Social Security: The Effects of Wage and Price Indexing on Benefits

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Social Security is a social insurance program that protects insured workers and their family members against a loss of income due to old age, disability, or death. The program is comprised of two components: Old-Age and Survivors Insurance (OASI) and Disability Insurance (DI). They are commonly referred to on a combined basis as OASDI.

In April 2021, there were approximately 65.0 million Social Security beneficiaries collecting an average monthly benefit of $1,429. Monthly Social Security benefits are determined by federal law. The Social Security benefit formula is first applied to calculate a worker's primary insurance amount (PIA), which is the basic monthly benefit amount payable at the Social Security full retirement age before any applicable adjustments based on early or delayed retirement or other factors. The computation process involves three main steps:

1. First, a summarized measure of lifetime Social Security–covered earnings, called the *average indexed monthly earnings* (AIME), is computed. Each year of a worker's taxable earnings after 1950 are increased by the growth in average earnings in the economy from the year of work until two years before eligibility for benefits, which for retired workers is age 60. The highest 35 years of these earnings are then averaged to provide the AIME.

2. Second, a progressive benefit formula is applied to the AIME to compute the *primary insurance amount* (PIA). This step requires a worker's AIME to be sectioned into three brackets (or segments) of earnings using dollar amounts known as *bend points*. Each bracket of earnings is replaced by a fixed percentage. The dollar bend points that create these brackets, however, are adjusted annually to account for growth in overall economy-wide earnings.

3. Third, the PIA is adjusted based on the age at which a beneficiary chooses to begin receiving benefits. For retired workers who claim benefits at the full retirement age (FRA) and for disabled workers, the monthly benefit equals the PIA. Retired workers who claim earlier than the FRA receive monthly benefits lower than the PIA (i.e., an actuarial reduction), and those who claim later than the FRA—up to age 70—receive benefits higher than the PIA (i.e., a delayed retirement credit).

After a beneficiary's first year of eligibility (i.e., age 62), monthly benefit amounts are adjusted for inflation. Thus, the actual benefit amount depends on worker-specific factors such as past earnings and the age at which benefits are claimed, as well as cohort-specific factors such as wage growth and price growth in the overall economy. The cohort-specific factors affect workers of a certain birth year differently than workers of other birth years. Given this, a change in wage or price growth may affect a birth cohort's portion of earnings that are replaced by monthly benefit amounts (i.e., replacement rate). The current-law benefit formula generally results in stable replacement rates across cohorts. From year to year, the average benefits that *new* beneficiaries receive increase at approximately the same rate as average earnings in the economy.

Recent news articles have suggested that deviations from long-term trends in wage and price growth experienced in 2020 could affect Social Security benefit amounts for the 1960 birth cohort—those turning 60 in 2020 (i.e., the year to which past earnings are wage indexed). This report examines the ways in which this birth cohort's monthly benefit amounts would be affected by wage and price indexing.

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Introduction

Recent news articles have raised concerns that a decrease in the national average wage in 2020 will lead to a corresponding decrease in the Social Security benefits for those reaching age 60 in 2020.[1] While Social Security benefits are based on a worker's earnings record in covered employment, the calculations are also affected by changes in national wages and prices.

Average monthly Social Security benefits generally increase because of wage-indexing and price-indexing. The Social Security benefit formula indexes a worker's earnings to overall economy-wide earnings. As a result, replacement rates—the portion of earnings that initial benefits replace—increase at approximately the same rate as average earnings in the economy. Benefit amounts collected after the earliest eligibility age (EEA) generally increase because of price-indexing. Benefits after EEA are indexed to the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) through an annual cost-of-living-adjustment (COLA).

Although wages and prices generally increase over time, instances may arise where wages, prices, or both decrease. Under such conditions, as may result from the recent recession caused by the COVID-19 pandemic, benefit amounts would be affected. Additionally, benefit amounts for family members of workers would also be affected.

