# Changing Longevity, Social Security Retirement Benefits, and Potential Adjustments

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*Differential changes in life expectancies across lifetime earnings quartiles threaten to erode the intended progressivity of Social Security Old-Age and Survivors Insurance benefits. We use the Modeling Income in the Near Term microsimulation model to examine whether adjusting benefits can offset the effects of differential changes in projected life expectancy. We study two potential adjustments that allow all beneficiaries to realize lifetime benefit gains associated with the average increase in life expectancy while offsetting the disproportionate effects of the longevity differentials. Both adjustments would raise benefits for beneficiaries with lower lifetime earnings and reduce them for beneficiaries with higher lifetime earnings. The adjustments would reduce projected poverty rates among beneficiaries in the lower lifetime earnings quartiles with no increase in the official poverty rate for those in higher quartiles. The adjustments would also narrow the gap in lifetime benefits between individuals in the highest and lowest lifetime earnings quartiles.*

## Introduction

U.S. life expectancy is considerably longer than it was when the Social Security system was designed. Goldman and Orszag (2014) estimated that average life expectancy at age 65 for Americans born in 1960 will be about 3 years longer than that of the 1928 birth cohort. Goldman and Orszag also found that the greatest increases accrue to those in the top quartile of the lifetime earnings distribution; for example, for men, projected age-65 life expectancy increases by 4.0 years across those three decades while the corresponding increase for those in the bottom earnings quartile is 1.6 years. Similar patterns appear for women. In general, expected longevity has increased differentially for groups with varying levels of education, lifetime earnings, and wealth (Waldron 2007, 2013).

Americans collectively have benefited from the effect of increased average life expectancy on lifetime retirement benefits. Nonetheless, the differential increases in life expectancy and benefits aid some groups more than others, and that divergence alters the progressivity of the Social Security system because it results in a disproportionate increase in lifetime benefits for higher-earning individuals. Goldman and Orszag (2014) explored how the varying changes in life expectancy relate to differential lifetime Social Security benefits and found that significant reductions in program progressivity would arise if current mortality trends persist. In this article, we consider the distributional effects of potential adjustments to the Social Security benefit calculation that would account for differential longevity and estimate the effects of those adjustments relative to benefits scheduled under current law.

Such adjustments would aim to allow different groups to gain equally from societal advances in longevity. The proportional gain in benefits for

**Selected Abbreviations**

| | |
|---|---|
| MINT | Modeling Income in the Near Term |
| OASI | Old-Age and Survivors Insurance |
| PIA | primary insurance amount |

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individuals in groups that have experienced smaller gains in longevity would be increased, while those in groups with disproportionately greater increases in longevity would have their benefits reduced to offset those larger increases. We examine two methods of adjusting the benefit calculation, both of which account for differential longevity. The primary effect of both adjustments is to compress the distribution of benefit payments.

We use a microsimulation model to assess the effect of two longevity adjustments on Old-Age and Survivors Insurance (OASI) retirement benefits relative to benefit levels established in current law. Prior research has not considered effects relative to scheduled benefits. We find that the adjustments' modest increases in initial benefits for those with below-average life expectancies result in sizable decreases in poverty. The adjustments reduce benefits for groups with higher lifetime earnings and longer life expectancies but the simulations indicate no increase in official poverty associated with those reductions.

The article proceeds as follows. In the next section, we review the relevant literature. Then, a methodology section describes the Modeling Income in the Near Term (MINT) microsimulation model, the outcomes measured, and the adjustments evaluated. A section summarizing the results follows. The final section concludes and discusses the implications of the results.

## *Literature Review*

Americans' life expectancy has been increasing for a number of reasons, including improvements in living standards and medical care. Overall life expectancy at age 65 increased from 17.2 years in 1990 (that is, for the 1925 birth cohort) to 17.9 years in 2000, 19.1 years in 2010, and 19.5 years in 2018 (for the 1953 birth cohort). Both men and women experienced this trend. Men's life expectancy at age 65 increased from 15.1 years in 1990 to 16.3 years in 2000, 17.7 years in 2010, and 18.1 years in 2018. Women experienced similar increases, respectively from 18.9 years to 19.2, 20.3, and 20.7 years (National Center for Health Statistics 1994, Table 6-3; Arias 2002, Table 11; Arias 2014, Table A; Xu and others 2020, Figure 1).

Longer life expectancy has implications for the Social Security program. OASI benefits are received from claiming age until death, and as longevity increases, lifetime benefits paid increase as well. Increasing lifetime benefits may pose long-term financing problems for the program (National Academies of Sciences, Engineering, and Medicine 2015; Congressional Budget Office 2019; Board of Trustees 2020). In response, researchers have proposed a number of Social Security reform plans, such as raising the ages of eligibility for early and full retirement or indexing benefits for longevity (Social Security Advisory Board 2010; Olsen 2012; Congressional Budget Office 2015; Zissimopoulos and others 2017). More complex plans incorporate multiple provisions, such as altering early and full retirement ages based on expected longevity along with protections for low earners.[1] Other studies note that longer life expectancies alter the distribution of benefits across subgroups of beneficiaries and thereby may dilute the program's general progressivity (Poterba 2014; National Academies of Sciences, Engineering, and Medicine 2015; Government Accountability Office 2016).

Sandell and Iams (1997) found that individuals who had shorter lives also tended to earn less over their lifetimes. On average, the earnings records of individuals with shorter life expectancies generate lower benefit amounts, which the beneficiary receives for a shorter period. Benefits received by the widows of claimants who had low lifetime earnings also tend to be low because they are often based on the deceased worker's earnings history. This interrelationship is one of the drivers of high poverty rates among older widows.

Studies have also documented differing gains in life expectancy by socioeconomic status. Waldron (2007) used administrative tax records to show a widening gap in life expectancy at different points in the earnings distribution for men of successive birth cohorts in the first half of the 20th century. Other research has shown that individuals with higher earnings and education have experienced increasingly larger gains in life expectancy than those of workers with lower earnings and education (Montez and others 2011; Masters, Hummer, and Powers 2012; Olshansky and others 2012; Pijoan-Mas and Ríos-Rull 2014; Bound and others 2015; Bosworth, Burtless, and Zhang 2016).

This growing differential in life expectancy by socioeconomic status has ramifications both for the Social Security program and for an individual's lifetime benefits (National Academies of Sciences, Engineering, and Medicine 2015). One effect of the changing distribution of lifetime benefits is to reduce the program's progressivity (Goda, Shoven, and Slavov 2011; Burtless 2019). Goldman and Orszag (2014), using the Future Elderly Model, analyzed the effects of differential longevity on the progressivity of benefits and found an increasing gap in lifetime benefits across earnings quartiles. Bosworth, Burtless, and Zhang (2016) estimated mortality patterns from data in the Health and Retirement Study and the Survey of Income and Program Participation, finding evidence suggestive of widening gaps in lifetime benefits across socioeconomic status.

