime Earnings Quintile in 2070



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

Next we implement the COLA adjustment, which substitutes the chained CPI-U for the current version of the CPI and reduces the COLA by 0.3 percentage points according to the Social Security actuaries’ projections. By itself, this provision roughly reduces benefits across earnings groups by 4 percentage points compared with current law scheduled. This is a 0.3 percentage point benefit cut in the first year and compounds over time to 1 percent after 3 years and 6 percent after 22 years. Once the COLA reduction is added, the positive effect of the adequacy provisions disappears and the overall expected change in projected benefits under the proposal is negative for all groups—ranging from -1.0 to -21.4 percent.

The last two provisions we implement are the increases in retirement ages, combined with the hardship exemption. That completes the simulation and results in the numbers seen earlier—projected benefit reductions relative to current law scheduled ranging from 3.0 percent for those in the lowest quintile to 24.5 percent for those in the highest.<sup>37</sup>

### **Comparisons of Benefits to Lifetime Earnings and Payroll Taxes**

The replacement rate—defined here as the ratio of first-year benefits to average career earnings—provides a different perspective on the effects of the commission’s proposal relative to current law. Figure 13 shows projected median household replacement rates calculated for individuals and couples who first start receiving Social Security benefits in 2070.<sup>38</sup> (See table A.5 in the appendix for projected replacement rates in additional years.) The progressive nature of Social Security’s benefit formula means that under current law, replacement rates are higher for workers who have lower earnings. Indeed, as Figure 13, shows median projected scheduled household replacement rates in 2070 are 71 percent for those in the lowest lifetime earnings quintile, compared to 44 percent for those in the middle and 33 percent for those in the highest.

As previously noted, the payable and feasible scenarios cut benefits by the same percentage for all earnings groups. This is reflected in the projected replacement rate reductions, which average around 22 percent across groups for payable and about half that for feasible. This is not the case, however, under NCFRR’s proposal. Figure 13 shows a very clear relationship between earnings and replacement rate reductions, with those at the bottom of the distribution largely shielded under the proposal. The proposal replaces a smaller share of pre-retirement earnings than under current law payable for those in the top two quintiles and a larger share than under current law feasible for the bottom two quintiles. (Table A.5 also shows the projected replacement rates by gender, education, and lifetime earnings.)

To get a broader picture of the effects of the proposal, it is informative not only to consider what beneficiaries receive from Social Security at a particular point in time, but also to look at what they get in return for their contributions on a lifetime basis. Payroll tax payments are also a factor in economic well-being, and our analyses thus far have focused solely on benefits. Figure 14 presents the projected ratios of lifetime benefits to lifetime taxes by earnings quintile for individuals born between 1971 and 1975 (who would be significantly exposed to the effects of NCFRR’s proposal) assuming a very modest interest rate.<sup>39</sup>

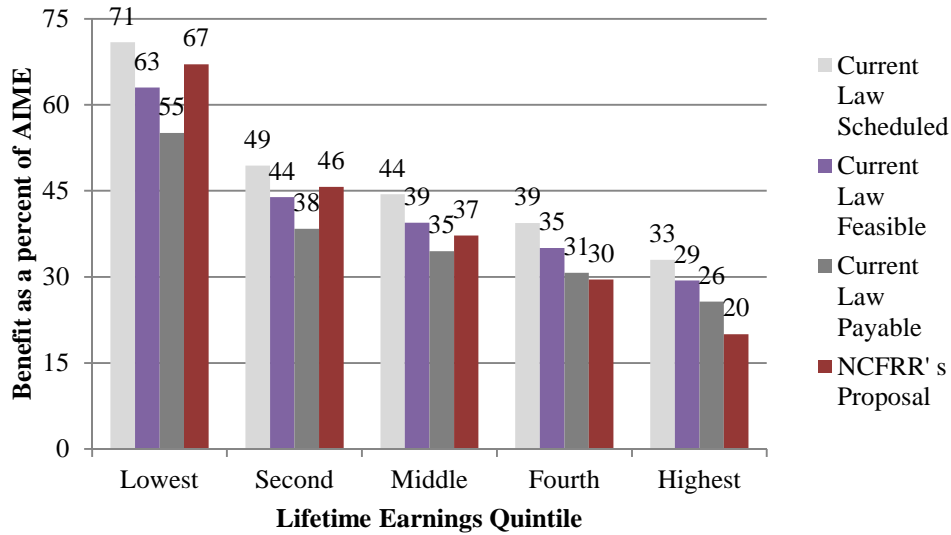
---

<sup>37</sup> Our assumption that for the most part workers do not change their Social Security claiming behavior or increase their labor force participation also affects the losses resulting from the retirement age increases.

<sup>38</sup> The analysis includes all beneficiaries older than 18, regardless of the type of benefit received—retired worker, disability, spousal, or survivor, though the latter two categories of auxiliary benefits are only assigned at ages 62 and older. In the case of married couples, the replacement rate is calculated in the first year in which both spouses are collecting benefits. The denominator is the individual’s AIME, or for couples the sum of their AIMEs.

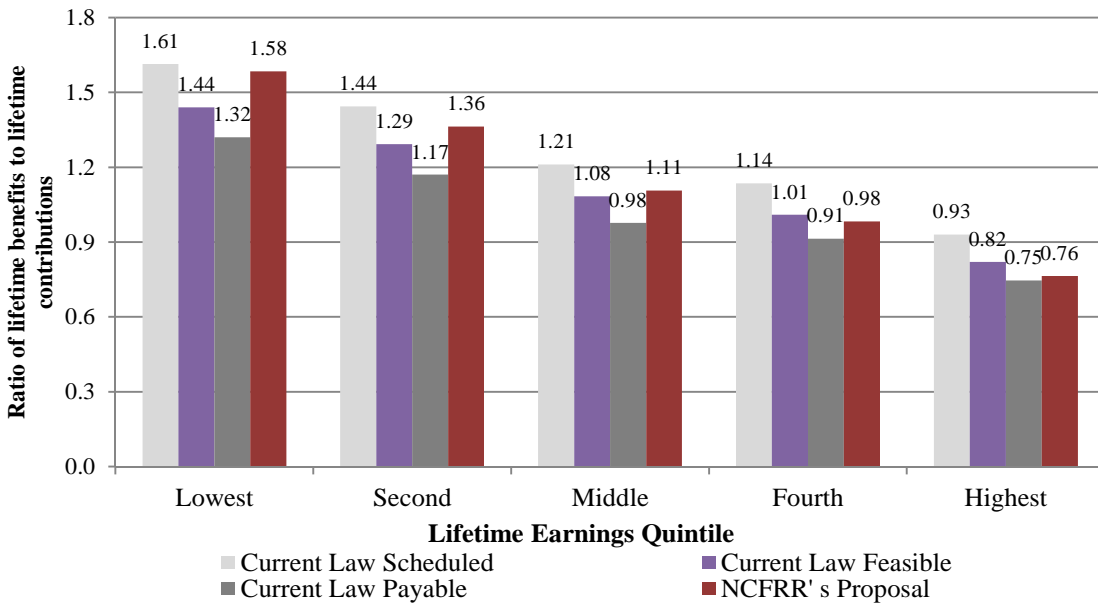
<sup>39</sup> We count payroll taxes paid by both the employee and his or her employer when computing an individual’s lifetime taxes. The sample includes individuals who survive until at least age 30, and therefore includes individuals who die before collecting any OASDI benefits as long as they made payroll contributions. We use a real discount rate of 2 percent when accumulating both benefits and payroll taxes.

**Figure 13:** Projected Median First-Year Household Social Security Replacement Rates under NCFRR’s Proposal and Current Law by Lifetime Earnings Quintile in 2070.



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

**Figure 14:** Projected Median Ratio of Lifetime Individual Social Security Benefits to Contributions under NCFRR’s Proposal and Current Law for Individuals Born Between 1971 and 1975, by Lifetime Earnings Quintile



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. The real discount rate for accumulating both contributions and benefits is 2 percent.

Under current law scheduled, for these cohorts the median beneficiary in all earnings groups except the top quintile is projected to receive more in benefits than he or she pays in taxes. The difference is substantial for those with limited earnings. For the median beneficiary in the bottom earnings quintile, for example, projected lifetime benefits exceed projected lifetime taxes by 61 percent. Almost half roughly break even in the top earnings quintile, where the projected median ratio stands at 0.93.

The story is quite different under current law payable. The median beneficiary overall about breaks even, as the median ratio in the middle earnings quintile reaches 0.98. But those who earn more pay more in taxes than they receive in benefits. Benefits received by the median beneficiary in the top earnings quintile, for example, amount to only 75 percent of taxes paid. And the bonuses received by those in the lower earnings quintiles are much smaller than under current law scheduled. The feasible baseline falls between current law scheduled and current law payable for each of the income quintiles.