As of April 2021, there were approximately 65.0 million Social Security beneficiaries collecting an average monthly benefit of $1,429. Retired-worker and disabled-worker beneficiaries accounted for 84.1% of the beneficiary population. The largest single category of beneficiaries was retired workers (71.6%), with an average monthly benefit of $1,552. The second-largest category was disabled workers (12.5%), with an average monthly benefit of $1,280. Monthly Social Security benefits are determined by federal law. These monthly benefits constitute a substantial portion of income for a large segment of recipients. As such, changes in the long-term trends in wage and price growth could have a substantial impact on retirement income security through their effects on monthly benefit amounts. This possibility has led to increased congressional interest and has prompted hearings by the House Ways and Means Subcommittee on Social Security.[2]

This report outlines how the Social Security benefit formula was developed and how the formula is affected by changes in wage and price growth in the economy. The report provides examples on how wage growth would affect Social Security benefits for workers with different earnings patterns and how price growth would affect benefit amounts after eligibility. The report also outlines legislative options that are available to policymakers.

Brief History of Social Security Benefit Calculation

Prior to 1972, the average level of monthly Social Security benefits required congressional action to increase. That is, the average level of benefits—the general level of pre-retirement earnings

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[1] Andrew G. Biggs, "If You Were Born in 1960, You Pay Extra for Covid-19," *Wall Street Journal*, May 11, 2020, https://www.wsj.com/articles/if-you-were-born-in-1960-you-pay-extra-for-covid-19-11589235056; and John Waggoner, "Born in 1960? Your Social Security Retirement or Disability Benefits Could Take a Hit," AARP, November 18, 2020, https://www.aarp.org/retirement/social-security/info-2020/pandemic-impacts-1960-birth-year-benefits.html.

[2] On July 17, 2020, the Subcommittee on Social Security held a hearing titled *The Impact of COVID-19 on Social Security and Its Beneficiaries.* See https://waysandmeans.house.gov/legislation/hearings/impact-covid-19-social-security-and-its-beneficiaries.

replaced at the full retirement age by the Social Security benefit—was the result of ad hoc legislation.[3]

A worker's benefit amount was calculated by first determining his or her average monthly wage (AMW) as the average of nominal earnings from all years of employment after 1950.[4] Next, the primary insurance amount (PIA) was calculated by separating the AMW into several brackets and applying a replacement factor to each bracket. For example, the Social Security Amendments of 1958 (P.L. 85-840), effective for benefits payable in January 1959, established two brackets ($0.00-$110.00 and $110.01-$400.00) and two replacement factors (58.85% and 21.40%) applied respectively. When Congress decided to increase benefits, it could add additional brackets and/or increase replacement factors. For instance, the Social Security Amendments of 1964 (P.L. 87-64), effective for benefits paid in January 1965, resulted in an average benefit increase of 7% by establishing three brackets ($0.00-$110.00, $110.01-$400.00, and $400.01-$550.00) and three replacement factors (62.97%, 22.90%, and 21.40%) applied respectively.[5] Thus, the 1964 amendments increased benefits by creating a new bracket (i.e., earnings between $400.01 and $550.00) and increasing the replacement factors (e.g., the replacement factor for the first $110.00 of earnings increased from 58.85% to 62.97%). Under this method, no parameters used to calculate benefits were indexed.

This method of benefit calculation had a major drawback. During periods of high inflation (i.e., larger than average increases in the price index), the purchasing power of beneficiaries could be substantially degraded.[6] To prevent the purchasing power of beneficiaries from declining, Congress would need to continue to pass legislation. As can be seen in the above examples, increasing the number of brackets and their respective replacement rates could result in a benefit increase for both current and future beneficiaries. Mathematically, the current and future benefits were increased by the exact same percentage. This method of benefit calculation *coupled* the effects of average wage growth and average price growth. That is, the benefit increases passed by Congress included an adjustment for price growth and an adjustment for wage growth. So long as wage and price growth remained relatively stable, this method (i.e, ad hoc legislation to maintain purchasing power) kept initial benefits aligned with wage growth and current benefits aligned with price growth.[7] However, the economic conditions experienced in the 1970s (inflation) led to higher-than-expected benefits for future beneficiaries, thereby creating higher-than-expected program costs. Congress made several changes in subsequent years to address issues stemming from this coupling.