Individuals with low lifetime earnings also tend to claim retirement benefits earlier than do individuals with higher lifetime earnings. Benefits claimed prior to full retirement age (FRA) are adjusted by an actuarial reduction factor for each month by which the claiming age precedes FRA. The actuarial reduction factor is intended to allow claiming at all possible ages to result in lifetime benefits that are actuarially constant. Similarly, benefits claimed after reaching FRA are increased by a delayed retirement credit for each month claiming is deferred (until age 70) to compensate for the shorter duration of benefit receipt. Claiming-age choices affect initial monthly benefits (and would tend to widen differences between initial amounts across the distribution of lifetime earnings) but are not intended to affect lifetime benefits.

Along with potential benefit-calculation adjustments, prior research has considered alternative approaches to offsetting the effect of differential longevity. Couch and others (2017) used microsimulations to explore three potential approaches to adjusting benefit levels and eligibility criteria in ways that could address high poverty among older women, who tend to have had low lifetime earnings and to have been married to men who also had low earnings and relatively short life expectancies. The longevity adjustments analyzed here are similar to one of the three approaches examined in that study. Reznik and others (2019) likewise used microsimulations to consider the effect of combining longevity-adjusted benefit calculations with other policy measures such as raising the full retirement age. Both of those analyses showed that benefit adjustments based on differential increases in life expectancy across the lifetime earnings distribution reduce poverty among the groups with the lowest average lifetime earnings and education.

## Methods

This section consists of subsections addressing the microsimulation model we use, the outcomes we measure, and the particular adjustments we evaluate in this analysis.

### Microsimulation with MINT

This analysis is based on version 8 of the MINT microsimulation model (MINT8). MINT was developed with the goal of modeling the effect of the statutes governing Social Security Administration (SSA) programs and of potential changes to current laws and policies (Smith and Favreault 2019). The model enables researchers to evaluate outcomes such as benefit payments, household income, and poverty across a range of demographic variables including age, race, sex, marital status, and household composition. Because the Social Security system and potential changes to it affect future beneficiaries, the model is designed to project future outcomes.

MINT8 is based primarily on data from the 2004 and 2008 panels of the Census Bureau's Survey of Income and Program Participation linked to administrative records from SSA spanning the period 1951–2015. To calculate projected benefits, the model accounts for the detailed Social Security rules used in determining eligibility and benefit levels. Accordingly, the model simulates prospective aspects of employment and retirement experience, including an individual's years of work, earnings, periods of unemployment, contributions to pension plans, and dates of retirement and benefit claiming. The model also simulates life events such as marriage, divorce, remarriage, and having children, as well as family structure. In addition, the model projects the incidence of disabilities and death. Although the model also simulates many other individual circumstances, these are the core variables necessary to calculate retirement benefits.

The economic and demographic projections that underlie the MINT8 simulations used in this article are calibrated to the intermediate benchmarks of the 2019 annual report of the trustees of the Social Security trust funds (Board of Trustees 2019).[2] Panis and Lillard (1999), Smith and others (2010), and Smith and Favreault (2019) provide documentation on the development of many of the model's underlying simulation components, along with information on their accuracy.

We use MINT8 to consider the effect of two potential methods of adjusting the calculation of OASI benefits for individuals in four 10-year birth cohorts. The first method accounts for the average percentage change in life expectancy at age 65 for each 10-year birth cohort relative to the 1928 birth cohort and calculates the effect of benefit adjustments for individuals in each quartile of the lifetime earnings distribution. The second method accounts for average *years* of life expectancy at age 65 within a given cohort, rather than the first method's average *percentage* change in life expectancy from that of the 1928 cohort. We describe the two adjustments in more detail below. Our purpose is to highlight the effects of possible policy changes rather than to advocate any specific policy.

We run MINT8 microsimulations for OASI beneficiaries born in the period 1940–1979. We restrict the analysis to beneficiaries aged 60 or older who survive at least to age 65. We use age 60 as the lower bound because it is the earliest age of eligibility for OASI widow(er) benefits.[3] We exclude the ever-disabled population because their claiming behavior and benefit structure differ from those of individuals claiming retirement benefits, and examining potential movement of beneficiaries across programs is beyond the scope of this analysis. After applying these restrictions, we analyze a weighted population of more than 117 million beneficiaries.

### Outcomes

We examine four measures of the effect of the potential benefit-formula adjustments. First, we measure the effect on the initial benefit amount. Second, we calculate the effect on lifetime benefits. Third and fourth, we consider the effects on poverty rates under the Census Bureau's official and supplemental poverty measures.[4]

We express the initial benefit as the first monthly OASI benefit received at age 60 or older, so we exclude benefits received before age 60, such as those received as a child or as a widow(er) caring for the child of a deceased or disabled worker. Similarly, lifetime benefits reflect the cumulative amount received starting with benefits at age 60 and ending at death. The benefit amount includes retired-worker benefits, spouse benefits, and widow(er) benefits as applicable.[5]

Poverty rates are measured at age 70, when almost all beneficiaries have claimed benefits (because delayed retirement credits cease accumulating at that age). The official poverty measure requires the measurement of household income, which includes household earnings, asset income (comprising dividend, interest, and rental income reported on income tax returns), defined benefit pensions, means-tested and nonmeans-tested income, Social Security benefits, Supplemental Security Income payments, and nonspousal coresidents' income. The supplemental poverty measure accounts for additional income sources, such as government noncash benefits; and expenses, such as housing and out-of-pocket medical expenditures (Haveman and others 2015; Fox 2019).

We evaluate these outcomes by lifetime earnings quartiles based on average indexed monthly earnings (AIME) at age 65. AIME reflects the average of the individual's highest 35 years of wage-indexed earnings and is used in the Social Security benefit calculation.[6] We calculate the quartiles separately by sex and by cohort; thus, the quartiles are both sex- and cohort-specific.[7] We index the AIMEs to average wages in 2019, so AIMEs at different ages are comparable. This ensures that each quartile constitutes exactly 25 percent of the population.

### Adjustments Evaluated

As noted earlier, this analysis considers responses to widening longevity differentials in the form of two potential adjustments to the benefit formula. Each longevity adjustment is based on the expected age-specific mortality for individuals within the 10-year cohorts examined.[8] The first adjustment allows all individuals to experience the same proportional gain in life expectancy as the average person in their cohort, relative to individuals born in 1928. The second adjustment equalizes average life expectancy within each cohort. Each of these adjustments is based on the projected life expectancy within a cohort by lifetime earnings quartile and by sex. Adjustment factors are calculated separately for men and women and for each of the four 10-year birth cohorts: 1940s (1940–1949), 1950s (1950–1959), 1960s (1960–1969), and 1970s (1970–1979).