The NCFRR's proposal would accentuate the existing difference between low and high earners in the ratio of lifetime benefits to taxes. Under the proposal, the projected median ratio would approach the current law *scheduled* ratio (and exceed the *feasible* ratio) for those in the bottom three earnings quintiles, while it would approach the current law *payable* ratio (and be less than the *feasible* ratio) for those in the top two earnings quintiles. Thus, the proposal is projected to concentrate benefit reductions and payroll tax increases in the top quintiles, and largely shield those in the bottom two quintiles of the distribution. Even in the top quintile, however, the median beneficiary has somewhat higher projected benefits under the NCFRR's proposal than under current law payable (but not feasible) benefits. (Table A.6 in the appendix provides additional distributional results, including for earlier cohorts.)

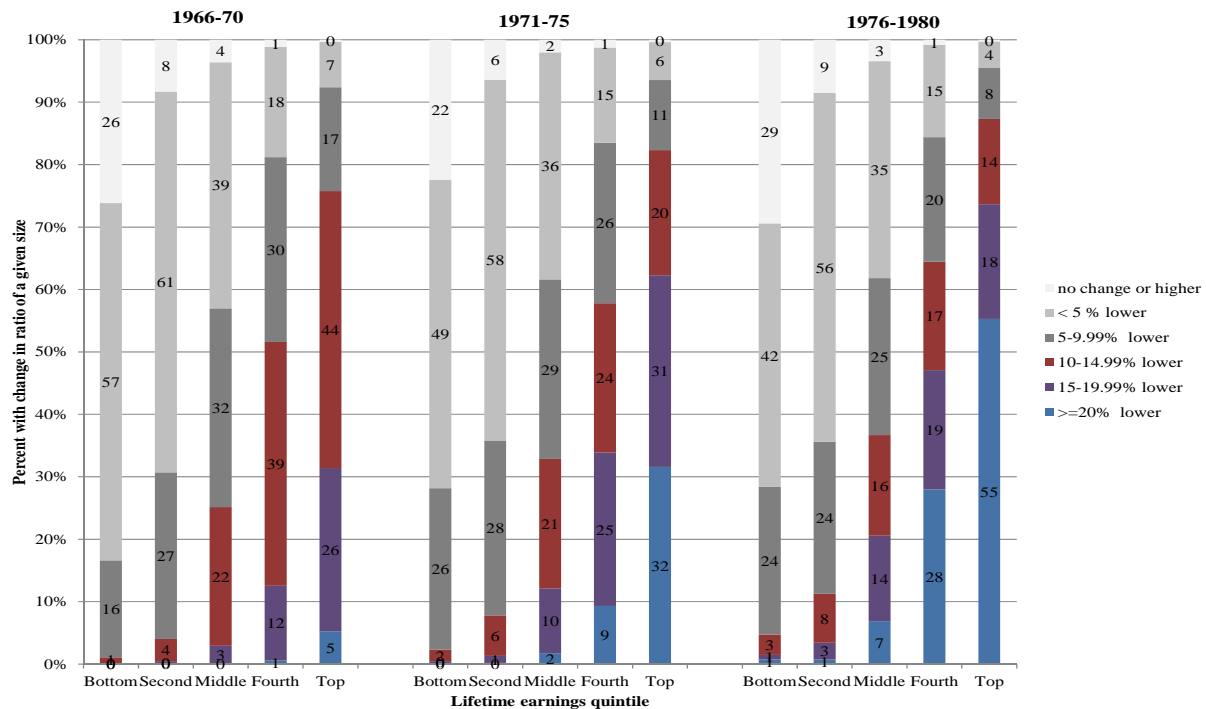
As with the cross-sectional projections, these projections of lifetime median ratios mask important variability among individuals with similar lifetime earnings. Once more, we thus display projections of changes, this time the change in the ratio of lifetime benefits to lifetime contributions (Figure 15). Here, we contrast the 1971 to 1975 birth cohort shown above with their immediate predecessors in the 1966 to 1970 birth cohort and their immediate successors in the 1976 to 1980 birth cohort to show how the NCFRR proposal phases in across the cohorts. These projections similarly reveal a strong relationship between lifetime earnings and projected reductions in the ratio of lifetime benefits to lifetime contributions, which grow over time.<sup>40</sup> In the lowest lifetime earnings quintile, the most prevalent change in the projected benefit to tax ratio (relative to current law scheduled) is less than 5 percent, even in the latest birth cohort (1976–80). In the highest lifetime earnings quintile, the modal change grows from 10–14.99 percent in the first birth cohort (1966–70) to greater than 20 percent in the middle (1971–75)

---

<sup>40</sup> Several factors contribute to differences between interpretation of these lifetime measures with the cross-sectional ones. First, the inclusion of payroll taxes in the ratios will tend to show greater lifetime percentage reductions for higher earners, as only those with earnings above the taxable maximum see their payroll tax increase in any year, and such individuals are concentrated in the highest quintile. Second, because the measure includes individuals who die prior to receiving benefits, and these individuals are disproportionately low earners, weights across the quintiles differ, so the lower quintiles will have proportionately more individuals whose ratios do not change because their benefits are zero under both current law and the option. Third, the lifetime measure helps to smooth out transitory anomalies that can arise, for example due to changing application (and effects) of the Retirement Earnings Test between current law and the NCFRR option.

and last (1976–80) cohorts. (This latest cohort reaches the current law EEA between 2038 and 2042, to provide some context with the cross-sectional projections shown earlier. We finish with the 1976–80 cohorts, as they are the last for which we have projections of a full lifetime of benefits for effectively the entire cohort, recognizing that later cohorts are still experiencing the proposal’s full phase-in.)

**Figure 15:** Projected Change in Ratio of Lifetime Individual Social Security Benefits to Contributions under NCFRR’s Proposal Relative to Current Law Scheduled for Individuals Born Between 1966 and 1970, 1971 and 1975, and 1976 to 1980 by Lifetime Earnings Quintile



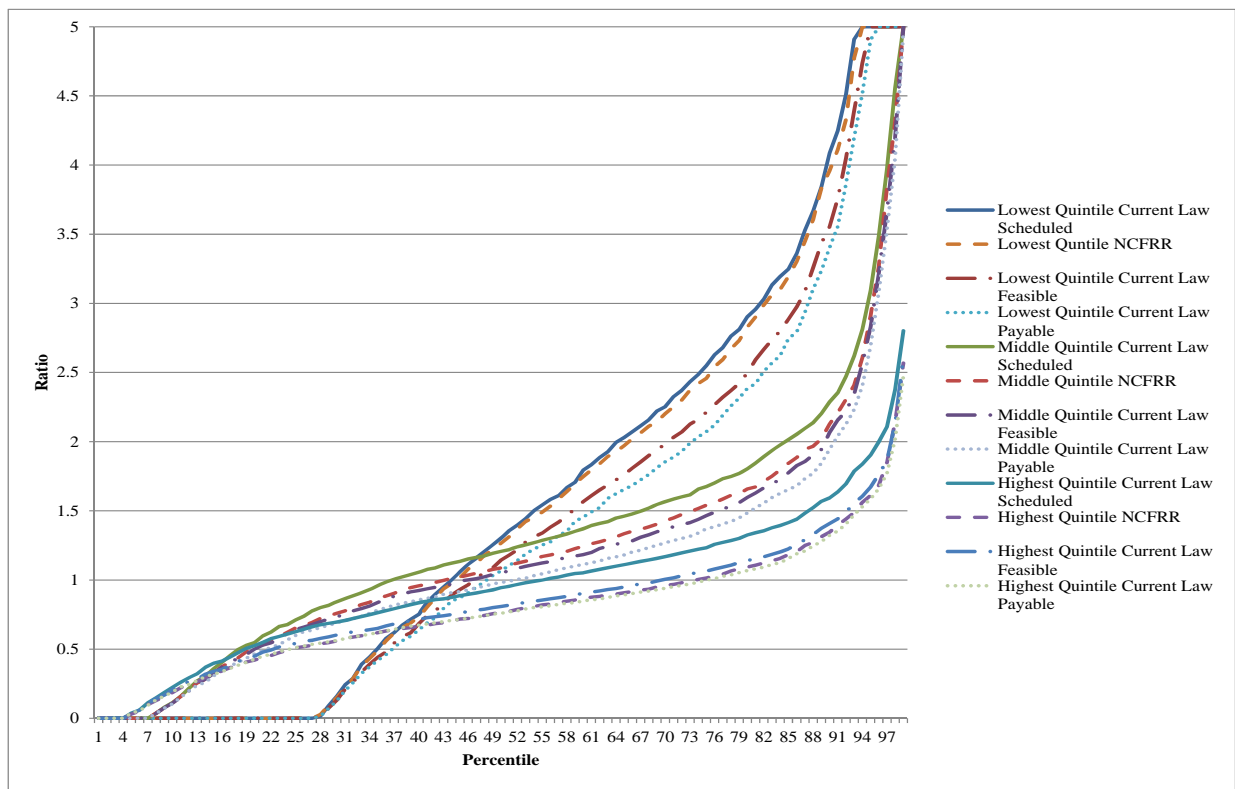
Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the cohort, not the overall population. The real discount rate for accumulating both contributions and benefits is 2 percent. Individuals who die before receiving Social Security benefits are included in the tabulations if they make payroll tax contributions and survive to at least age 30.