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[3] For more information on Social Security amendments that resulted in benefit increases, see CRS Report RL30920, *Social Security: Major Decisions in the House and Senate Since 1935*, by Tamar B. Breslauer and William R. Morton.

[4] The definition of *average monthly wage* was expanded many times to incorporate the expanding nature of Social Security itself. For instance, in 1954 the definition of AMW was updated to exclude periods of disability. For more information, see Table 2.A10 in Social Security Administration (SSA), *Annual Statistical Supplement*, November 2019, https://www.ssa.gov/policy/docs/statcomps/supplement/2019/2a8-2a19.html.

[5] For more information on historical changes to AMW brackets and replacement factors, see Table 2.A16 in SSA, *Annual Statistical Supplement*, November 2019.

[6] However, without allowing future wage or price increases to affect benefit levels—that is, unless Congress acted—the long-range costs of the Social Security program (i.e., aggregate benefits paid) were well known.

[7] Larry DeWitt, Daniel Beland, and Edward Berkowitz, *Social Security: A Documentary History* (Thousand Oaks, CA: SAGE Publications, 2008), p. 286.

The Social Security Amendments of 1972

Among other provisions, the Social Security Amendments of 1972 (P.L. 92-336) increased Social Security benefits by an average of 20% and provided for future automatic increases in benefits when the Consumer Price Index (CPI) rose by more than 3.0%.[8] In 1972, inflation was at relatively low rates and expected to decline, but by 1973, inflation had surpassed expectations.[9] The automatic increases that were part of the 1972 amendments made the benefit calculations more sensitive to changes in the relationship between wages and prices. This produced higher benefits for future beneficiaries and also increased program costs. As Larry DeWitt, Daniel Beland, and Edward Berkowitz note in *Social Security: A Documentary History*:

> As the economics of the 1970s produced disruptions in the historic relationship between prices and wages, this had an adverse effect on Social Security benefits. In a period of stagflation, overall program costs soared and initial benefit levels for future beneficiaries rose much higher than planned.[10]

The Social Security Amendments of 1977

The Social Security Amendments of 1977 (P.L. 95-216) *decoupled* the effect of wage growth and price growth on Social Security benefits that were shown to have introduced instability in replacement levels. *Decoupling* the benefit calculation was also expected to relieve some financial pressure on the system. It was projected that, without decoupling legislation, a worker's future benefits could exceed his or her pre-retirement earnings.[11] The 1977 amendments essentially designed the current-law benefit formula by establishing a benefit formula that indexes workers' initial benefit levels to wage growth and then indexes their future benefits to price growth.

Omnibus Budget Reconciliation Act of 1986 (OBRA 86)

Automatic COLAs became effective in 1975 after being established in 1972 as part of the Social Security Amendments of 1972 (P.L. 92-336). Initially, the COLA formula required inflation to be at least 3% during the specified base period before a COLA could be triggered. As part of OBRA 86 (P.L. 99-509), lawmakers eliminated the 3% trigger, requiring instead that inflation (or wage growth in certain cases) be greater than 0% during the specified base period for a COLA to be payable. This requirement effectively allowed for a COLA smaller than 3% to be paid while continuing to protect benefits from being decreased during periods of declining prices (i.e., the Social Security COLA cannot be negative and thus cannot reduce benefit levels).

The following section explains the current-law benefit calculation in more detail.

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[8] At the time, there was only one CPI measure. To finance future benefit increases resulting from price growth, the amendments automatically increased the taxable wage base. For more information, see CRS Report RL32896, *Social Security: Raising or Eliminating the Taxable Earnings Base*, by Zhe Li. P.L. 92-603 is also referred to as the Social Security Amendments of 1972.

[9] James Kelley and Joseph Humphreys, *Final Report on the Social Security 'Notch' Issue*, Commission on the Social Security "Notch" Issue, Appendix, 1994, https://www.ssa.gov/history/notchbase.html.