Table 1 summarizes the calculations for the first longevity adjustment. Average life expectancy at age 65 for all men born in 1928 is 15.1 years and from the lowest to highest earnings quartiles, life expectancy at age 65 ranges from 13.6 to 16.7 years (Goldman and Orszag 2014, Table 1). For men born in later cohorts, taking the 1940s as an example, life expectancy at age 65 ranges from 17.7 to 21.4 years across the earnings quartiles, and average life expectancy at age 65 is 19.4 years. Thus, men in the highest quartile would have a disproportionate gain in their lifetime benefits because their increase in longevity, relative to the same quartile in the 1928 cohort (4.7 years), exceeds that of men in the lowest quartile (4.1 years).

Life expectancy for a man in the lowest quartile of lifetime earnings in the 1940s cohort would have to exceed the life expectancy of a man in the same quartile of the 1928 cohort by 43 percent to match the 1940s cohort average life expectancy ($13.6 \times 1.43 = 19.4$). Instead, the life expectancy of a man in that quartile actually increased by 30 percent.

**Table 1.**
**Calculation of longevity adjustment 1, by sex, lifetime earnings quartile, and 10-year birth cohort**

| Calculation | Men | | | | | Women | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lifetime earnings quartile | | | | | Lifetime earnings quartile | | | |
| | Average | Lowest | Second | Third | Highest | Average | Lowest | Second | Third | Highest |
| 1928 cohort: Age-65 life expectancy (years) | 15.1 | 13.6 | 14.3 | 15.8 | 16.7 | 19.2 | 18.1 | 19.0 | 19.6 | 19.9 |
| ***1940s birth cohort*** | | | | | | | | | | |
| Age-65 life expectancy (years) | 19.4 | 17.7 | 18.8 | 19.8 | 21.4 | 22.0 | 20.4 | 21.3 | 22.3 | 24.1 |
| Percentage increase from 1928 cohort to— | | | | | | | | | | |
| This cohort's average | . . . | 43 | 36 | 23 | 16 | . . . | 22 | 16 | 12 | 11 |
| This cohort and quartile | . . . | 30 | 31 | 25 | 28 | . . . | 12 | 12 | 14 | 21 |
| Percentage-point difference between increases | . . . | 13 | 4 | -3 | -12 | . . . | 9 | 4 | -1 | -11 |
| Adjustment factor | . . . | 1.13 | 1.04 | 0.97 | 0.88 | . . . | 1.09 | 1.04 | 0.99 | 0.89 |
| ***1950s birth cohort*** | | | | | | | | | | |
| Age-65 life expectancy (years) | 20.2 | 18.7 | 20.2 | 20.1 | 21.6 | 23.3 | 21.2 | 22.6 | 24.1 | 25.4 |
| Percentage increase from 1928 cohort to— | | | | | | | | | | |
| This cohort's average | . . . | 48 | 41 | 28 | 21 | . . . | 29 | 23 | 19 | 17 |
| This cohort and quartile | . . . | 37 | 41 | 27 | 29 | . . . | 17 | 19 | 23 | 28 |
| Percentage-point difference between increases | . . . | 11 | 0 | 0 | -9 | . . . | 12 | 4 | -4 | -10 |
| Adjustment factor | . . . | 1.11 | 1.00 | 1.00 | 0.91 | . . . | 1.12 | 1.04 | 0.96 | 0.90 |
| ***1960s birth cohort*** | | | | | | | | | | |
| Age-65 life expectancy (years) | 20.7 | 18.8 | 20.4 | 21.0 | 22.7 | 23.1 | 20.0 | 23.1 | 23.8 | 25.5 |
| Percentage increase from 1928 cohort to— | | | | | | | | | | |
| This cohort's average | . . . | 52 | 45 | 31 | 24 | . . . | 28 | 22 | 18 | 16 |
| This cohort and quartile | . . . | 38 | 43 | 33 | 36 | . . . | 11 | 21 | 22 | 28 |
| Percentage-point difference between increases | . . . | 14 | 2 | -2 | -12 | . . . | 17 | 0 | -4 | -12 |
| Adjustment factor | . . . | 1.14 | 1.02 | 0.98 | 0.88 | . . . | 1.17 | 1.00 | 0.96 | 0.88 |
| ***1970s birth cohort*** | | | | | | | | | | |
| Age-65 life expectancy (years) | 21.0 | 18.4 | 20.8 | 22.3 | 22.5 | 23.1 | 19.9 | 22.5 | 24.1 | 26.0 |
| Percentage increase from 1928 cohort to— | | | | | | | | | | |
| This cohort's average | . . . | 54 | 47 | 33 | 26 | . . . | 28 | 22 | 18 | 16 |
| This cohort and quartile | . . . | 35 | 46 | 41 | 35 | . . . | 10 | 19 | 23 | 30 |
| Percentage-point difference between increases | . . . | 19 | 1 | -8 | -9 | . . . | 18 | 3 | -5 | -14 |
| Adjustment factor | . . . | 1.19 | 1.01 | 0.92 | 0.91 | . . . | 1.18 | 1.03 | 0.95 | 0.86 |

SOURCES: Goldman and Orszag (2014, Table 1) and authors' calculations using MINT8.

NOTES: Percentage-point difference values do not necessarily equal the differences between the rounded percentages shown.

. . . = not applicable.

This differential suggests that raising his currently scheduled benefits by 13 percent would enable him to experience the same proportional increase in lifetime benefits as others in his cohort.

Conversely, life expectancy for a man in the 1940s cohort's top earnings quartile would have to exceed that of a man in the same quartile of the 1928 cohort by 16 percent to match the 1940s cohort average (16.7 × 1.16 = 19.4). In fact, his quartile's life expectancy increased 28 percent over the average life expectancy for a man in the top quartile of the 1928 cohort. This differential suggests that his currently scheduled benefits would have to be reduced by 12 percent to offset the different longevity changes by quartile and thereby equal those of the 1940s cohort average.

Table 1 shows the conversion of the percentage-point differences to the adjustment factors. To recalculate benefits for men and women in each cohort and quartile, we multiply their primary insurance amounts (PIAs) by the appropriate adjustment factor. The PIA itself is calculated using a progressive formula based on the individual's AIME. Adjusting the PIA in this manner affects the calculation of benefits for the primary beneficiary, as well as for all auxiliary benefits associated with the beneficiary's earnings record, such as spouse and widow(er) benefits.[9]

Table 2 summarizes the calculation of the second set of adjustment factors, which would affect the PIA in proportion to the differences in the life expectancies across quartiles of lifetime earnings. The calculation of this adjustment factor is much simpler than the first, consisting only of the observed average life expectancy for the entire cohort divided by the life expectancy of the individual's lifetime earnings quartile. For example, for a man in the lowest earnings quartile in the 1940s birth cohort, we divide 19.4 by 17.7; for one in the highest quartile, we divide 19.4 by 21.4.

