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Assuming a 15 percent decline in the Social Security Administration's measure of economywide average wages in 2020, a middle-income worker born in 1960 could have his annual Social Security benefits in retirement reduced by around 13 percent, with losses over the retirement period in excess of \$70,000.

Methods of addressing this problem are discussed, including both ad hoc adjustments applying only to affected cohorts, and also permanent changes to the benefit formula to prevent similar benefit "notches" from occurring in the future.

Keywords

retirement, Social Security, Coronavirus, payroll contraction

Disciplines

Economics

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As a group, retirees are more financially insulated from the economic effects of the COVID-19 pandemic than are most other demographic groups in the United States. Yet due to how the Social Security benefit formula interacts with the sharp economic downturn due to the Coronavirus, some groups of near-retirees are likely to suffer substantial permanent reductions to their Social Security retirement benefits. Assuming a 15 percent decline in the Social Security Administration's measure of economywide average wages in 2020, a middle-income worker born in 1960 could have his annual Social Security benefits in retirement reduced by around 13 percent, with losses over the retirement period in excess of \$70,000. Methods of addressing this problem are discussed, including both *ad hoc* adjustments applying only to affected cohorts, and also permanent changes to the benefit formula to prevent similar benefit “notches” from occurring in the future.

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Introduction

The Coronavirus (or COVID-19) is shuttering multitudes of U.S. businesses as government moves to stem the spread of the deadly disease. As a result, unemployment claims in the spring of 2020 have risen dramatically, and employee payrolls are dropping sharply. In response, policymakers are working to enact measures to help the individuals and businesses harmed by quarantine-like policies. As a group, U.S. retirees are relatively financially insulated from the economic, if not the health, effects of COVID-19. Most retirees are no longer working and so not at risk of unemployment, and most retirees also have a steady and inflation-adjusted source of income via Social Security. Moreover, analysis of the 2008-9 Great Recession generally concluded that retirees fared well relative to working-age households (Gustman et. al., 2012), although retirees are more subject to asset price fluctuations compared to working-age households who need not access their retirement savings until some future date.

Nevertheless, the sudden decline in 2020 in average U.S. earnings could also lead to a permanent and substantial cut in Social Security retirement benefits for rear-retirees born in 1960, and hence who are age 60 in 2020. These reductions result from how the Social Security benefit formula interacts with what is anticipated to be a sharp contraction in payroll earnings in 2020. In what follows, I use a set of stylized workers to simulate the effects of these declines on the benefits of Americans in the 1960 birth cohort. I predict substantial losses in both dollar and percentage terms at all wage levels. I discuss several methods by which policymakers might address this benefit loss, should they choose to do so. Depending on the duration of the economic downturn, smaller benefit reductions are also possible for succeeding birth cohorts, at least until average economy-wide wages recover to their previously projected levels.

Wage-Indexing in the Social Security Benefit Formula

In simplest terms, the Social Security program replaces a progressive percentage of a retiring worker's career-average earnings, with low earners receiving a higher replacement rate of pre-retirement earnings compared to high earners. Yet how the Social Security benefit formula measures a person's career-average earnings, and how Social Security's progressive replacement

rates are implemented, depend on the growth of average earnings in the economy. A sharp decline in economywide wages can have unanticipated negative effects on the Social Security benefits of workers nearing retirement age.

To compute an individual's Social Security benefit, one must first calculate a measure of each worker's career-average salary, referred to as the Average Indexed Monthly Earnings (AIME). The worker's annual nominal earnings each year are indexed to economywide earnings as of the year the worker turns age 60, which is accomplished by multiplying the annual nominal earnings by the ratio of the national Average Wage Index (AWI) in the year the worker turns 60 to the AWI in the year the nominal earnings were paid. The AWI is the Social Security Administration's measure of the average wages earned by workers covered by Social Security in every given year. Any earnings received after age 60 are not indexed, but instead they enter the benefit formula in nominal terms.

After past earnings are indexed for wage growth to age 60, the Social Security benefit formula selects the highest 35 years of earnings (including any nominal earnings taking place after age 60). The average of those highest 35 years of earnings is then divided by 12 to produce a monthly figure referred to Average Indexed Monthly Earnings (AIME).