Figure 16 further illustrates heterogeneity in Social Security experiences by showing the full distribution of projected ratios of lifetime benefits to lifetime contributions for individuals born between 1971 and 1975 under both current law (scheduled, payable, and feasible) and the NCFRR proposal. (For ease of presentation, we just show three quintiles and cap the ratio at 5.) For individuals in the lowest lifetime earnings quintile, these projected ratios are strikingly skewed under current law. Many low lifetime earners make contributions to Social Security but either do not survive to receive benefits or do not work enough quarters to qualify for benefits. Others receive very high returns on their payroll tax contributions. This occurs both because of progressivity in the benefit formula and because of spouse and survivor benefits paid to low-earning spouses who may not have made many payroll tax contributions. For these low lifetime earners, the difference in projected ratios between current law scheduled and the NCFRR option is relatively modest throughout the distribution. For the higher lifetime earners, in

contrast, outcomes are less skewed under current law. Most beneficiaries have benefit to contribution ratios that fall between 0.5 and 1.5 under current law scheduled. However, there is far greater divergence between the ratios under scheduled benefits and the NCFRR option for these higher earners, with most receiving returns to their contributions under the option that are substantially lower than current law scheduled; indeed, for much of the distribution of higher earners, these ratios closely track current law payable ratios.

**Figure 16:** Projected Distribution of Ratio of Lifetime Individual Social Security Benefits to Contributions under NCFRR’s Proposal and Current Law for Individuals Born Between 1971 and 1975, by Lifetime Earnings Quintile (Lowest, Middle, and Highest)



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Notes: Shared lifetime earnings are defined as the average of indexed earnings from ages 22 through 62 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the cohort, not the overall population. The real discount rate for accumulating both contributions and benefits is 2 percent. Individuals who die before receiving Social Security benefits are included in the tabulations if they make payroll tax contributions and survive to at least age 30.

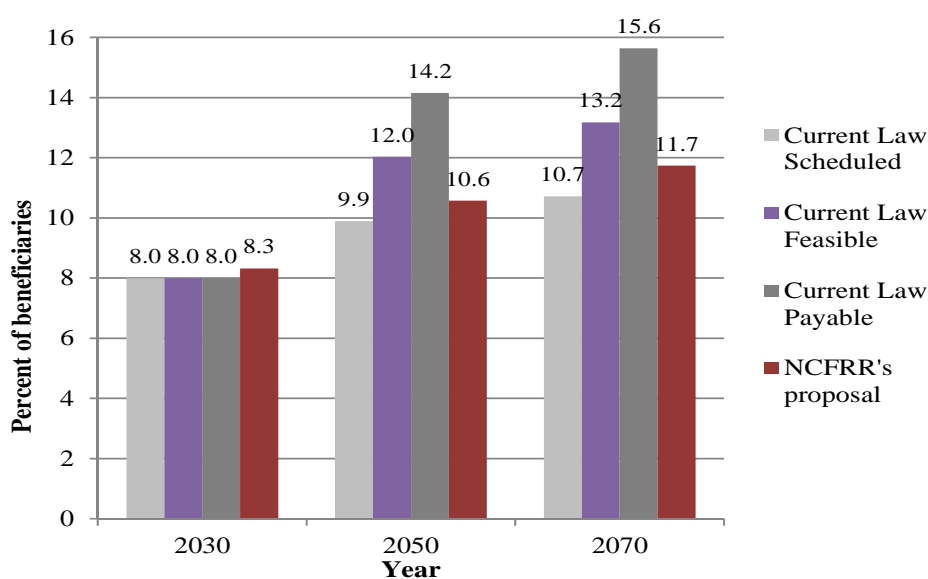
### How Do Beneficiaries Fare Relative to a Low-Income Standard?

Figure 17 reports the percentage of Social Security beneficiaries with low incomes, defined as less than a quarter of the earnings of the average worker, in 2030, 2050, and 2070.<sup>41</sup> We focus

<sup>41</sup> In 2011, a quarter of Social Security’s Average Wage Index equals \$11,172, roughly equivalent to the FPL today. For those age 65 and older living alone, the 2011 FPL is \$10,458. We use a slightly higher threshold when defining low-income married couples, to reflect the greater consumption needs for two-person households than for those living alone. Because the FPL assumes that a two-person aged household needs 126 percent more income

on this relative income position measure (which we can think of as akin to wage-indexed poverty) rather than a more standard poverty measure because initial Social Security benefits are indexed to wages, while the poverty threshold is indexed to prices. Because wages are projected to grow faster than inflation, projected poverty rates for Social Security beneficiaries will decline over time and become very low over the next 60 years.<sup>42</sup> As a result, the impact of the NCFRR’s proposal on future poverty rates is less informative than other measures. Relating incomes to average wages tells us how beneficiaries fare relative to the working population over time.

**Figure 17:** Share of Adult Beneficiaries with Income Less than 25 Percent of the Average Wage Index in 2030, 2050, and 2070 under Current Law and NCFRR’s Proposal



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

In 2030, the model projects that slightly more beneficiaries will have low incomes under NCFRR’s proposal than current law scheduled, feasible, and payable, likely due to the COLA shift to the C-CPI-U. This is, however, no longer true in 2050 and 2070. As the results show, in those years more Social Security beneficiaries are projected to have low incomes under the proposal than under current law *scheduled*, although fewer than under current law *payable* (or *feasible*). The proposal is projected to provide stronger protection for low-income beneficiaries than across-the-board reductions. Compared to *feasible* benefits, the proposal also is projected to shield comparably more beneficiaries from low income, though the differences are less striking than for *payable*. (Table A.7 in the appendix shows results by gender, education and lifetime earnings).

---

than a one-person household, our low-income threshold for couples equals 126 percent of one-fourth of the Average Wage Index (or \$14,095 in 2011).

<sup>42</sup> Overall, using the conventional measure of poverty, the NCFRR’s proposal has only modest effects on projected poverty rates for the population receiving Social Security benefits, as it tracks closely the ones under current law. Instead, focusing on a more time-consistent measure of relative income position gives us a better idea of how the proposal compares with current law scheduled, payable, and feasible.



## Summary

The NCFRR proposal would substantially reduce the Social Security benefits received by adults relative to benefits currently scheduled. In 2070, when all of the proposed provisions are fully phased in, average benefits are projected to decline by 14 percent for those in the middle of the earnings distribution. The proposal largely preserves scheduled benefits for those in the bottom earnings quintile. Even those beneficiaries, however, would experience a projected 3 percent benefit reduction—despite the inclusion of several benefit enhancements for recipients with low lifetime earnings—primarily because of the proposed COLA changes. Projected benefits would fall by about a quarter for those in top earnings quintile. As a result, their projected first-year replacement rates from Social Security will decline markedly for future generations, along with their return from the payroll taxes they pay over their lifetimes. These declining returns could erode political support for OASDI.

Ultimately, how one evaluates outcomes under the commission plan depends on the alternatives to which one compares it, coupled with one's views about the best way to share the burden of bringing OASDI into long-run fiscal balance within and between generations. An important aspect of this inter- and intragenerational sharing is the chosen balance between increased payroll taxes and benefit reductions. The proposal generally leaves beneficiaries in the bottom four lifetime earnings quintiles with higher benefits than they would receive under a payable baseline (under which Social Security is not changed at all in the near term and beneficiaries faced across-the-board benefit reductions once the Trust Funds are exhausted). Compared to a feasible baseline (under which action is similarly deferred until Trust Fund exhaustion, but at that point restores balance through an even division between benefit reductions and payroll tax increases), relatively fewer beneficiaries have higher benefits, but the lower two quintiles still do comparably well.

These analyses of the NCFRR proposal and the counterfactuals that describe Social Security benefits when action is deferred until the Trust Fund becomes insolvent clearly illustrate the importance of early action on Social Security's fiscal challenges. If Congress waits until the Trust Fund is exhausted, the required adjustments to OASDI benefits and/or payroll taxes would need to be considerable. Congress could avert these sorts of adjustments by phasing in provisions over the next two and a half decades.<sup>43</sup> Further, the relative shares of the long-range deficit that are closed from revenues and from benefit reductions could be shifted to one with a heavier reliance on revenue increases relative to benefit reductions.