For men born in the 1940s, the first adjustment would increase the PIA of those in the lowest quartile by 13 percent and lower the PIA of those in the highest quartile by 12 percent (Table 1). By contrast, with the second adjustment, men in the lowest quartile of the 1940s birth cohort would have a 10 percent increase in their PIA and those in the highest quartile would have a 9 percent decrease (Table 2). Conceptually, the second method adjusts benefits only for expected future differences in longevity whereas the first method also incorporates an adjustment for past changes. Thus, the second method results in a smaller departure from scheduled benefits.

Under both adjustments, the PIA would increase for those with lower lifetime earnings and decrease for those with higher lifetime earnings. However, under the second approach, the adjustments would be somewhat smaller. We also observe that the adjustment for those with lower lifetime earnings is generally greater for members of more recent cohorts than for those in the earlier cohorts.

In presenting these potential adjustments, we acknowledge that they constitute only two of many alternative conceptual approaches to adjusting PIAs to offset differential longevity. We do not argue that either adjustment is truly correct. Rather, we demonstrate that adjusting for differential longevity with such methods would generally increase the PIA and retirement benefits for those with relatively low lifetime earnings and decrease those of individuals with higher lifetime earnings. We anticipate that, by either method, this approach would reduce the cross-quartile gap in lifetime benefits attributable to longevity gains and would reduce poverty by compressing the distribution of benefits.

## Results

We estimate the effects of these two potential adjustments on initial and lifetime benefits (in 2019 dollars) and on poverty rates under the official and supplemental measures.

Table 3 shows results for currently scheduled benefits without any adjustments. Overall, the median expected initial benefit is $1,358. The initial monthly benefit for the 1940s birth cohort ($1,259) is lower than that for the 1970s cohort ($1,465). We see a more dramatic differential in lifetime benefits across cohorts. Although the median lifetime benefits overall are $465,697, they are $409,373 for the 1940s cohort and $529,688 for the 1970s cohort. Regardless of cohort, median initial benefits are consistently higher for men than for women, which one would expect given men's higher lifetime earnings; however, the gap declines across cohorts, from an estimated $637 for the 1940s cohort to a far smaller $326 for the 1970s cohort. Under the official measure of poverty at age 70, the rate increases with each successive cohort for men and for beneficiaries overall; the rate increases for both men and women under the supplemental measure.

Table 4 shows the projected effect of the first longevity adjustment relative to the benefits scheduled under current law (shown in Table 3). The adjustment would result in virtually no net change in overall

**Table 2.**
**Calculation of longevity adjustment 2, by sex, lifetime earnings quartile, and 10-year birth cohort**

| Calculation | Men | | | | | Women | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Lifetime earnings quartile | | | | | Lifetime earnings quartile | | | |
| | Average | Lowest | Second | Third | Highest | Average | Lowest | Second | Third | Highest |
| | ***1940s birth cohort*** | | | | | | | | | |
| Age-65 life expectancy (years) | 19.4 | 17.7 | 18.8 | 19.8 | 21.4 | 22.0 | 20.4 | 21.3 | 22.3 | 24.1 |
| Adjustment factor | . . . | 1.10 | 1.03 | 0.98 | 0.91 | . . . | 1.08 | 1.03 | 0.99 | 0.91 |
| | ***1950s birth cohort*** | | | | | | | | | |
| Age-65 life expectancy (years) | 20.2 | 18.7 | 20.2 | 20.1 | 21.6 | 23.3 | 21.2 | 22.6 | 24.1 | 25.4 |
| Adjustment factor | . . . | 1.08 | 1.00 | 1.00 | 0.93 | . . . | 1.10 | 1.03 | 0.97 | 0.92 |
| | ***1960s birth cohort*** | | | | | | | | | |
| Age-65 life expectancy (years) | 20.7 | 18.8 | 20.4 | 21.0 | 22.7 | 23.1 | 20.0 | 23.1 | 23.8 | 25.5 |
| Adjustment factor | . . . | 1.10 | 1.02 | 0.99 | 0.91 | . . . | 1.15 | 1.00 | 0.97 | 0.91 |
| | ***1970s birth cohort*** | | | | | | | | | |
| Age-65 life expectancy (years) | 21.0 | 18.4 | 20.8 | 22.3 | 22.5 | 23.1 | 19.9 | 22.5 | 24.1 | 26.0 |
| Adjustment factor | . . . | 1.14 | 1.01 | 0.94 | 0.93 | . . . | 1.16 | 1.03 | 0.96 | 0.89 |

SOURCES: Authors' calculations using MINT8.

NOTES: Adjustment factor is the cohort-average age-65 life expectancy divided by the quartile age-65 life expectancy.

. . . = not applicable.

**Table 3.**
**Projected Social Security benefits and poverty under current law, by 10-year birth cohort, sex, and lifetime earnings quartile**

| Sex and lifetime earnings quartile | Sample size | Weighted population (in thousands) | Median benefit (2019 dollars) | | Age-70 poverty rate (%) | |
|---|---|---|---|---|---|---|
| | | | First monthly benefit | Lifetime benefits | Official measure | Supplemental measure |
| | | | ***Total*** | | | |
| All | 54,217 | 117,576 | 1,358 | 465,697 | 4.0 | 12.2 |
| Men | 24,650 | 56,858 | 1,606 | 474,391 | 3.7 | 11.4 |
| Women | 29,567 | 60,718 | 1,172 | 459,406 | 4.3 | 12.9 |
| Lowest | 14,028 | 29,396 | 716 | 245,018 | 12.8 | 26.9 |
| Second | 13,465 | 29,373 | 1,111 | 394,971 | 3.0 | 16.9 |
| Third | 13,462 | 29,419 | 1,650 | 562,323 | 0.0 | 4.3 |
| Highest | 13,262 | 29,387 | 2,326 | 761,613 | 0.0 | 0.6 |
| | | | ***1940s birth cohort*** | | | |
| All | 12,362 | 23,234 | 1,259 | 409,373 | 3.8 | 6.3 |
| Men | 5,632 | 11,079 | 1,642 | 424,537 | 3.0 | 5.5 |
| Women | 6,730 | 12,155 | 1,005 | 395,261 | 4.5 | 7.1 |
| Lowest | 3,212 | 5,809 | 652 | 226,454 | 11.8 | 14.9 |
| Second | 3,088 | 5,806 | 978 | 348,112 | 3.3 | 7.8 |
| Third | 3,085 | 5,811 | 1,537 | 485,303 | 0.1 | 2.3 |
| Highest | 2,977 | 5,808 | 2,073 | 623,308 | 0.0 | 0.3 |
| | | | ***1950s birth cohort*** | | | |
| All | 14,687 | 30,511 | 1,334 | 453,964 | 3.9 | 9.4 |
| Men | 6,588 | 14,468 | 1,581 | 453,133 | 3.6 | 9.1 |
| Women | 8,099 | 16,044 | 1,157 | 454,653 | 4.2 | 9.8 |
| Lowest | 3,709 | 7,628 | 703 | 247,802 | 11.7 | 21.2 |
| Second | 3,693 | 7,621 | 1,103 | 393,785 | 3.8 | 13.0 |
| Third | 3,668 | 7,637 | 1,606 | 534,481 | 0.0 | 3.2 |
| Highest | 3,617 | 7,625 | 2,237 | 699,797 | 0.0 | 0.4 |
| | | | ***1960s birth cohort*** | | | |
| All | 14,330 | 32,625 | 1,359 | 478,318 | 4.0 | 13.3 |
| Men | 6,641 | 15,867 | 1,554 | 482,172 | 3.9 | 12.1 |
| Women | 7,689 | 16,758 | 1,198 | 473,465 | 4.1 | 14.4 |
| Lowest | 3,629 | 8,155 | 733 | 254,953 | 13.1 | 29.9 |
| Second | 3,545 | 8,157 | 1,134 | 409,515 | 2.8 | 18.0 |
| Third | 3,561 | 8,158 | 1,679 | 577,824 | 0.1 | 4.6 |
| Highest | 3,595 | 8,156 | 2,345 | 805,608 | 0.0 | 0.7 |
| | | | ***1970s birth cohort*** | | | |
| All | 12,838 | 31,205 | 1,465 | 529,688 | 4.2 | 18.0 |
| Men | 5,789 | 15,444 | 1,639 | 537,268 | 4.0 | 17.1 |
| Women | 7,049 | 15,761 | 1,313 | 521,758 | 4.4 | 18.9 |
| Lowest | 3,478 | 7,804 | 764 | 246,926 | 14.4 | 38.2 |
| Second | 3,139 | 7,789 | 1,217 | 428,464 | 2.3 | 26.5 |
| Third | 3,148 | 7,813 | 1,836 | 641,648 | 0.0 | 6.6 |
| Highest | 3,073 | 7,799 | 2,696 | 929,332 | 0.0 | 0.9 |