Next, Social Security calculates the worker's Primary Insurance Amount (PIA) based upon his AIME. The PIA is the basic worker benefit that would be payable if the individual claimed at the Normal Retirement Age, which for workers currently age 60 in 2020 will be age 67. For a worker who is turned age 60 in 2018 and retires at the Normal Retirement Age, the Primary Insurance Amount will equal 90 percent of his first \$960 in Average Indexed Monthly Earnings, 32 percent of monthly earnings between \$960 and \$5,785 and 15 percent of earnings between \$5,785 and \$9,875 (the latter is the maximum average monthly earnings subject to payroll taxes).¹ The dollar values assigned to each percentage replacement factor (known as "bend points") are increased annually along with average wages in the economy. For the 1960 birth cohort, the bend point values used to calculate their benefits will be equal to the values in use in 2020 adjusted by the growth of the Average Wage Index between 2018 and 2020.²

¹ The Social Security Administration provides bend point dollar values by year of retirement on its website. <https://www.ssa.gov/oact/cola/bendpoints.html>

² There is a roughly two-year lag in applying the Average Wage Index to the Social Security benefit formula. The AWI value for a given year is generally published in the Federal Register in the autumn of the following year. Beginning in January of the second year, wage-indexed values are applied to beneficiaries beginning in the year following that. For instance, beginning in January 2020 the bend point values used to calculate benefits for

While the AIME indexes pre-retirement earnings through age 60, the bend point formula is wage-indexed and frozen in place as of age 62. The benefit calculated using the PIA formula is then increased to the age of retirement according to the annual Social Security Cost of Living Adjustments (COLAs), which are based upon changes in the CPI-W. Benefits are reduced for early retirement, and increased for claiming after the Normal Retirement Age (up to age 70).

How Much Will the Average Wage Index Fall?

Both the AIME and PIA formulas are indexed to the Social Security's Average Wage Index. Understanding how the AWI is computed is far from straightforward. To start, the Social Security Administration divides aggregate payroll earnings each year by the number of workers who receive IRS W-2 tax forms (Clingman and Kunkel, 1992). Yet the resulting figure is not itself the Average Wage Index. Instead, annual percentage changes in this intermediate figure are applied to a base dollar value set in 1977. This approach was adopted to maintain the continuity of the wage indexing series despite a change in the wage measurement methodology that occurred in that year; this change resulted in somewhat different economywide average wages being reported. SSA maintains that as long as the percentage changes in the AWI series are accurate over time, this methodology will satisfy the spirit and purpose of the Social Security benefit formula.

For 2018, the most recent year for which data are available, the AWI was \$52,146.³ The Social Security Trustees Report (2019) projected that the nominal AWI for 2020 would be \$56,396, or 8 percent higher. This is highly likely to be overstated due to the Coronavirus-related economic downturn.

How big a decline there will be in the Average Wage Index is uncertain, but it could be substantial due to the manner in which changes in the AWI are calculated. The number of W-2s issued in 2020 is not likely to decline very much, because employment was high from January through March of 2020, but earnings are dropping sharply as layoffs and furloughs take effect. This implies that that the aggregate payroll total for 2020 will be substantially below what the 2019

individuals who turned 62 in that year are \$960 and \$5,785. In January 2021 those values will be adjusted by the percentage change in the Average Wage Index between 2018 and 2019. In January 2022, the year the 1960 birth cohort turns 62, the bend points will be further adjusted for the percentage change in the AWI between 2019 and 2020. The Social Security Administration's October 2019 Federal Register announcement is available at: <https://www.federalregister.gov/documents/2019/10/22/2019-22921/cost-of-living-increase-and-other-determinations-for-2020>

³ Figures are taken from the Social Security Administration's website: <https://www.ssa.gov/oact/cola/AWI.html>

Trustees Report projected. Accordingly, the Average Wage Index for 2020 is likely to fall far short of the level projected in the 2019 Trustees Report.