Finally, our sensitivity analyses reveal both how important choices about measures and behavioral response can be and how uncertain projections into the distant future are. While the bottom line story about the NCFRR proposal is fairly consistent across the sensitivity analyses and alternative measures, values for any particular projected outcome can differ markedly depending on details of how the measure is calculated or which underlying assumptions

---

<sup>43</sup> According to projections in the Trustees report (OASDI Board of Trustees, 2010), the permanent and immediate payroll tax hike required in 2011 to bring long-term balance would be 2.15 percentage points and the analogous benefit reduction would be 13.8 percent. If Congress defers action until 2036, the required payroll tax hike increases to 4.00 (with further hikes to 4.50 by 2085) and the benefit reduction increases to 23 percent (increasing to 26 percent by 2085).

analysts select. This high degree of sensitivity underscores the importance of focusing on relative differences across options (including counterfactuals like payable or feasible) using consistent metrics, rather than focusing on any particular percentage or other value to summarize a complex set of interacting provisions like those in the NCFRR proposal.

## References

- Bosworth, Barry, Gary Burtless, and Benjamin Keys. 2003. "Implications of the Bush Commission Pension Reforms for Married Couples." Working Paper 2003-03. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Committee on Ways and Means. United States House of Representatives. 2008. *Background Material and Data on the Programs within the Jurisdiction of the Committee on Ways and Means*. Washington, DC: United States House of Representatives.  
<http://democrats.waysandmeans.house.gov/singlepages.aspx?NewsID=10490>.
- Congressional Budget Office, Congress of the United States. 2011. *CBO's 2011 Long-Term Projections for Social Security: Additional Information*. Washington, DC.  
<http://www.cbo.gov/ftpdocs/123xx/doc12375/08-05-Long-TermSocialSecurityProjections.pdf>.
- \_\_\_\_\_. 2011. *Reducing the Deficit: Spending and Revenue Options*. Washington, DC.  
<http://www.cbo.gov/ftpdocs/120xx/doc12085/03-10-ReducingTheDeficit.pdf>.
- Favreault, Melissa. 2010. *Why Do Some Workers Have Low Social Security Benefits?* Discussion Paper, the Retirement Policy Project. Washington, DC: The Urban Institute.
- Favreault, Melissa M., and Karen E. Smith. Forthcoming. *A Primer on the Dynamic Simulation of Income Model (DYNASIM3): Update*. Washington, DC: The Urban Institute.
- Favreault, Melissa M., and C. Eugene Steuerle. 2008. "The Implications of Career Lengths for Social Security." Working Paper #2008-05. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Goss, Stephen C., Chief Actuary, Social Security Administration. December 1, 2010. *Letter to Erskine Bowles and Alan Simpson*. Baltimore, MD: Social Security Administration.  
[http://www.ssa.gov/oact/solvency/FiscalCommission\\_20101201.pdf](http://www.ssa.gov/oact/solvency/FiscalCommission_20101201.pdf).
- Goss, Stephen C., Chief Actuary, Social Security Administration. February 2, 2011. *Letter to Erskine Bowles, Alan Simpson, Alice Rivlin, and Pete Domenici*. Baltimore, MD: Social Security Administration.
- Gustman, Alan L., and Thomas Steinmeier. 2009. "How Changes in Social Security Affect Retirement Trends." *Research on Aging* 31(2): 261–90.

- Manchester, Joyce, and Jae G. Song. 2008. "Have People Delayed Claiming Retirement Benefits? Responses to Changes in Social Security Rules." *Social Security Bulletin* 67(2): 1–23.
- Mastrobuoni, Giovanni. 2009. "Labor Supply Effects of the Recent Social Security Benefit Cuts: Empirical Estimates Using Cohort Discontinuities." *Journal of Public Economics* 93(11–12): 1224–33.
- Meara, Ellen R., Seth Richards, and David M. Cutler. 2008. "The Gap Gets Bigger: Changes in Mortality and Life Expectancy, by Education, 1981–2000." *Health Affairs* 27(2): 350–60.
- National Commission on Fiscal Responsibility and Reform. 2010. *The Moment of Truth: Report of the National Commission on Fiscal Responsibility and Reform*. Washington, DC: The White House.  
[http://www.fiscalcommission.gov/sites/fiscalcommission.gov/files/documents/TheMomentofTruth12\\_1\\_2010.pdf](http://www.fiscalcommission.gov/sites/fiscalcommission.gov/files/documents/TheMomentofTruth12_1_2010.pdf).
- OASDI Board of Trustees. 2010. *2010 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*. Washington, DC: Author. <http://www.ssa.gov/OACT/TR/2010/tr2010.pdf>.
- \_\_\_\_\_. 2011. *2011 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*. Washington, DC: Author. <http://www.ssa.gov/OACT/TR/2010/tr2011.pdf>.
- Palmer, John L., and Rudolph G. Penner. 2011. *Committees Tackle the Deficit*. Program on Retirement Policy Brief No. 32. Washington, DC: The Urban Institute.  
<http://www.urban.org/UploadedPDF/412298-Committees-tackle-the-Deficit.pdf>.
- Penner, Rudolph G. 2010. *Adjusting Social Security Benefits for Changes in the Cost of Living*. Program on Retirement Policy Brief No. 30. Washington, DC: The Urban Institute.  
[http://www.urban.org/retirement\\_policy/url.cfm?ID=412168](http://www.urban.org/retirement_policy/url.cfm?ID=412168).
- Reno, Virginia P. and Elisa A. Walker. 2011. *How Would Seniors Fare – by Age, Gender, Race and Ethnicity, and Income – Under the Bowles-Simpson Social Security Proposals by 2070?* Washington, DC: National Academy of Social Insurance.
- Ruffing, Kathy A. and Paul N. Van de Water. 2011. *Bowles-Simpson Social Security Proposal Not a Good Starting Point for Reforms: Relies Far Too Much on Benefit Cuts, Makes Other Problematic Changes*. Washington, DC: Center on Budget and Policy Priorities.
- Scott, Christine. 2009. *Social Security: What Would Happen If the Trust Funds Ran Out?* RL33514. Washington, DC: Congressional Research Service.

- Singh, Gopal K., and Mohammad Siahpush. 2006. "Widening Socioeconomic Inequalities in U.S. Life Expectancy." *International Journal of Epidemiology* 35: 69–79.
- Smith, Karen E., Fritz Scheuren, and Jillian Berk. 2002. "Adding Historical Earnings to the Survey of Income and Program Participation (SIPP)", in *Proceeding of the 2001 Joint Statistical Meetings*.
- Social Security Administration. 2010. *Annual Statistical Supplement, 2010 the Social Security Bulletin*. Washington, DC: Author.  
<http://www.ssa.gov/policy/docs/statcomps/supplement/2010/supplement10.pdf>.
- \_\_\_\_\_. 2011 (forthcoming). *Annual Statistical Supplement, 2011 the Social Security Bulletin*. Washington, DC: Author.  
<http://www.ssa.gov/policy/docs/statcomps/supplement/2011//index.html>.
- Special Committee on Aging, United States Senate. 2010. *Social Security Modernization: Options to Address Solvency and Benefit Adequacy*. Washington, DC: U.S. Government Printing Office. <http://aging.senate.gov/ss/ssreport2010.pdf>.
- Technical Panel on Assumptions and Methods. 2011. *Report to the Social Security Advisory Board*. Washington DC: U.S. Government Printing Office.
- Toder, Eric. 2008. *Distributional Analysis of Pension and Social Security Reforms: Alternative Approaches and a Report on an Expert Panel Meeting*. Washington, DC: The Urban Institute. <http://www.urban.org/publications/411753.html>.
- Waldron, Hilary. 2007. "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers by Socioeconomic Status." *Social Security Bulletin* 67(3): 1-28.
- Zayatz, Tim. 2005. *Social Security Disability Insurance Program Worker Experience*. Actuarial Study Number 118. Baltimore, MD: Social Security Administration Office of the Chief Actuary.

## Appendix

### Comparing Current Law to NCFRR's Proposal: The Importance of Different Measures

Analysts can use a wide variety of statistical measures to compare projected benefits under the proposal with benefits under current law. When assessing the effects of proposals, and especially when comparing results among studies, it is important to bear in mind differences between those measures.

The primary measure that we use for much of the analysis in the report is the average benefit under the proposal as a percentage of the average benefit under current law scheduled, which we could also call the *ratio of averages*. Alternatively, one might be interested in the effect of the proposal on the individual in the middle of the distribution, who could be viewed as the typical beneficiary. A measure capturing that effect would be the *median ratio*, produced by calculating each individual's benefit under the proposal as a percentage of his or her current law scheduled benefit and then finding the midpoint of this distribution of individual values. Half of the individuals in a given group would experience a percentage change in their benefits lower than the median, and half would see a higher percentage change. A third alternative measure would be the *average ratio*, produced by calculating each individual's benefit under the proposal as a percentage of his or her current law benefit and then averaging these individual ratios.

There is an essential difference between the *ratio of averages* and the *average ratio* measures. In the latter calculation, those receiving relatively small benefits will have greater effects on the average than those receiving larger benefits, because the same dollar-amount difference in benefits will result in a higher percentage change for someone with low benefits under current law than someone with higher benefits. The analysis in the brief focuses on the *ratio of averages* measure (supplemented by analyses of distributions of benefits and benefit changes on both an annual and lifetime basis), mainly because we believe it better illustrates the overall effect of the proposal on the average benefit for a group. It is less influenced by extreme values, such as when NCFRR's proposal results in changes that are small in levels but quite high in percentage terms for a modest number of cases. The *median ratio* has the attractive feature of being less susceptible to outliers than other statistics.