SOURCE: Authors' calculations using MINT8.

NOTE: Weighted population totals do not necessarily equal the sum of counts by sex or lifetime earnings quartile because of rounding.

**Table 4.**
**Projected effect of longevity adjustment 1 on Social Security benefits and poverty, by 10-year birth cohort and lifetime earnings quartile**

| Lifetime earnings quartile | First monthly benefit: Change in median amount (2019 dollars) | First monthly benefit: Median individual percentage change | Lifetime benefits: Change in median amount (2019 dollars) | Lifetime benefits: Median individual percentage change | Change in age-70 poverty rate (percentage points): Official measure | Change in age-70 poverty rate (percentage points): Supplemental measure |
|---|---|---|---|---|---|---|
| ***Total*** | | | | | | |
| All | -9 | 0 | -5,211 | -1 | -0.6 | -0.6 |
| Lowest | 48 | 10 | 18,480 | 9 | -1.5 | -1.7 |
| Second | 29 | 2 | 11,513 | 1 | -1.1 | -1.2 |
| Third | -55 | -2 | -19,106 | -2 | 0.0 | 0.3 |
| Highest | -175 | -10 | -65,055 | -9 | 0.0 | 0.1 |
| ***1940s birth cohort*** | | | | | | |
| All | -8 | -1 | -3,577 | -1 | -0.4 | -0.7 |
| Lowest | 39 | 4 | 11,100 | 4 | -1.0 | -1.5 |
| Second | 36 | 3 | 13,765 | 3 | -0.8 | -1.3 |
| Third | -24 | -1 | -10,811 | -1 | 0.0 | -0.1 |
| Highest | -172 | -10 | -52,626 | -10 | 0.0 | 0.2 |
| ***1950s birth cohort*** | | | | | | |
| All | -17 | 0 | -6,656 | 0 | -0.4 | -0.5 |
| Lowest | 42 | 10 | 11,731 | 6 | -0.8 | -1.4 |
| Second | 17 | 3 | 6,823 | 0 | -1.0 | -0.8 |
| Third | -51 | 0 | -15,605 | 0 | 0.0 | 0.1 |
| Highest | -127 | -8 | -43,024 | -8 | 0.0 | 0.1 |
| ***1960s birth cohort*** | | | | | | |
| All | -4 | -1 | -5,535 | -1 | -0.7 | -0.8 |
| Lowest | 56 | 14 | 19,926 | 13 | -1.8 | -1.9 |
| Second | 27 | 0 | 8,233 | 1 | -1.2 | -1.5 |
| Third | -47 | -1 | -17,954 | -1 | 0.0 | 0.1 |
| Highest | -215 | -11 | -76,162 | -11 | 0.0 | 0.1 |
| ***1970s birth cohort*** | | | | | | |
| All | -19 | -4 | -10,780 | -5 | -0.9 | -0.5 |
| Lowest | 71 | 17 | 23,365 | 16 | -2.3 | -2.0 |
| Second | 20 | 1 | 7,138 | 1 | -1.3 | -1.1 |
| Third | -110 | -5 | -31,757 | -6 | 0.0 | 1.0 |
| Highest | -255 | -9 | -90,585 | -9 | 0.0 | 0.2 |

SOURCE: Authors' calculations using MINT8.

NOTE: Projected changes are estimated relative to benefits calculated using the current-law formula.

median initial monthly benefits. However, individuals in the lowest lifetime earnings quartile in any of the birth cohorts would see sizable increases in median initial monthly benefits. For example, in the lowest earnings quartile of the 1970s birth cohort, median initial monthly benefits would be $71 higher than current-law benefits, and the median individual percentage increase would be 17 percent.[10] In the highest quartile, median initial benefits would be reduced by $255, with a median individual percentage reduction of 9 percent. We observe similar results in each cohort. A general pattern clearly emerges of benefit increases in the lower quartiles of lifetime earnings, with larger increases for later cohorts, and benefit reductions in the higher quartiles.

We observe the same pattern for lifetime benefits. For example, for individuals in the lowest earnings quartile of the 1970s cohort, median lifetime benefits would increase by $23,365, and the median individual percentage increase would be 16 percent. For those in the top quartile, median lifetime benefits would decrease by $90,585 and the median individual percentage reduction would be 9 percent. As with the initial monthly benefit, the lowest quartile of the 1970s cohort would accrue the greatest increase in lifetime benefits.

The adjustment would reduce the official poverty rate overall and in each cohort. Further, poverty would be reduced in the two lowest quartiles, with no increase in the two highest quartiles. The reduction in poverty would affect all cohorts, becoming increasingly pronounced in the later cohorts. Some of the estimated poverty reductions are sizable. For example, in the 1970s birth cohort, longevity adjustment 1 reduces the official poverty rate for the lowest quartile by 2.3 percentage points.

For the supplemental poverty rate, we observe a similar pattern. Overall, the projected supplemental poverty rate would decline by 0.6 percentage points, the same as the projected effect on the official poverty rate. Likewise, the adjustment would reduce poverty for each cohort in the lowest quartiles and overall. In the 1940s birth cohort, for example, the adjustment would reduce the supplemental poverty rate for the lowest three quartiles, and the net effect for the entire birth cohort would be a reduction of 0.7 percentage points.