At the time of this writing, governmental agencies such as the Congressional Budget Office and the Office of Management and Budget had not yet published projections of how they believe the Coronavirus and associated policy responses will affect economic activity through 2020 and beyond. Analysts at Goldman Sachs have projected a second quarter 2020 decline in gross domestic product of 24 percent, while analysts at JP Morgan project a 30 percent decline (Kennedy, 2020). As these changes show up in labor earnings, they will be passed through to Social Security beneficiaries via the Social Security benefit formula's wage-indexing features.

Modeling the Effect of Average Wage Declines on Social Security Benefits

To examine the possible impact of this phenomenon, I assume for illustrative purposes that GDP shrinks from the first quarter of 2020 to the second by the 24 percent projected by Goldman Sachs. I also assume that GDP remains level through the third quarter of 2020, and then it recovers by 15 percent in the fourth quarter. This produces average GDP in 2020 about 15 percent below levels in the first quarter of the year. I further posit that average labor earnings follow that same pattern. I further assume that economic recovery continues in 2021, such that GDP and wages are 10 percent below the 2019 Trustees Report forecasts, five percent below forecasts in 2022, and return to 2019 Trustees Report projected levels by 2023. Clearly these assumptions embody extreme uncertainty, but they do serve to illustrate how a decline in average economy-wide wages can affect the Social Security benefits of Americans nearing retirement.

To illustrate the potential impact of such a sudden contraction in payrolls, I utilize the stylized earnings patterns generated by the Social Security Administration's Office of the Chief Actuary. These so-called "scaled earners" are intended to represent typical lifecycle earnings patterns and they range from "very low" earners at about one-quarter of the national average wage level, to "medium" at about the national average wage, to "maximum" earners where individuals are assumed to earn the maximum wage subject to Social Security payroll taxes in each year of their working careers (Clingman and Burkhalter, 2015). Each scaled earner type is posited to earn a given percentage of the Average Wage Index at each age throughout his working career. In years when the AWI is assumed to decline due to the Coronavirus shock, scaled earners' earnings also are assumed to fall.

I illustrate using the stylized workers born in 1960 who entered the workforce in 1982, and are expected to work continuously through age 66 and claim Social Security benefits at the Normal Retirement Age of 67 in 2027. These workers are currently age 60, the age at which the Average Wage Index is locked in for the purposes of indexing their prior earnings to the growth of national average wages. Nominal annual earnings for the scaled workers are shown in Figure 1, based on historical AWI and AWI projections contained in the 2019 Social Security Trustees Report.

A decline in the Average Wage Index versus previously forecasted levels affects the benefit formula for Americans born in 1960 in two ways. First, a lower AWI for 2020 reduces the value of the 1960 cohort's Average Indexed Monthly earnings. In percentage terms, a shortfall in the AWI versus previously forecast levels does not reduce AIME's on a one-for-one basis, because earnings after age 60 are included in the AIME calculation in nominal terms. However, the impact remains significant. Other things equal, a lower AIME will result in lower Social Security benefits in retirement.

Second, lower growth of the Average Wage Index is also carried through to the Social Security bend points used to designate the dollar values of AIME that are replaced on a 90, 32, or 15 percent basis. I simulate these effects by starting with the bend point values for 2020, which are used to calculate benefits for individuals aged 62 in this year. The 2020 bend points dictate that Social Security replaces 90 percent of the first \$960 in AIME, 32 percent of AIME between \$960 and \$5,785, and 15 percent of AIME in excess of \$5,785. To calculate benefits for the 1960 birth cohort, I adjust the bend point dollar values by the change in the model's AWI from 2018 through 2020. For the current law baseline, the model projects benefits for the 1960 birth cohort very similar to those published in the 2019 Social Security Trustees report, differing from the Report's published estimate for a medium wage worker by less than one percent.

For each scaled earner type, I next report the dollar value of annual benefits under the 2019 Trustees Report assumptions, as well as under my own assumptions regarding declines in the Average Wage Index. I also report percentage changes in annual benefits and changes in lifetime benefits. I then discount lifetime benefits assuming a zero percent real interest rate, which is approximately the yields currently available on Treasury Inflation Protected Securities.