[10] DeWitt, Beland, and Berkowitz, *Social Security: A Documentary History*, p. 20. Stagflation exists when an economy experiences both high inflation and high unemployment. The U.S. economy experienced such conditions during the 1970s. For more information on stagflation, see CRS Report R41656, *Changing the Federal Reserve's Mandate: An Economic Analysis*, by Marc Labonte.

[11] DeWitt, Beland, and Berkowitz, *Social Security: A Documentary History*, pp. 298-321.

Social Security Benefit Calculation Under Current Law

The Social Security benefit formula is used to compute benefit amounts paid to both insured workers and their eligible dependents and survivors. Benefit amounts are based on a worker's past Social Security–taxable (i.e., covered) earnings and can be affected by program factors that are indexed to growth in national wages.[12] For example, lifetime earnings in covered employment are wage-indexed to account for growth in economy-wide earnings over a worker's career.

The benefit formula is applied in three main steps: (1) computing the average indexed monthly earnings, (2) converting these earnings into the primary insurance amount, and (3) applying adjustments based on the Social Security benefit claiming age.[13]

To account for inflation, an annual COLA is applied to benefits collected after the first year of eligibility based on changes in the CPI-W.[14]

Average Indexed Monthly Earnings

In the first step of the benefit computation, a summarized measure of lifetime Social Security-covered earnings is computed, called the *average indexed monthly earnings* (AIME). In this step, the Social Security Administration (SSA) first indexes a worker's lifetime covered earnings to reflect changes in national wage levels, as measured by SSA's Average Wage Index (AWI).[15] The AWI includes all wages that are subject to federal income tax. Thus, the AWI includes wages earned from covered *and* non-covered employment, as well as earnings in excess of the taxable maximum.[16] This indexing is done by increasing each year of a worker's taxable earnings after 1950 by the growth in average earnings in the economy, as measured by the AWI, from the year of work until two years before eligibility for benefits, which for retired workers is at age 60. (Workers are first eligible for benefits at age 62.[17]) For example, the SSA's AWI grew from $32,155 in 2000 to $41,674 in 2010. So if a worker earned $20,000 in 2000 and turned 60 in

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[12] Some program factors may also be affected by COLAs, as some factors change only when a COLA is payable.

[13] Retired-worker benefits can be affected by other adjustments. For example, the windfall elimination provision can reduce benefits for individuals who receive pensions based on employment not covered by Social Security, and benefits can be temporarily withheld under the retirement earnings test if a beneficiary under the full retirement age continues to work and earns above a certain amount. Social Security benefits can also be subject to income tax, thereby affecting the beneficiary's net income. For more information on possible adjustments, see CRS In Focus IF10203, *Social Security: The Windfall Elimination Provision (WEP) and the Government Pension Offset (GPO)*, by Zhe Li. For more information on how Social Security benefits may be affected by income tax, see CRS Report RL32552, *Social Security: Taxation of Benefits*, by Paul S. Davies. For more information on the retirement earnings test, see CRS Report R41242, *Social Security Retirement Earnings Test: How Earnings Affect Benefits*, by Zhe Li.

[14] **Table A-4** lists selected items used in the Social Security benefit formula and their relationship with CPI-W and AWI.

[15] SSA, Office of the Chief Actuary (OCACT), "National Average Wage Index," https://www.ssa.gov/oact/cola/AWI.html.

[16] 20 C.F.R. §404.211(c). Under current law, the Social Security payroll tax is applied to covered earnings up to an annual limit, or taxable maximum ($142,800 in 2021). This level of earnings is both the contribution base (i.e., the amount of covered earnings subject to the Social Security payroll tax) and the benefit base (i.e., amount of earnings used to determine benefits). As such, it is commonly referred to as the contribution and benefit base.

[17] SSA uses the national average wage indexing series to ensure that future benefits reflect the general rise in the standard of living over the course of a worker's earning history. For details, see OCACT, "Index Earnings Used to Compute Initial Benefits," in "National Average Wage Index."