A simple numerical example will help to illustrate the differences among the three measures. Let us assume the population of Social Security beneficiaries consists of five hypothetical individuals. Table A8 shows potential monthly benefits under current law and under the proposal for each individual, as well as dollar and percent differences between the two. Scenarios 1, 2, and 3 are equivalent in terms of the dollar value of all benefits under the proposal as compared to current law. The *ratio of averages* measure, which is calculated as the ratio of the average benefit under the proposal over the average scheduled benefit under current law, illustrates this: It is constant across the three scenarios.

The *average ratio* measure, however, changes depending on whether the benefits under the proposal are more generous toward those with relatively low benefits or those with relatively high benefits. The *average ratio* is produced by calculating for each individual the

benefit under the proposal as a percentage of current law scheduled, and then averaging across individuals. Scenario 2 differs from scenario 1 by increasing the poorest individual's benefit by \$50 and taking the difference from the individual with the highest benefit. The resulting *average ratio* increases from 97 to 98 percent. Scenario 3 does the reverse: A smaller reduction (of \$50) in the benefit of the individual with the highest current law benefit is compensated by an equivalent \$50 decrease in benefit under the proposal for the individual with the lowest. As a result, the *average ratio* goes down to 95 percent. Overall, the *average ratio* measure has the potential to be more susceptible to slight nuances in the distribution of benefit reductions/increases compared to the the other two measures.

Figure A.1 illustrates how using different metrics can lead to different conclusions about the magnitude of the NCFRR proposal's effects for the representative population, not just hypothetical individuals. The figure shows that in the DYNASIM simulations, the *average ratio* measure consistently falls higher than the *ratio of averages*. The reason is that the NCFRR proposal includes provisions to protect long-term low earners from increases in the retirement ages, as well as a minimum benefit and long-term beneficiary increase, which in some cases can result in certain individuals having higher projected benefits under the proposal than under current law. Although the benefit increases are small in absolute terms, they can be substantial in percentage terms, because those receiving the bonuses are primarily low-income individuals.<sup>44</sup> Hence, even a small number of such cases could push the *average ratio* measure above the *ratio of averages* and could lead one to underestimate the proposal's overall benefit reductions. The further out in the projection period we look, the higher (in percentage terms) the projected benefits under the provision become relative to current law (for such low-earning individuals), and as a result the greater is the difference between the two measures.

The projected *median ratio* is also consistently higher than the *ratio of averages* measure, but for a different reason. A number of NCFRR's provisions protect low earners from benefit reductions. For example, the benefit formula change explicitly shields workers below the median lifetime earnings from changes. As a result, the individual in the middle distribution appears to be less affected by the proposal compared with the effect on the overall dollar value of benefits received by the group.

Importantly, how these measures differ from one another can vary by characteristics. Table A3, for example, reveals that in both 2030 and 2050 the average and median ratios differ more in the middle shared lifetime earnings quintiles than elsewhere in the lifetime earnings distribution.

A number of other choices can markedly affect distributional projections.<sup>45</sup> For example, the unit of analysis (whether one analyzes benefits on an individual or a family basis) has very important effects on the results. In these analyses, we have focused on individual

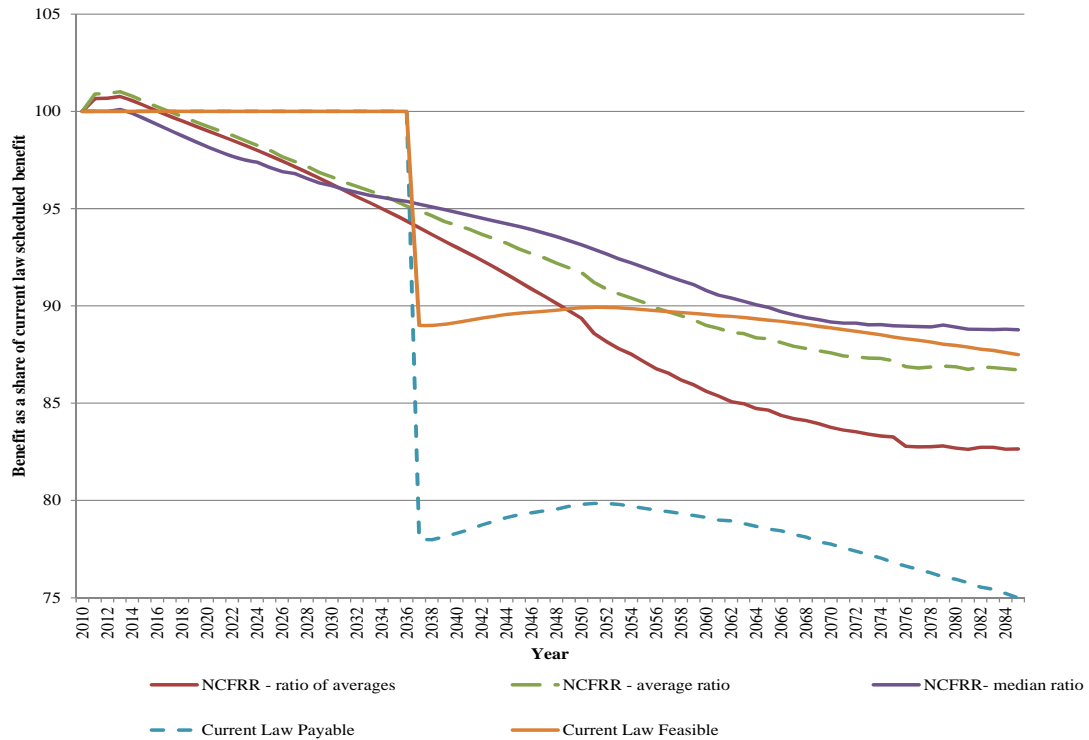
---

<sup>44</sup> Changes to the applicability of the Retirement Earnings Test that coincide with FRA increases can also lead to large changes in benefits at a point in time. For example, many beneficiaries with earnings who are not below the FRA under current law may be below the FRA—and thus subject to withholding under the RET—under the option. This could significantly their change cross-sectional outcomes. However, these changes are typically offset later in life through changes to the actuarial reduction factor to account for months in which benefits are fully withheld, implying that this would have minimal effect on lifetime outcomes.

<sup>45</sup> Toder (2008) provides additional discussion of these issues.

metrics, but do use family (i.e., couple) metrics to describe replacement rates. We have computed these couple level measures for all analyses. Whether one uses pre- or post-tax benefits is also important, given that OASDI benefits are subject to federal income taxation for workers with income above certain thresholds. As these thresholds are not indexed for inflation, this choice will be increasingly important in coming decades.

**Figure A.1:** Comparison of “Ratio of Averages,” “Average Ratio,” and “Median Ratio” for Assessing Adult Social Security Benefits under NCFRR’s Proposal as a Percentage of Current Law Scheduled, 2010–2085



Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).  
 Note: Axis does not start at zero.

**Appendix Table 1: Core Demographic Processes in DYNASIM**

<b>Process</b>	<b>Data</b>	<b>Form and predictors</b>
Birth	NLSY (1979–94), NLSY97 (1997–2005), VS, OACT 2010	Seven-equation parity progression model; varies based on marital status; predictors include age, marriage duration, time since last birth; uses vital rates after age 39; sex of newborn assigned by race; probability of multiple birth assigned by age and race.
Death	SIPP (2001–04), OACT 2010	Three equations; time trend from OACT 1992–2075; includes socioeconomic differentials, health status, and ADLs/IADLs; separate process for the disabled based on age, sex, and disability duration derived from Zayatz (2005).
Immigration	SIPP (1990–93), OACT 2010	Observed immigrants from historical data are used as donors. Targets are derived from OACT.
First marriage	NLSY (1979–93), NCHS	Eight discrete-time logistic hazard models for persons age 15 to 34; depends on age, education, race, earnings, presence of children (for females); uses Vital Statistics rates at older ages.
Remarriage	NCHS	Table lookups; separate by sex for widowed and divorced.
Mate matching	NA	Closed marriage market (spouse must be selected from among unmarried, opposite-sex persons in the population); match likelihood depends on age, race, education.
Divorce	PSID (1985–93)	Couple-level outcome; discrete-time logistic hazard model depends on marriage duration, age and presence of children, earnings of both spouses. (A separate model predicts separation.)
Leaving home	NLSY (1979–94)	Three equations; family size, parental resources, and school and work status are predictors.
Living arrangements	SIPP (1990–93)	Projected at age 62 and older; predictors include number of children ever born, income sources, demographic characteristics.
Education	NLSY (1979–94), CPS (1995–98)	Ten cross-tabulations based on age, race, sex, and parents' education.
Disability	SIPP (1990–93)	Discrete-time logistic hazard model incorporates various socioeconomic differences (age, education, lifetime earnings, race/ethnicity, marital status, and nativity).
Health status (Age 51+)	HRS (1992–2006)	Ordered logit models (initial conditions for those not observed on the SIPP, and then lagged status-specific transition models) incorporate various socioeconomic differences (age, education, lifetime earnings, race/ethnicity, marital status, and nativity).
Limitations in (instrumental) activities of daily living	HRS (1994–2006)	Ordered logit models (initial conditions for those not observed on the SIPP, and then lagged status-specific transition models) incorporate health status. IADLs predict ADLs.