Table 5 shows the effects of the second longevity adjustment on retirement benefits relative to currently scheduled benefits. Adjustment 2 reduces the median initial monthly benefit by $7 overall—effectively, no change. Across cohorts, the pattern of changes in initial benefits under this adjustment is similar to that of the first adjustment. For example, in the lowest earnings quartile in the 1970s birth cohort, the increase in the median monthly initial benefit is $58 and the median individual percentage increase is 14 percent. In the highest quartile, the median benefit decrease is $189 and the median individual percentage reduction is 6 percent. Increases in initial benefits for those in the lowest earnings quartile, which become more pronounced in each successive 10-year cohort, are a consistent pattern. Decreases in initial benefits for those in the highest quartile, regardless of cohort, are a similarly consistent pattern.

These changes in initial benefits translate into a narrowing of the distribution of median lifetime benefits. For example, in the 1970s birth cohort, for those in the lowest earnings quartile, median lifetime benefits would increase by $18,730 and the median individual percentage increase would be 12 percent. For those in the highest quartile, median lifetime benefits would decrease by $68,696 and the median individual percentage reduction would be 6 percent. The patterns for poverty effects are similar to those of the first longevity adjustment.

Table 6 tabulates the effect of both longevity adjustments on projected benefits and poverty rates for men and women by lifetime earnings quartile and 10-year birth cohort. Broad patterns emerge of benefit reductions for workers with higher lifetime earnings and increases for those with lower earnings, regardless of sex and birth cohort. Substantial decreases in the official and supplemental poverty rates for beneficiaries with lower lifetime earnings, and little or no increase for those with higher lifetime earnings, appear in all four birth cohorts and for men and women alike. Because initial benefits are higher for men than for women, the dollar value of the benefit adjustment and the reductions in poverty are in most instances greater for men than for women. These patterns appear under either longevity adjustment.

**Table 5.**
**Projected effect of longevity adjustment 2 on Social Security benefits and poverty, by 10-year birth cohort and lifetime earnings quartile**

| Lifetime earnings quartile | First monthly benefit: Change in median amount (2019 dollars) | First monthly benefit: Median individual percentage change | Lifetime benefits: Change in median amount (2019 dollars) | Lifetime benefits: Median individual percentage change | Change in age-70 poverty rate (percentage points): Official measure | Change in age-70 poverty rate (percentage points): Supplemental measure |
|---|---|---|---|---|---|---|
| | | | ***Total*** | | | |
| All | -7 | 0 | -4,360 | -1 | -0.5 | -0.4 |
| Lowest | 40 | 7 | 14,774 | 6 | -1.2 | -1.2 |
| Second | 20 | 1 | 8,029 | 0 | -0.9 | -0.8 |
| Third | -45 | -2 | -15,429 | -2 | 0.0 | 0.2 |
| Highest | -135 | -8 | -49,944 | -6 | 0.0 | 0.1 |
| | | | ***1940s birth cohort*** | | | |
| All | -9 | -1 | -3,426 | -1 | -0.4 | -0.5 |
| Lowest | 32 | 3 | 9,645 | 3 | -0.9 | -0.9 |
| Second | 26 | 3 | 10,847 | 3 | -0.7 | -1.0 |
| Third | -19 | -1 | -9,125 | -1 | 0.0 | -0.1 |
| Highest | -136 | -8 | -41,707 | -8 | 0.0 | 0.2 |
| | | | ***1950s birth cohort*** | | | |
| All | -16 | 0 | -5,748 | 0 | -0.3 | -0.3 |
| Lowest | 33 | 7 | 8,325 | 4 | -0.7 | -0.9 |
| Second | 10 | 3 | 5,428 | 0 | -0.7 | -0.6 |
| Third | -41 | 0 | -11,404 | 0 | 0.0 | 0.0 |
| Highest | -92 | -6 | -33,507 | -6 | 0.0 | 0.0 |
| | | | ***1960s birth cohort*** | | | |
| All | -5 | -1 | -4,162 | -1 | -0.6 | -0.6 |
| Lowest | 49 | 10 | 15,534 | 10 | -1.3 | -1.6 |
| Second | 16 | 0 | 5,812 | 0 | -1.0 | -1.1 |
| Third | -40 | -1 | -14,639 | -1 | 0.0 | 0.0 |
| Highest | -172 | -8 | -56,842 | -8 | 0.0 | 0.1 |
| | | | ***1970s birth cohort*** | | | |
| All | -13 | -4 | -8,674 | -4 | -0.8 | -0.3 |
| Lowest | 58 | 14 | 18,730 | 12 | -1.9 | -1.5 |
| Second | 12 | 0 | 3,403 | 0 | -1.2 | -0.7 |
| Third | -81 | -4 | -24,407 | -5 | 0.0 | 0.8 |
| Highest | -189 | -6 | -68,696 | -6 | 0.0 | 0.1 |

SOURCE: Authors' calculations using MINT8.

NOTE: Projected changes are estimated relative to benefits calculated using the current-law formula.

**Table 6.**
**Projected effect of longevity adjustments 1 and 2 on Social Security benefits and poverty, by sex, 10-year birth cohort, and lifetime earnings quartile**