Compared to the baseline simulations using 2019 Trustees Report assumptions, the assumed lower economy-wide average wages from 2020 through 2020 reduce the Average Indexed Monthly Earnings of scaled earners from very low to high earnings by 13.1 percent, and

for maximum wage workers by 12.5% (Table 1).⁴ However, the entire percentage reduction of the AIME is not carried through to benefits. Nevertheless, annual retirement benefits will be lower by between 13.6 percent and 14.3 percent, depending upon the earnings level of the scaled earner. For a medium wage worker, annual retirement benefits will fall by \$3,900.

Next I calculate changes in lifetime benefits assuming differential mortality by lifetime earnings levels, such that a very low earner is assumed to survive for 13 years past retirement at age 67, a medium wage worker 18 years, and a maximum wage worker 23 years (Biggs, 2019). For a medium wage earner, lifetime benefits will fall by \$70,193 in present value. Lifetime losses to a very low wage worker are \$24,647; and the maximum wage earner loses \$148,030 (Table 1). If uniform post-retirement mortality were assumed, the dollar value of benefit losses to lower-earning workers would increase and for higher-earning workers the losses would be less.

Policy Options and Discussion

Such a sharp discontinuity in benefits between two succeeding cohorts of Social Security participants creates what is referred to as a “notch.” A notable prior notch occurred in the 1970s, when efforts to correct an error in the Social Security benefit formula resulted in lifetime benefits approximately \$6,100 lower to retirees born in 1917 compared to similar participants born in 1916. Despite the fact that the correction to the Social Security benefit formula at that time was necessary, the notch was widely perceived as unfair and for years affected cohorts lobbied (albeit without success) for increases in their benefits. Similarly, it would not be surprising if members of the 1960 birth cohort similarly lobbied for redress. For this reason, policymakers may wish to consider what, if any, policy changes might be needed.

One option would be to do nothing. Gelber et al. (2016) used Social Security administrative data to examine how the Social Security “notch” of the early 1980s influenced the earnings of individuals in the 1917 birth cohort versus the 1916 birth cohort. Those authors found that members of the 1917 cohort made up for lower Social Security benefits by increasing their work and earnings, sufficient to offset roughly half the decline in Social Security benefits. Of course, the averages do not imply that certain beneficiaries did not suffer significant reductions to their

⁴ The maximum wage worker’s earnings follow a different pattern from the very low through high-wage earner, which accounts for the difference in how AIMEs are affected.

retirement income adequacy (particularly lifetime low earners with few sources of income outside of Social Security benefits and potentially less ability to prolong their worklives).

Should policymakers wish to address the forecasted benefit cuts for Social Security participants age 60 in 2020, several options are available. One would be to legislate an *ad hoc* benefit increase for members of that cohort, perhaps paid as a flat dollar amount in order to more fully offset the benefit loss for lower-wage participants than for higher earners. For instance, a flat benefit supplement of \$125 per month would restore very low wage workers' benefits to approximately the amounts projected for that group in 2019, and it would also reduce the benefit cut for a medium wage worker by over half.

A second option would be to temporarily alter the Social Security benefit formula to reduce the effects of the decline in the Average Wage Index expected for 2020. For instance, the 2020 AWI could be based on payrolls for just the first quarter of 2020, before Coronavirus-related job losses became large. This would not be unusual since, until 1977, the AWI was actually calculated based only on first quarter earnings data. Social Security payroll tax receipts in February 2020 were about 5.4 percent above those of February 2019, indicating strong wage growth over that period.⁵

Yet using a 2020 AWI calculated only on first quarter earnings data would still leave open benefit reductions for members of the 1961 birth cohort who turn age 60 in 2021. It is likely that the AWI for 2021 will still be substantially below the levels predicted for it in the 2019 Social Security Trustees Report. Nevertheless, a temporary fix for the 1960 cohort would give policymakers an additional year during which they could consider the necessity and form of other changes. Over time, wages will presumably return to baseline levels and Social Security benefits in the long run will be relatively unaffected by the Coronavirus recession of 2020.