2010, the 2010 *indexed* wage for 2000 would be $20,000 × ($41,674/$32,155), or $25,921. Earnings from later years—for retired workers, at ages 60 and above—are not indexed.[18] After indexing, the highest 35 years of earnings are summed, and the total is divided by 420 (the number of months in 35 years) to determine a worker's AIME.[19] The indexing process ensures that a worker's or family member's benefit will reflect increases in the average wage growth observed over the worker's earnings history.

Primary Insurance Amount

The second step requires applying a segmented replacement formula to the AIME to compute the *primary insurance amount* (PIA). The PIA is essentially a worker's basic monthly benefit amount payable at the Social Security full retirement age. It does not reflect any applicable adjustments based on early or delayed retirement or other factors.[20] The PIA is also used to determine the basic monthly benefit amount for a worker's eligible dependents or survivors, subject to certain adjustment factors. The benefit formula is progressive. As a result, workers with higher AIMEs receive higher benefits, but the benefits received by people with lower earnings replace a larger share of their career-average earnings.

In this step, a worker's AIME is divided into segments—or brackets—by "bend points." Brackets of a worker's AIME are replaced at different rates, or replacement factors, the sum of which is the PIA (**Table 1**). The replacement factors—90%, 32%, and 15%—are fixed in law, but the bend point dollar amounts, or brackets, to which they apply are indexed annually to the AWI. Under current law, the benefit formula used to determine the PIA for a worker who attains age 62, becomes disabled, or dies in 2021 is shown in **Table 1**.

Table 1. Computation of a Worker's Primary Insurance Amount (PIA) in 2021

For a Hypothetical Worker with an Average Indexed Monthly Earnings (AIME) of $6,500

Factors	Three Brackets of AIME in 2021	PIA for a Worker with an Illustrative AIME of $6,500
90%	first $996 of AIME, plus	$896.40
32%	AIME over $996 and through $6,002, plus	$1,601.92
15%	AIME over $6,002	$74.70
Total: Worker's PIA (by law, rounded down to nearest 10 cents)		**$2,573.00**

Source: CRS.

Notes: The bend points shown in the table apply to workers who first become eligible in 2021. Under current law, the PIA is rounded down to the nearest dime (42 U.S.C. §415(a)(1)(A)).

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[18] Earnings through age 60 are indexed to average wage growth. Earnings from age 61 and later are counted at nominal value.

[19] If the retired worker has fewer than 35 years of covered earnings, years of zero earnings are entered in the calculation. The number of benefit computation years for disabled or deceased workers may be fewer than 35 years.

[20] 42 U.S.C. §415(a).

Adjustments for Claiming Age

Third, an adjustment may be made based on the age at which a beneficiary chooses to begin receiving payments.[21] Retired workers may claim benefits when they turn 62 years old, which is the EEA. Workers who claim benefits before reaching the full retirement age (FRA) would be subject to a permanent reduction in monthly benefits, commonly referred to as an actuarial reduction. It equals five-ninths of 1% for each month (6⅔% per year) of the first three years of early claiming and five-twelfths of 1% for each month (5% per year) beyond 36 months. The FRA for workers born in 1960 or later is 67. Thus, a worker in the 1960 birth cohort who claimed benefits at age 62—the earliest eligibility age and five years before his or her FRA—would receive 70% of his or her PIA.

For retired workers who claim benefits at the FRA and for disabled workers, the monthly benefit equals the PIA. However, if workers delay claiming, they receive a permanently higher monthly benefit. In other words, workers who claim benefits after reaching FRA receive delayed retirement credits. For people born in 1943 and later, that credit is 8% for each year of delayed claiming after the FRA, up to age 70.[22] Thus, a worker in the 1960 birth cohort with an FRA of 67 who chose to claim benefits at age 70 would receive 124% of his or her PIA (3 years × 8% per year).

Cost of Living Adjustments (COLAs)

After a beneficiary's first year of eligibility, subsequent benefits are adjusted for price growth. The annual COLA is based on changes in the CPI-W, updated monthly by the Bureau of Labor Statistics. For Social Security, the COLA equals the change in the CPI-W from the third quarter of the prior year to the third quarter of the current year. The COLA announced in October becomes effective in December of the current year and is payable in January of the following year. Social Security payments always reflect the benefits due for the preceding month. **Table 2** illustrates the COLA computation for 2020 applied to benefits paid in January 2021.