| Lifetime earnings quartile | First monthly benefit: Change in median amount (2019 dollars) | | First monthly benefit: Median individual percentage change | | Lifetime benefits: Change in median amount (2019 dollars) | | Lifetime benefits: Median individual percentage change | | Change in age-70 poverty rate (percentage points): Official measure | | Change in age-70 poverty rate (percentage points): Supplemental measure | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 |
| | | | | | | ***Men*** | | | | | | |
| | | | | | | *Total* | | | | | | |
| All | -14 | -6 | 0 | 0 | -538 | 110 | 0 | 0 | -0.9 | -0.6 | -0.7 | -0.5 |
| Lowest | 103 | 77 | 14 | 10 | 24,772 | 18,351 | 12 | 9 | -3.4 | -2.5 | -2.7 | -1.8 |
| Second | 24 | 18 | 1 | 0 | 8,436 | 6,529 | 1 | 0 | 0.0 | -0.5 | 0.0 | -0.5 |
| Third | -56 | -43 | -1 | -1 | -17,269 | -12,402 | -1 | -1 | 0.0 | 0.4 | 0.0 | 0.4 |
| Highest | -249 | -190 | -11 | -8 | -80,975 | -60,425 | -9 | -6 | 0.0 | 0.1 | 0.0 | 0.0 |
| | | | | | | *1940s birth cohort* | | | | | | |
| All | -30 | -20 | -2 | -2 | 4,937 | 5,418 | -2 | -2 | -0.5 | -0.7 | -0.4 | -0.5 |
| Lowest | 90 | 71 | 12 | 9 | 19,047 | 13,732 | 12 | 9 | -1.9 | -2.3 | -1.6 | -1.6 |
| Second | 60 | 45 | 4 | 3 | 15,760 | 11,588 | 4 | 3 | 0.0 | -0.9 | 0.0 | -0.8 |
| Third | -45 | -36 | -2 | -2 | -13,839 | -11,060 | -2 | -2 | 0.0 | 0.2 | 0.0 | 0.1 |
| Highest | -266 | -211 | -11 | -9 | -77,247 | -61,402 | -11 | -9 | 0.0 | 0.2 | 0.0 | 0.2 |
| | | | | | | *1950s birth cohort* | | | | | | |
| All | -2 | -2 | 0 | 0 | 191 | -907 | 0 | 0 | -0.7 | -0.6 | -0.6 | -0.4 |
| Lowest | 80 | 56 | 10 | 7 | 19,451 | 14,917 | 10 | 7 | -2.8 | -2.3 | -2.2 | -1.5 |
| Second | 0 | 1 | 0 | 0 | -1,260 | -1,096 | 0 | 0 | 0.0 | -0.2 | 0.0 | -0.2 |
| Third | 2 | 2 | 0 | 0 | 323 | 140 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Highest | -210 | -160 | -8 | -6 | -60,563 | -47,539 | -8 | -6 | 0.0 | 0.0 | 0.0 | 0.0 |
| | | | | | | *1960s birth cohort* | | | | | | |
| All | -1 | 4 | 0 | 0 | 5,275 | 3,246 | -1 | -1 | -1.0 | -0.8 | -0.7 | -0.6 |
| Lowest | 113 | 83 | 14 | 10 | 29,845 | 22,048 | 14 | 10 | -3.8 | -2.4 | -2.9 | -1.9 |
| Second | 32 | 22 | 2 | 1 | 9,911 | 7,181 | 2 | 1 | -0.1 | -0.7 | -0.1 | -0.7 |
| Third | -28 | -22 | -1 | -1 | -11,644 | -8,812 | -1 | -1 | 0.0 | 0.0 | 0.0 | 0.0 |
| Highest | -252 | -184 | -11 | -8 | -96,336 | -70,375 | -11 | -8 | 0.0 | 0.1 | 0.0 | 0.1 |
| | | | | | | *1970s birth cohort* | | | | | | |
| All | -25 | -16 | -4 | -4 | -7,597 | -5,102 | -7 | -5 | -1.1 | -0.4 | -0.9 | -0.3 |
| Lowest | 135 | 96 | 19 | 14 | 32,432 | 25,245 | 19 | 14 | -4.6 | -2.8 | -3.7 | -2.1 |
| Second | 14 | 11 | 1 | 0 | 5,313 | 3,782 | 1 | 0 | 0.0 | -0.4 | 0.0 | -0.3 |
| Third | -162 | -114 | -8 | -5 | -57,507 | -41,079 | -8 | -5 | 0.0 | 1.5 | 0.0 | 1.3 |
| Highest | -245 | -181 | -9 | -6 | -80,734 | -58,661 | -9 | -6 | 0.0 | 0.0 | 0.0 | 0.0 |

(Continued)

**Table 6.**
**Projected effect of longevity adjustments 1 and 2 on Social Security benefits and poverty, by sex, 10-year birth cohort, and lifetime earnings quartile—*Continued***

| Lifetime earnings quartile | First monthly benefit | | | | Lifetime benefits | | | | Change in age-70 poverty rate (percentage points) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Change in median amount (2019 dollars) | | Median individual percentage change | | Change in median amount (2019 dollars) | | Median individual percentage change | | Official measure | | Supplemental measure | |
| | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 | A1 | A2 |
| ***Women*** | | | | | | | | | | | | |
| *Total* | | | | | | | | | | | | |
| All | -23 | -17 | -1 | -1 | -10,815 | -8,285 | -2 | -2 | -0.5 | -0.6 | -0.4 | -0.4 |
| Lowest | 58 | 52 | 11 | 9 | 17,499 | 13,908 | 9 | 7 | -1.3 | -2.0 | -1.1 | -1.5 |
| Second | 11 | 9 | 3 | 2 | 3,522 | 2,859 | 1 | 1 | -0.7 | -1.1 | -0.5 | -0.8 |
| Third | -40 | -34 | -3 | -2 | -11,614 | -9,547 | -3 | -2 | 0.2 | 0.1 | 0.2 | 0.1 |
| Highest | -216 | -172 | -12 | -9 | -75,049 | -59,659 | -10 | -8 | 0.0 | 0.6 | 0.0 | 0.4 |
| *1940s birth cohort* | | | | | | | | | | | | |
| All | -5 | -5 | -1 | -1 | -6,039 | -3,892 | -1 | -1 | -0.4 | -0.6 | -0.3 | -0.4 |
| Lowest | 32 | 28 | 9 | 8 | 8,980 | 9,764 | 4 | 3 | -1.1 | -1.3 | -0.9 | -0.7 |
| Second | 6 | 9 | 3 | 3 | 4,696 | 4,454 | 3 | 3 | -0.5 | -1.3 | -0.5 | -1.0 |
| Third | -16 | -13 | -1 | -1 | -3,380 | -3,331 | -1 | -1 | 0.0 | -0.3 | 0.0 | -0.3 |
| Highest | -161 | -132 | -10 | -8 | -49,437 | -41,705 | -10 | -8 | 0.0 | 0.5 | 0.0 | 0.4 |
| *1950s birth cohort* | | | | | | | | | | | | |
| All | -11 | -10 | 0 | 0 | -11,824 | -9,038 | -2 | -1 | -0.2 | -0.4 | -0.1 | -0.3 |
| Lowest | 47 | 40 | 10 | 7 | 11,309 | 8,860 | 7 | 5 | -0.6 | -1.5 | -0.4 | -1.0 |
| Second | 20 | 17 | 3 | 3 | 6,923 | 5,275 | 2 | 2 | -0.7 | -0.9 | -0.6 | -0.7 |
| Third | -42 | -36 | -4 | -3 | -11,416 | -9,459 | -4 | -3 | 0.5 | 0.2 | 0.4 | 0.3 |
| Highest | -181 | -139 | -10 | -8 | -61,245 | -50,086 | -10 | -8 | 0.0 | 0.3 | 0.0 | 0.2 |
| *1960s birth cohort* | | | | | | | | | | | | |
| All | -27 | -24 | -1 | -2 | -12,806 | -8,918 | -2 | -2 | -0.5 | -0.8 | -0.4 | -0.7 |
| Lowest | 84 | 73 | 14 | 10 | 21,829 | 17,495 | 14 | 10 | -1.8 | -2.7 | -1.4 | -2.3 |
| Second | -3 | -3 | 0 | 0 | 837 | -1,123 | 0 | 0 | -0.5 | -1.4 | -0.3 | -1.1 |
| Third | -30 | -22 | -3 | -2 | -17,117 | -15,316 | -3 | -2 | 0.2 | 0.3 | 0.1 | 0.3 |
| Highest | -231 | -177 | -12 | -9 | -84,443 | -67,694 | -12 | -9 | 0.0 | 0.6 | 0.0 | 0.4 |
| *1970s birth cohort* | | | | | | | | | | | | |
| All | -25 | -22 | -4 | -4 | -14,507 | -10,360 | -4 | -4 | -0.7 | -0.5 | -0.6 | -0.4 |
| Lowest | 71 | 65 | 17 | 14 | 25,448 | 19,636 | 16 | 12 | -1.7 | -2.3 | -1.7 | -1.8 |
| Second | 22 | 23 | 3 | 2 | 7,410 | 6,054 | 3 | 2 | -1.0 | -0.8 | -0.7 | -0.5 |
| Third | -65 | -54 | -5 | -4 | -22,989 | -19,185 | -5 | -4 | 0.0 | 0.0 | 0.0 | 0.1 |
| Highest | -341 | -260 | -14 | -10 | -120,757 | -93,085 | -14 | -10 | 0.0 | 1.0 | 0.0 | 0.7 |