A third option would be to move away from wage indexing of the benefit formula, as part of a larger reform to address Social Security's financing. Wage-indexing of a near-retiree's prior earnings effectively makes them comparable to current earnings received by workers at similar points of the wage distribution. For instance, the AIME for a medium wage worker retiring in a given year is very close to AWI for workers in that same year, despite the fact that the inflation-adjusted average lifetime earnings of the newly-retiring worker were likely to have been

⁵ Based upon the Social Security Administration Office of the Chief Actuary's online database, available at <https://www.ssa.gov/OACT/ProgData/allOps.html>

substantially lower than the AIME in the year he retired. Yet those nearing retirement tend to be most concerned with whether they can maintain their own pre-retirement standards of living, not how their benefits compare to pay earned by today's workers. This is not to argue that Social Security benefits in dollar terms should be dramatically lower or higher than the benefits paid under the current benefit formula. Rather, the benefit formula could productively target the level of real earnings received by workers over their careers, rather than introducing the complex and confusing intermediate step of indexing those earnings for the growth of economywide wages.

In addition, as we have shown, wage-indexing of career-average earnings makes that career-average susceptible to a large change in earnings in the single year to which past earnings are wage-indexed. As we have shown, when the Average Wage Index in year falls below projected levels by a given amount, earnings in all past years are also reduced by a similar percentage. By contrast, if earnings in the Social Security benefit formula were indexed to inflation, instead, a decline in earnings in the indexing year would affect career-average earnings only by the amount of that decline, divided by the total number of years of earnings.

For instance, the Social Security benefit formula might first adjust a claimant's prior earnings for inflation, and then calculate the inflation-adjusted average of pre-retirement earnings. Unlike the AIME, the inflation-adjusted average of pre-retirement earnings represents the buying power of wages received by the worker over his career, and thus is closely related to the standard of living enjoyed by the worker over that period. The inflation-adjusted average of pre-retirement earnings is generally lower than the AIME, so the 90, 32 and 15 percent replacement factors attached to the Social Security bend points would need to be adjusted upward to maintain the dollar value of Social Security benefits. The dollar value of current law scheduled benefits for a medium wage worker currently age 60 could be replicated by paying a benefit equal to 53 percent of inflation-adjusted average wages from ages 22 through 66. The 2020 and following wage decline I modeled above would reduce the inflation-indexed average of lifetime earnings for the medium wage worker by only 0.7 percent. Assuming a progressive benefit formula, benefits would decline for a medium wage worker by less than 0.7 percent.

Nevertheless, even if wage-indexing of pre-retirement earnings were to be replaced with price-indexing of those earnings, the Social Security bend points would likely need to continue to be wage-indexed. Average pre-retirement earnings, whether indexed for wage growth or price growth, tend to grow over time at the rate of wage growth. If replacement rates are to remain

constant over time, the bend point dollar amounts would need to be increased annually along with the growth of average earnings.