Table 2. Computation of the Social Security Cost-of-Living Adjustment (COLA), January 2021

	Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) Index Values
July 2019	250.236
August 2019	250.112
September 2019	250.251
Average for third quarter of 2019 (rounded to the nearest one-thousandth of a point):	**250.200**
July 2020	252.636
August 2020	253.597

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[21] For more information on claiming age, see CRS Report R44670, *The Social Security Retirement Age*, by Zhe Li. Also, after a beneficiary's first year of eligibility, subsequent benefits are adjusted for price growth. For more information, see CRS Report 94-803, *Social Security: Cost-of-Living Adjustments*, by Paul S. Davies and Tamar B. Breslauer.

[22] For people born before 1943, the delayed retirement credit varies from 3.0% to 7.5%, depending on the year of birth. See "Delayed Retirement Credit" in OCACT, "Early or Late Retirement?," http://www.ssa.gov/OACT/quickcalc/ early_late.html#late.

	Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) Index Values
September 2020	254.004
Average for third quarter of 2020 (rounded to the nearest one-thousandth of a point):	**253.412**
Percentage increase or decrease from the third-quarter average for 2019 to the third-quarter average for 2020 *(rounded to the nearest one-tenth of 1% for the final application, when positive, as required by law):*	((253.412-250.200)/250.200)*100% = **1.3%**
Social Security COLA *(zero if the percentage change is negative):*	**1.3%**

Source: Department of Labor, Bureau of Labor Statistics data series for the CPI-W for 2019 and 2020, https://www.bls.gov/cpi/data.htm.

Notes: The reference base period for the CPI-W is 1982-84 (i.e., the period when the index equaled 100). The COLA determination follows procedures set forth in Section 215(i) of the Social Security Act (42 U.S.C. §415(i)).

In most years, prices increase, resulting in a positive COLA being applied to the next year's benefits. However, if there is no percentage increase in the CPI-W for the specific period described above, no COLA is payable, and Social Security benefits are not adjusted. No COLA was payable in January 2010, January 2011, or January 2016. Section 215(i) of the Social Security Act protects Social Security benefits from being decreased during periods of negative price growth.[23]

Social Security Benefits and the Average Wage Index

The current-law benefit formula is affected by both positive and negative wage growth. While in most years, wage growth is positive, the benefit formula is affected by negative wage growth in the economy—that is, a decreasing AWI—in two ways. First, given the lag time in computing the AWI, a worker's earnings are wage-indexed up to age 60, whereas earnings from later years—at ages 60 and above—are not.[24] This means that negative wage growth in the economy in the year in which a worker turns 60 would result in a lower AIME than if wage growth increased or remained level. For instance, using the example from an earlier section, the SSA's AWI grew from $32,155 in 2000 to $41,674 in 2010. Assuming, for illustrative purposes, that the AWI demonstrated negative 5% growth from the previous year instead, the AWI in 2010 would have been $38,675 (i.e., a 5% decrease from the 2009 AWI of $40,711). So, under this assumption, if a worker earned $20,000 in 2000 and turned 60 in 2010, the *indexed* wage for 2000 would be $20,000 × ($38,675/$32,155), or $24,055. The lower AWI of $38,675 would be used to index every year of the worker's earnings. Thus, for each year of the worker's earnings, his or her wage-indexed earnings would be less than if AWI had experience typical positive growth.

A second way in which benefit amounts may be affected by negative wage growth is in the calculation of the PIA. In calculating the PIA, two dollar-based bend points are used to section the AIME into three brackets. The two bend points are adjusted annually for average wage growth in the economy using the AWI. The bend points are based on the year in which an individual

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[23] 42 U.S.C. §415(i). The average CPI-W for the third quarter of 2010 increased relative to the third quarter for 2009. However, the average amount was still less than in the third quarter of 2008. As such, 2008 remained the base year for the calculation, and thus there was no COLA determined in December 2010. See CPI-W values at https://www.ssa.gov/oact/STATS/cpiw.html.