**Appendix Table 2: Core Economic Processes in DYNASIM**

<b>Process</b>	<b>Data</b>	<b>Form and predictors</b>
Labor supply and earnings	PSID (1981–2007), NLSY (1979–89), OACT 2010	Separate participation, hours decisions, wage rates for 16 age-race-sex groups; all equations have permanent and transitory error components; key predictors include marital status, education level, age splines, region of residence, disability status, whether currently in school, birth cohort, job tenure, health status, Social Security beneficiary status, and education level interacted with age splines; also number and ages of children. Model forms vary by outcomes. Special processes project earnings for the highest earners.
Saving/Consumption	SIPP, PSID (1984–94), HRS, SIPP 1990–93 matched to administrative data (1951–99)	Separate models estimated for housing and nonhousing wealth based on income and demographic characteristics using random effects and annual hazard models; each model includes an individual-specific error term.
<b>Benefits sector</b>		
OASI	SIPP (2001–2004) matched to administrative data (1951–2007)	Benefit claiming simulated beginning at age 62; model uses discrete-time hazard models to determine age at take-up based on age, benefit amount, spousal characteristics, and Social Security policy parameters.
DI	SIPP (1990–93) matched to administrative data (1951–99)	Benefit claiming predicted through discrete-time hazard model including age, education, lifetime earnings, race, ethnicity, marital status, nativity, and disability status in $t - 1$ .
SSI	SIPP (1990–93) matched to administrative data (1951–99)	Uses program rules (income and asset tests) to determine eligibility and a participation function based on potential benefit and demographic and economic characteristics including age, education, race, family structure, home ownership, and sources of income.

Acronyms: ADLs = activities of daily living; CPS = Current Population Survey; DI = Disability Insurance (Social Security); HRS = Health and Retirement Study; IADLs = instrumental activities of daily living; NA = not applicable; NCHS = National Center for Health Statistics; NLMS = National Longitudinal Mortality Study; NLSY = National Longitudinal Survey of Youth; OASI = Old-Age and Survivors Insurance (Social Security); OACT 2010 = intermediate assumptions of the 2010 OASDI Trustees Report; PSID = Panel Study of Income Dynamics; SIPP = Survey of Income and Program Participation; VS = Vital Statistics.

**Table A3: Adult Social Security Benefits under NCFRR’s Proposal and Current Law in 2030, 2050, and 2070**

	2030						2050						2070					
	Current Law Scheduled	NCFRR	NCFRR	NCFRR	Current Law Feasible	Current Law Payable	Current Law Scheduled	NCFRR	NCFRR	NCFRR	Current Law Feasible	Current Law Payable	Current Law Scheduled	NCFRR	NCFRR	NCFRR	Current Law Feasible	Current Law Payable
	as a % of current law scheduled						as a % of current law scheduled						as a % of current law scheduled					
	Average, \$2010	Average, \$2010	Average	Median	Average	Average	Average, \$2010	Average, \$2010	Average	Median	Average	Average	Average, \$2010	Average, \$2010	Average	Median	Average	Average
	1)	2)	3)	4)	5)	6)	1)	2)	3)	4)	5)	6)	1)	2)	3)	4)	5)	6)
<b>ALL</b>	\$16,420	\$15,805	96.3	96.2	100.0	100.0	\$19,728	\$17,630	89.4	93.1	89.9	79.8	\$24,161	\$20,236	83.8	89.2	88.9	77.8
<b>GENDER</b>																		
<b>Men</b>	\$17,694	\$16,977	95.9	96.0	100.0	100.0	\$20,946	\$18,519	88.4	92.4	89.9	79.8	\$25,406	\$21,031	82.8	88.4	88.9	77.8
<b>Women</b>	\$15,314	\$14,787	96.6	96.3	100.0	100.0	\$18,653	\$16,845	90.3	93.6	89.9	79.8	\$23,054	\$19,529	84.7	89.7	88.9	77.8
<b>AGE</b>																		
<b>18 - 34</b>	\$15,549	\$15,144	97.4	98.3	100.0	100.0	\$21,068	\$19,650	93.3	96.8	89.9	79.8	\$24,478	\$22,764	93.0	96.9	88.9	77.8
<b>35 - 49</b>	\$15,070	\$14,617	97.0	97.4	100.0	100.0	\$19,594	\$18,285	93.3	96.0	89.9	79.8	\$25,051	\$22,880	91.3	95.7	88.9	77.8
<b>50 - 59</b>	\$15,888	\$15,470	97.4	97.8	100.0	100.0	\$19,363	\$18,002	93.0	96.4	89.9	79.8	\$24,816	\$22,703	91.5	95.9	88.9	77.8
<b>60 - 61</b>	\$16,372	\$15,848	96.8	97.4	100.0	100.0	\$20,115	\$18,609	92.5	96.0	89.9	79.8	\$25,717	\$23,429	91.1	95.7	88.9	77.8
<b>62 - 64</b>	\$14,169	\$13,405	94.6	96.3	100.0	100.0	\$16,909	\$15,187	89.8	95.6	89.9	79.8	\$21,297	\$18,755	88.1	94.9	88.9	77.8
<b>65 - 69</b>	\$16,145	\$15,352	95.1	96.1	100.0	100.0	\$19,671	\$17,084	86.8	92.1	89.9	79.8	\$23,983	\$19,668	82.0	89.4	88.9	77.8
<b>70 - 74</b>	\$17,122	\$16,418	95.9	96.0	100.0	100.0	\$20,608	\$17,985	87.3	91.3	89.9	79.8	\$25,500	\$21,169	83.0	87.5	88.9	77.8
<b>75 - 79</b>	\$17,234	\$16,547	96.0	95.7	100.0	100.0	\$20,189	\$17,733	87.8	90.5	89.9	79.8	\$24,871	\$20,339	81.8	86.6	88.9	77.8
<b>80+</b>	\$16,440	\$16,158	98.3	98.6	100.0	100.0	\$19,638	\$18,125	92.3	93.9	89.9	79.8	\$23,454	\$19,689	83.9	88.2	88.9	77.8
<b>Shared Lifetime Earnings Quintile</b>																		
<b>Lowest</b>	\$10,002	\$9,853	98.5	97.4	100.0	100.0	\$11,048	\$10,775	97.5	96.5	89.9	79.8	\$13,512	\$13,052	96.6	96.3	88.9	77.8
<b>Second</b>	\$14,191	\$13,810	97.3	96.8	100.0	100.0	\$16,227	\$15,293	94.2	95.2	89.9	79.8	\$19,699	\$18,186	92.3	94.4	88.9	77.8
<b>Middle</b>	\$16,926	\$16,316	96.4	96.1	100.0	100.0	\$19,796	\$17,883	90.3	93.2	89.9	79.8	\$24,166	\$20,808	86.1	89.6	88.9	77.8
<b>Fourth</b>	\$19,089	\$18,275	95.7	95.7	100.0	100.0	\$23,135	\$20,110	86.9	88.7	89.9	79.8	\$28,925	\$23,133	80.0	81.2	88.9	77.8
<b>Highest</b>	\$21,953	\$20,826	94.9	95.4	100.0	100.0	\$27,772	\$23,324	84.0	84.7	89.9	79.8	\$34,787	\$26,162	75.2	75.7	88.9	77.8

Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Amounts are in 2010 real dollars. The analysis uses individual rather than family benefits for individuals in married households, unless otherwise indicated, and excludes dependent benefits for non-aged spouses. Shared lifetime earnings are defined as the average of own (and, if married, spouse’s) indexed earnings from ages 22 through 61 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Tabulations reflect the adult Social Security beneficiary population for both current law and the option (i.e., individuals must collect benefits under both current law and the option).