Conclusion

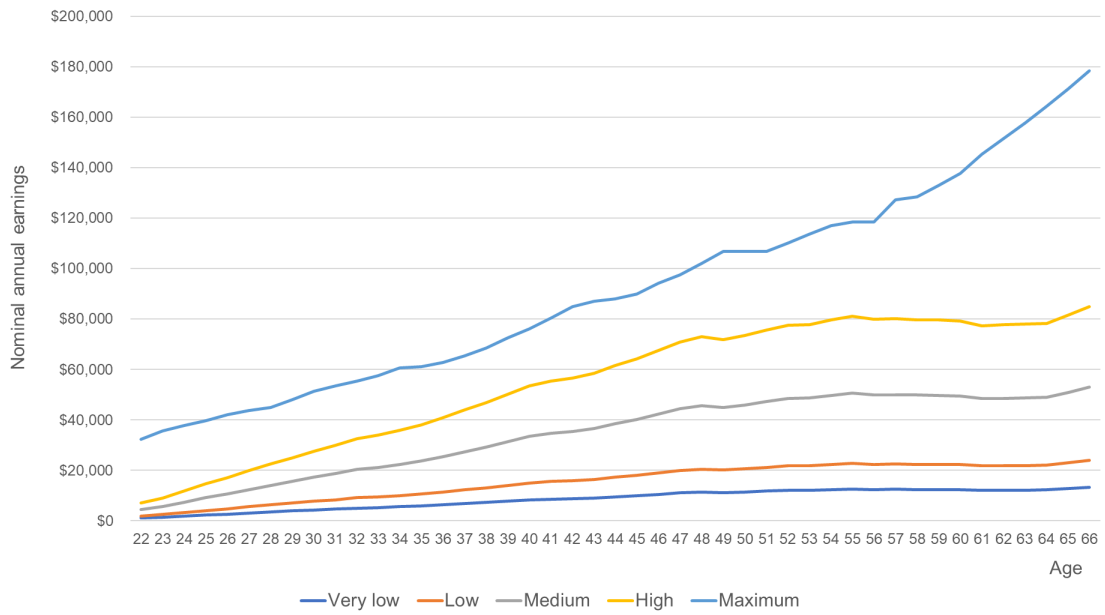
Social Security's benefit formula is indexed for the growth of average wages in two ways, producing permanent benefit reductions when average wages drop substantially for Americans nearing retirement. Due to the Coronavirus-induced recession, Social Security's Average Wage Index will fall in 2020, resulting in 13 percent lower annual retirement benefits for individuals born in 1960 compared to what the 2019 Social Security Trustees Report projected.

Policymakers can enact *ad hoc* changes to the Social Security benefit formula to counteract these benefit cuts. Nevertheless, a more comprehensive reform would replace the wage-indexed career-average earnings in the Social Security benefit formula with inflation-indexed career-average earnings, coupled with an increase in the 90, 32, and 15 percent bend points to maintain the dollar level of benefits. Inflation-indexed earnings are more closely tied to workers' retirement planning goals, and a Social Security benefit formula using price-indexed earnings would be far less prone to imposing large benefit cuts due to a sudden decline economywide average earnings.

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Figure 1. Nominal Earnings by Age for Scaled Earners Born 1960



Source: Author's computations, see text.

Table 1. Simulation results based on 2019 Trustees Report and alternate assumptions for years 2020-2022

A. Baseline simulation based on 2019 Trustees Report assumptions					
	Scaled Earner Level				
	<u>Very low</u>	<u>Low</u>	<u>Medium</u>	<u>High</u>	<u>Max</u>
Average Indexed Annual Earnings	\$ 14,149	\$ 25,471	\$ 56,599	\$ 90,555	\$ 143,439
Annual benefit at age 67	\$ 13,321	\$ 17,399	\$ 28,610	\$ 37,534	\$ 46,462
Lifetime benefits (PV)	\$ 173,174	\$ 260,982	\$ 514,983	\$ 788,213	\$ 1,068,632
B. Simulation assuming reduced AWI in 2020, 2021 and 2022					
	<u>Very low</u>	<u>Low</u>	<u>Medium</u>	<u>High</u>	<u>Max</u>
Average Indexed Annual Earnings	\$12,295	\$22,133	\$49,182	\$78,687	\$125,442
Annual benefit at age 67	\$11,388	\$14,932	\$24,674	\$32,538	\$40,431
Lifetime benefits (PV)	\$148,048	\$223,974	\$444,125	\$683,298	\$929,923
Dollar changes					
Average Indexed Annual Earnings	(\$1,854)	(\$3,338)	(\$7,417)	(\$11,868)	(\$17,997)
Annual benefit at age 67	(\$1,896)	(\$2,430)	(\$3,900)	(\$5,401)	(\$6,436)
Lifetime benefits (PV)	(\$24,647)	(\$36,455)	(\$70,193)	(\$113,426)	(\$148,030)
Percentage changes					
Average Indexed Annual Earnings	-13.1%	-13.1%	-13.1%	-13.1%	-12.5%
Annual benefit at age 67	-14.3%	-14.0%	-13.6%	-14.2%	-13.7%
Lifetime benefits (PV)	-14.3%	-14.0%	-13.6%	-14.2%	-13.7%

Source: Author's calculations from SSA figures and author's assumptions.