SOURCE: Authors' calculations using MINT8.

NOTES: Projected changes are estimated relative to benefits calculated using the current-law formula.

A1 = adjustment 1; A2 = adjustment 2.

## Discussion and Conclusion

Studies have shown that differential increases in life expectancy across lifetime earnings levels alter the progressivity of lifetime Social Security retirement benefits (Waldron 2007, 2013; Goldman and Orszag 2014). Workers with relatively low life expectancies at age 65 also tend to have lower lifetime earnings, lower benefit amounts, and higher poverty rates. Thus, adjusting the benefit formula to offset changes in lifetime benefits driven by differential life expectancy could address unintended trends in system progressivity and old-age poverty.

This article explores two particular examples of one conceptual approach to adjusting benefits for differential life expectancy. Both adjustments aim to allow any given beneficiary to receive about the same relative advantage from increasing societal life expectancies. The first adjustment would increase or reduce an individual's benefits by a factor that would match that of a beneficiary with the cohort-average life expectancy relative to that of an earlier birth cohort. The second adjustment allows each individual in a given cohort to collect longevity-adjusted benefits by equalizing average life expectancy within the cohort. Both adjustments increase benefits for individuals in the lowest quartiles of the lifetime earnings distribution and decrease benefits for those in the highest quartiles. Thus, the distribution of benefits is compressed.

The analysis shows that these adjustments would affect currently scheduled benefits as anticipated, and the effect would expand for successive cohorts because the longevity gap by socioeconomic status is projected to widen. Poverty rates based on both the official and supplemental measures would decline for those at the bottom of the lifetime earnings distribution. In the higher earnings quartiles, poverty rates would be unaffected under the official poverty measure and would increase incrementally under the supplemental measure. Using either measure, overall poverty would decline.

This research extends prior work studying benefit adjustments for differential gains in longevity. Those analyses considered benefit adjustments for differential mortality as one approach among a range of policies that might be employed in response to poverty among older women (Couch and others 2017) or in conjunction with other measures intended to address increasing life expectancy, such as raising the full retirement age (Reznik and others 2019). Here, we project the effect of adjustments relative to currently scheduled benefits. All of these analyses show that adjusting benefits to account for differential mortality reduces poverty primarily by increasing benefits for those with the shortest life expectancies.

Although the microsimulation methods used in the analysis are sophisticated and incorporate many factors, they rely primarily on historical patterns of individual earnings and mortality. Recent events such as the COVID-19 pandemic have clearly altered patterns of employment (Couch, Fairlie, and Xu 2020) and mortality. Although this analysis does not reflect these recent changes, we expect that the general effect of the types of adjustments analyzed here would nonetheless be similar if we were able to account for them. Even so, the results of this study should be qualified as not reflecting the effects of COVID-19. Once the patterns wrought by the pandemic have become clearer, reconsidering the effect of this type of benefit adjustment would be appropriate.

Finally, this analysis does not consider the Disability Insurance and Supplemental Security Income programs. For individuals who have disabilities that would qualify them for these programs, one might anticipate higher mortality than that of the general population, and that these individuals would have relatively low lifetime earnings. Thus, adjustments to the calculation of benefits, similar to those considered here, might also address differential longevity for disabled individuals. Future studies might analyze the effect of benefit adjustments based on differential changes in mortality to examine the potential implications for disability-program enrollment.

## Notes

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[1] The 2010 National Commission on Fiscal Responsibility and Reform, also known as the Simpson-Bowles Commission, is a notable example. For an analysis of that plan's major provisions, see https://www.ssa.gov/OACT/solvency/FiscalCommission_20101201.pdf.

[2] The base version of MINT8 was calibrated to the intermediate assumptions of Board of Trustees (2018). In 2019, SSA's Office of Research, Evaluation, and Statistics updated MINT8 to the intermediate assumptions of Board of Trustees (2019); this article uses that updated version.

[3] Although widow(er)s younger than 60 may qualify for benefits based on care of the deceased beneficiary's dependent child(ren), we restrict the sample to individuals aged 60 or older for uniformity.

[4] For discussions of the implications of using one poverty measure versus the other, see Fox and others (2015) and Haveman and others (2015).

[5] The estimated initial benefit and lifetime benefits exclude the Social Security lump-sum death benefit (https://www.ssa.gov/planners/survivors/ifyou.html#h7) and parent's benefits (https://www.ssa.gov/pubs/EN-05-10036.pdf). Further, records with missing benefit values are not included in the results.

[6] For a detailed description of the AIME calculation, see https://www.ssa.gov/OACT/COLA/Benefits.html#aime.

[7] In calculating the quartiles, we converted AIMEs with missing values to zeros. One potential implication of doing so is that lifetime access to economic resources could be understated for women with high-earning spouses.

[8] This contrasts with period-specific mortality, which would examine outcomes if each individual shared the mortality of all individuals alive at that time.

[9] Recall that this set of adjustment factors is based on a comparison of the life expectancy of the 1928 birth cohort calculated in Goldman and Orszag (2014) with life expectancies for the 1940s, 1950s, 1960s, and 1970s birth cohorts that we calculate using MINT8. However, we exclude the ever-disabled population in the calculation of life expectancy, whereas Goldman and Orszag included that group. This difference may affect the comparisons because the life expectancy of the ever-disabled population is lower, on average, than that of the general population. If we had included the ever-disabled population, the percentage increase in life expectancy would presumably be smaller, thus reducing the size of the adjustment factors and the benefit increases/decreases for the lower/higher quartiles. However, testing the validity of that supposition was beyond the scope of this analysis.

[10] Rather than computing the percentage difference between the median *dollar amounts* of scheduled and adjusted benefits, we calculate the median *percentage change* in individual benefits. First, we compute the percentage difference between scheduled and adjusted benefits for each individual in the sample. Then, we determine the median among those individual percentage differences.

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