Payable and feasible projections assume that the reductions occur when the combined OASDI and DI trust funds fall below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

**Table A4a:** Percentage of Adult Beneficiaries with Benefit Changes of Various Sizes under NCFRR’s Proposal and Current Law in 2030, 2050, and 2070, No Half Benefit Claiming

	2030						2050						2070					
	no change or higher	< 5 % lower	5-9.99% lower	10-14.99% lower	15-19.99% lower	>=20% lower	no change or higher	< 5 % lower	5-9.99% lower	10-14.99% lower	15-19.99% lower	>=20% lower	no change or higher	< 5 % lower	5-9.99% lower	10-14.99% lower	15-19.99% lower	>=20% lower
ALL	10.3	72.6	14.9	1.1	0.4	0.8	8.1	25.0	28.4	16.8	13.0	8.8	7.6	18.3	18.7	12.4	12.4	30.5
GENDER																		
Men	8.7	70.8	17.4	1.3	0.5	1.2	8.8	24.9	25.6	14.1	14.6	12.0	9.0	19.7	17.6	11.0	9.6	33.1
Women	12.4	73.5	12.3	0.8	0.3	0.7	8.4	28.8	30.1	14.5	10.4	7.8	7.4	20.8	20.4	13.0	11.0	27.3
Shared Lifetime Earnings Quintile																		
Lowest	24.2	74.3	1.4	0.1	0.0	0.0	24.8	38.0	28.3	6.5	1.0	1.4	25.0	33.0	22.9	12.4	3.7	2.9
Second	14.1	82.6	3.1	0.1	0.0	0.2	8.7	43.8	31.5	10.9	3.4	1.6	6.5	33.5	31.9	13.0	7.6	7.5
Middle	8.6	77.5	12.4	0.8	0.2	0.6	3.7	30.9	32.2	16.7	10.7	6.0	1.9	13.6	24.9	17.3	15.3	27.0
Fourth	5.3	70.6	21.2	1.4	0.6	1.0	1.5	17.1	31.4	20.3	17.6	12.2	1.0	3.6	7.3	15.1	22.6	50.4
Highest	1.3	58.3	34.2	3.1	1.0	2.0	1.0	9.2	26.3	19.9	22.4	21.2	0.6	1.9	1.3	3.3	15.4	77.4

Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: The analysis uses individual rather than family benefits for individuals in married households, unless otherwise indicated, and excludes dependent benefits for non-aged spouses. Shared lifetime earnings are defined as the average of own (and, if married, spouse’s) indexed earnings from ages 22 through 61 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Tabulations reflect the adult Social Security beneficiary population for both current law and the option (i.e., individuals must collect benefits under both current law and the option).

Payable and feasible projections assume that the reductions occur when the combined OASDI and DI trust funds fall below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

**Table A4b: Percentage of Adult Beneficiaries with Benefit Changes of Various Sizes under NCFRR’s Proposal and Current Law in 2030, 2050, and 2070, Assuming Half Benefit Claiming by All Current Law Early Claimants Ineligible for Hardship Exemption**

	2030						2050						2070					
	no change or higher	< 5 % lower	5-9.99% lower	10-14.99% lower	15-19.99% lower	>=20% lower	no change or higher	< 5 % lower	5-9.99% lower	10-14.99% lower	15-19.99% lower	>=20% lower	no change or higher	< 5 % lower	5-9.99% lower	10-14.99% lower	15-19.99% lower	>=20% lower
ALL	10.2	72.3	15.0	1.3	0.4	0.8	8.1	24.6	28.3	13.7	12.1	13.1	6.7	17.3	16.9	10.3	8.3	40.6
GENDER																		
Men	8.7	70.5	17.3	1.6	0.5	1.3	7.7	21.9	26.5	15.7	14.0	14.3	7.6	16.8	15.8	9.5	7.3	43.0
Women	12.4	73.1	12.6	0.8	0.3	0.8	7.2	23.4	30.1	16.6	12.3	10.5	6.0	17.7	17.9	11.0	9.1	38.4
Shared Lifetime Earnings Quintile																		
Lowest	22.3	75.7	1.9	0.1	0.0	0.1	25.4	33.2	30.2	6.0	0.9	4.3	20.9	27.1	15.4	12.2	5.3	19.1
Second	14.4	81.5	3.6	0.2	0.1	0.2	8.9	41.6	32.0	11.0	3.8	2.8	6.5	29.3	28.4	11.8	7.7	16.2
Middle	9.9	75.0	13.3	0.9	0.1	0.7	3.3	26.7	31.4	15.8	13.4	9.4	2.3	15.6	21.4	12.2	10.9	37.6
Fourth	6.4	68.2	21.9	1.6	0.6	1.2	1.1	13.7	26.7	19.1	19.8	19.6	1.0	6.3	10.8	9.6	11.0	61.2
Highest	2.1	59.9	31.0	3.2	0.9	2.8	0.5	5.3	20.4	17.2	24.5	32.1	0.4	3.1	5.2	4.3	6.9	80.3

Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: The analysis uses individual rather than family benefits for individuals in married households, unless otherwise indicated, and excludes dependent benefits for non-aged spouses. Shared lifetime earnings are defined as the average of own (and, if married, spouse’s) indexed earnings from ages 22 through 61 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Tabulations reflect the adult Social Security beneficiary population for both current law and the option (i.e., individuals must collect benefits under both current law and the option).

Payable and feasible projections assume that the reductions occur when the combined OASDI and DI trust funds fall below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

**Table A5: Median First-Year Household Replacement Rates in 2030, 2050, and 2070 under Current Law and NCFRR’s Proposal (Percent)**

	2030				2050				2070			
	Current Law			NCFRR	Current Law			NCFRR	Current Law			NCFRR
	scheduled	feasible	payable		scheduled	feasible	payable		scheduled	feasible	payable	
	1)	2)	3)	4)	1)	2)	3)	4)	1)	2)	3)	4)
<b>ALL</b>	41.0	41.0	41.0	39.2	43.4	39.0	34.6	38.0	43.0	38.2	33.4	35.9
<b>GENDER</b>												
<b>Men</b>	40.7	40.7	40.7	38.5	43.5	39.1	34.7	37.8	42.7	38.0	33.2	35.7
<b>Women</b>	41.4	41.4	41.4	39.6	43.3	39.0	34.6	38.4	43.2	38.4	33.6	36.1
<b>EDUCATION</b>												
<b>Not a high school graduate</b>	58.9	58.9	58.9	57.3	60.5	54.4	48.3	59.9	58.8	52.3	45.7	60.5
<b>High school graduate or some college</b>	42.9	42.9	42.9	41.3	44.8	40.3	35.8	41.3	45.7	40.7	35.6	39.6
<b>College graduate or more</b>	34.5	34.5	34.5	31.8	39.2	35.3	31.3	31.1	37.8	33.6	29.4	28.0
<b>Shared Lifetime Earnings Quintile</b>												
<b>Lowest</b>	63.4	63.4	63.4	63.4	65.9	59.3	52.6	66.9	70.9	63.0	55.1	67.1
<b>Second</b>	48.7	48.7	48.7	47.8	48.7	43.8	38.8	45.1	49.4	43.9	38.4	45.7
<b>Middle</b>	41.6	41.6	41.6	39.8	44.1	39.7	35.2	39.5	44.4	39.5	34.5	37.2
<b>Fourth</b>	37.2	37.2	37.2	35.0	38.9	35.0	31.0	30.9	39.4	35.1	30.7	29.5
<b>Highest</b>	30.6	30.6	30.6	27.4	33.7	30.3	26.9	23.7	33.0	29.4	25.7	20.0

Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: The replacement rate is defined as the ratio of monthly benefits in the first year of benefit receipt divided by AIME. The analysis includes all beneficiaries older than 18, regardless of the type of benefit received—retired worker, disability, spousal or survivor. It excludes dependent benefits for non-aged spouses. In the case of married couples, the replacement rate is calculated in the first year in which both spouses are collecting benefits. The denominator is the individual’s AIME, or for couples, the sum of their AIMEs.

Shared lifetime earnings are defined as the average of own (and, if married, spouse’s) indexed earnings from ages 22 through 61 (or year of disability, whichever comes first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Tabulations reflect the adult Social Security beneficiary population for both current law and the option (i.e., individuals must collect benefits under both current law and the option).

Payable and feasible projections assume that the reductions occur when the combined OASDI and DI trust funds fall below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

**Table A6: Projected Median Ratio of Real Lifetime Individual Social Security Benefits to Contributions under NCFRR’s Proposal and Current Law, by Birth Cohort, Gender, Education, and Lifetime Earnings Quintile**

	1951-1955 Cohort				1956-1960 Cohort				1961-1965 Cohort				1966-1970 Cohort				1971-1975 Cohort				1976-1980 Cohort			
	Current Law			NCFRR	Current Law			NCFRR	Current Law			NCFRR	Current Law			NCFRR	Current Law			NCFRR	Current Law			NCFRR
	Scheduled	Feasible	Payable		Scheduled	Feasible	Payable		Scheduled	Feasible	Payable		Scheduled	Feasible	Payable		Scheduled	Feasible	Payable		Scheduled	Feasible	Payable	
<b>ALL</b>	1.17	1.16	1.14	1.14	1.15	1.13	1.09	1.10	1.12	1.06	1.00	1.05	1.12	1.03	0.95	1.02	1.18	1.05	0.95	1.06	1.23	1.07	0.97	1.08
<b>GENDER</b>																								
<b>Men</b>	0.95	0.94	0.93	0.92	0.97	0.94	0.92	0.92	0.95	0.90	0.86	0.88	0.95	0.88	0.81	0.85	1.01	0.90	0.81	0.87	1.05	0.92	0.84	0.90
<b>Women</b>	1.52	1.51	1.48	1.49	1.45	1.40	1.35	1.39	1.37	1.30	1.23	1.30	1.36	1.26	1.16	1.27	1.41	1.26	1.14	1.30	1.46	1.27	1.17	1.32
<b>EDUCATION</b>																								
<b>Not a high school graduate</b>	1.53	1.52	1.50	1.50	1.41	1.38	1.36	1.37	1.33	1.27	1.21	1.30	1.52	1.42	1.33	1.50	1.56	1.41	1.27	1.51	1.63	1.42	1.30	1.54
<b>High school graduate or some college</b>	1.19	1.18	1.16	1.16	1.18	1.15	1.12	1.14	1.15	1.10	1.04	1.09	1.16	1.08	0.99	1.08	1.22	1.09	0.99	1.12	1.25	1.09	1.00	1.13
<b>College graduate or more</b>	1.09	1.07	1.05	1.05	1.04	1.01	0.97	0.99	1.04	0.98	0.92	0.94	1.02	0.94	0.86	0.90	1.10	0.98	0.88	0.94	1.16	1.00	0.92	0.96
<b>SHARED LIFETIME EARNINGS QUINTILE</b>																								
<b>Lowest</b>	1.80	1.77	1.74	1.75	1.74	1.70	1.64	1.71	1.67	1.60	1.51	1.64	1.55	1.43	1.31	1.51	1.61	1.44	1.32	1.58	1.78	1.54	1.42	1.74
<b>Second</b>	1.45	1.42	1.40	1.41	1.40	1.36	1.31	1.36	1.36	1.29	1.22	1.31	1.42	1.31	1.20	1.36	1.44	1.29	1.17	1.36	1.47	1.28	1.17	1.39
<b>Middle</b>	1.20	1.19	1.18	1.17	1.19	1.17	1.13	1.15	1.15	1.10	1.04	1.08	1.15	1.06	0.98	1.07	1.21	1.08	0.98	1.11	1.27	1.11	1.01	1.14
<b>Fourth</b>	1.10	1.09	1.07	1.07	1.07	1.04	1.00	1.01	1.03	0.98	0.92	0.95	1.04	0.96	0.88	0.92	1.14	1.01	0.91	0.98	1.15	1.00	0.91	0.96
<b>Highest</b>	0.94	0.93	0.92	0.91	0.93	0.90	0.87	0.88	0.93	0.88	0.83	0.84	0.89	0.82	0.75	0.77	0.93	0.82	0.75	0.76	0.97	0.83	0.77	0.74

Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: Amounts are in 2010 real dollars. The analysis uses individual rather than family benefits for individuals in married households, unless otherwise indicated, and excludes dependent benefits for non-aged spouses. Shared lifetime earnings are defined as the average of own (and, if married, spouse’s) indexed earnings from ages 22 through 61 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population.

The real discount rate for accumulation of both contributions and benefits is 2 percent. Individuals who die before receiving Social Security benefits are included in the tabulations if they make payroll tax contributions and survive to at least age 30. To reduce the influence of extreme outliers, we cap the tax-benefit ratios at 99.

Payable and feasible projections assume that the reductions occur when the combined OASDI and DI trust funds fall below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

**Table A7: Percentage of Adult Beneficiaries with Total Income Less than 25 Percent of the Average Wage Index under NCFRR’s Proposal and Current Law in 2030, 2050, and 2070**

	2030				2050				2070			
	Current Law			NCFRR	Current Law			NCFRR	Current Law			NCFRR
	scheduled	feasible	payable		scheduled	feasible	payable		scheduled	feasible	payable	
<b>ALL</b>	1) 8.0	2) 8.0	3) 8.0	4) 8.3	1) 9.9	2) 11.9	3) 14.2	4) 10.6	1) 10.7	2) 12.9	3) 15.6	4) 11.7
<b>GENDER</b>												
<b>Men</b>	6.6	6.6	6.6	6.9	9.3	11.1	13.3	9.9	10.3	12.4	15.0	11.1
<b>Women</b>	9.2	9.2	9.2	9.5	10.4	12.5	15.0	11.2	11.1	13.4	16.2	12.3
<b>AGE</b>												
<b>18 - 34</b>	30.6	30.6	30.6	31.2	23.7	29.5	38.2	24.9	35.1	39.5	48.8	36.1
<b>35 - 49</b>	26.5	26.5	26.5	27.9	25.5	30.5	36.9	27.3	27.0	32.6	39.2	29.4
<b>50 - 59</b>	18.6	18.6	18.6	19.6	21.2	25.6	30.0	22.5	20.9	25.6	30.8	22.1
<b>60 - 61</b>	16.2	16.2	16.2	16.4	19.3	23.2	27.3	18.8	20.1	24.6	27.6	21.8
<b>62 - 64</b>	7.2	7.2	7.2	7.4	9.4	11.1	13.0	9.6	6.9	8.3	10.3	7.0
<b>65 - 69</b>	6.9	6.9	6.9	7.2	7.7	9.3	11.4	8.3	5.5	6.6	8.3	5.8
<b>70 - 74</b>	6.9	6.9	6.9	7.2	8.5	10.3	12.6	9.5	10.2	12.0	14.8	11.0
<b>75 - 79</b>	6.6	6.6	6.6	7.2	8.9	10.6	12.7	9.7	11.0	13.9	16.9	12.9
<b>80+</b>	6.7	6.7	6.7	6.8	10.0	11.8	13.8	10.4	12.2	14.4	17.2	13.4
<b>EDUCATION</b>												
<b>Not a high school graduate</b>	23.6	23.6	23.6	24.4	25.9	31.1	32.7	26.8	27.5	30.6	34.2	28.9
<b>High school graduate or some college</b>	8.0	8.0	8.0	8.4	10.2	13.6	14.7	10.9	12.9	15.6	19.0	14.2
<b>College graduate or more</b>	2.4	2.4	2.4	2.6	3.0	4.1	5.0	3.4	4.1	5.5	7.2	4.8

Source: Urban Institute Retirement Policy Program, based on DYNASIM3 (run 810).

Notes: The analysis uses individual rather than family benefits for individuals in married households, unless otherwise indicated, and excludes dependent benefits for non-aged spouses. Shared lifetime earnings are defined as the average of own (and, if married, spouse’s) indexed earnings from ages 22 through 61 (or year of disability, whichever is first). (The index used is Social Security’s Average Wage Index.) Quintiles are defined for the Social Security beneficiary population in the selected year by cohort, not the overall population. Tabulations reflect the adult Social Security beneficiary population for both current law and the option (i.e., individuals must collect benefits under both current law and the option).

Payable and feasible projections assume that the reductions occur when the combined OASDI and DI trust funds fall below zero (under the 2010 trustees’ assumptions). Reductions are applied identically to OASI and DI beneficiaries based on combined income and cost rates (rather than the income and cost rates for the particular trust fund from which benefits are paid).

**Table A8:** Comparison of “Ratio of Averages,” “Average Ratio,” and “Median Ratio” for Assessing Adult Social Security Benefits under NCFRR’s Proposal: Calculations Using Hypothetical Beneficiaries

**Scenario 1: Base case**

Person	Benefit under Current Law (CL)	Benefit under NCFRR	\$ change in benefit between CL and NCFRR	Ratio of NCFRR benefit to CL
1	500	550	50	1.10
2	700	720	20	1.03
3	1000	990	-10	0.99
4	1300	1200	-100	0.92
5	1500	1200	-300	0.80
<b>Average</b>	<b>1000</b>	<b>932</b>	<b>-68</b>	<b>0.97</b>

**Scenario 2: Better outcome than Scenario 1 for the individual with the lowest benefit, worse for the individual with the highest**

Person	Benefit under CL	Benefit under NCFRR	\$ change in benefit between CL and NCFRR	Ratio of NCFRR benefit to CL
1	500	600	100	1.20
2	700	720	20	1.03
3	1000	990	-10	0.99
4	1300	1200	-100	0.92
5	1500	1150	-350	0.77
<b>Average</b>	<b>1000</b>	<b>932</b>	<b>-68</b>	<b>0.98</b>

**Scenario 3: Better outcome than Scenario 1 for the individual with the highest benefit, worse for the individual with the lowest**

Person	Benefit under CL	Benefit under NCFRR	\$ change in benefit between CL and NCFRR	Ratio of NCFRR benefit to CL
1	500	500	0	1.00
2	700	720	20	1.03
3	1000	990	-10	0.99
4	1300	1200	-100	0.92
5	1500	1250	-250	0.83
<b>Average</b>	<b>1000</b>	<b>932</b>	<b>-68</b>	<b>0.95</b>

<u>Effects of Proposal</u>	<u>Scenario 1</u>	<u>Scenario 2</u>	<u>Scenario 3</u>
Median Ratio	0.99	0.99	0.99
Average Ratio	0.97	0.98	0.95
Ratio of Averages	0.93	0.93	0.93