[24] Wages earned at ages 60 and 61 are entered into the formula at their nominal value (i.e., not indexed to the AWI).

reaches the earliest eligibility age, which for retired workers is age 62. However, given the lag time in computing AWI, the value from two years prior (i.e., when the worker was 60) is used to determine the bend points. Since the replacement factors are fixed, lower PIA bend points necessarily result in lower PIAs.

PIAs for Hypothetical Earners Born in 1960

This section provides several illustrative examples of the PIAs of hypothetical earners to demonstrate how PIAs are calculated under current law and how different levels of AWI for 2020 could affect the PIAs. Following methods developed by the SSA's Office of the Chief Actuary, this report uses the career-averaged earnings of hypothetical earners to illustrate PIAs. Wages for hypothetical earners are expressed at each age as a percent of SSA's AWI and are shown in **Figure A-1**.[25] In this section, examples of benefit calculations are shown for very low, low, medium, and high lifetime hypothetical earners as well as *maximum earners*.[26] To demonstrate the effect of the possible low AWI for 2020, the hypothetical workers are assumed to have been born in 1960 and began working at age 21 in 1981. Additionally, the hypothetical workers are assumed to have worked continually through age 60, the age at which past earnings are wage-indexed, or 2020. Using the scaled factors in **Figure A-1**, the earnings for hypothetical workers are calculated (**Table A-1**). This can be accomplished for all years of the 1960 birth cohort except for 2020 and 2021, the years in which the workers are 60 and 61, respectively. As the 2020 value for AWI is not scheduled to be publicly known until November 1, 2021, the following illustrative examples assume a range of possible outcomes to demonstrate how national average wage growth can affect benefits.[27] Thus, in the following examples, the AWI for 2020 (i.e., the year in which the 1960 birth cohort turns 60) was assumed to grow or decline by 3.5%, 0.0%, -1.0%, -2.0%, -3.0%, -4.0%, -5.0%, or -6.0%.[28] For all calculations, the AWI for 2021 was projected to grow by

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[25] OCACT, *Scaled Factors for Hypothetical Earnings Examples Under the 2020 Trustees Report Assumptions*, April 2020, https://www.ssa.gov/OACT/NOTES/ran3/an2020-3.pdf.

[26] A maximum earner is a worker who has earnings at or above the contribution and benefit base (i.e., the maximum level of earnings subject to the Social Security payroll tax in a given year) for each year starting at age 22 through the year prior to retirement. OCACT, *The 2020 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*, April 22, 2020, p. 152, https://www.ssa.gov/OACT/TR/2020/tr2020.pdf. The contribution and benefit base for 2021 is $142,800 (see SSA, "2021 Social Security Changes," https://www.ssa.gov/news/press/factsheets/colafacts2021.pdf).

[27] As stated in Actuarial Note 133, "The Social Security Act requires that the average wage be promulgated in the *Federal Register* by November 1 of the year following the year in which the wages were earned." For more information, see Michael D. Clingman and Jeffrey L. Kunkel, "Average Wages for 1985-90 for Indexing Under the Social Security Act," OCACT, September 1992, https://www.ssa.gov/oact/NOTES/note133.html.

[28] This selection of AWI growth rates encompasses a wide range. For the 1960 birth cohort, the AWI has had an average growth of 3.84% per year. Additionally, the Social Security Board of Trustees projected the AWI to grow at 3.5% in 2020. This projected value was under the trustees' intermediate assumption—reflecting the trustees' best estimate of future experience—but did not reflect any potential effects of COVID-19 (OCACT, *2020 Annual Report*, p. 118). On November 24, 2020, OCACT updated the baseline for the actuarial status of the trust funds and projected the growth for AWI in 2020 to be -4.01% (see Stephen C. Goss, Chief Actuary, SSA, and Karen P. Glenn, Deputy Chief Actuary, SSA, memo to Andrew Saul, Commissioner, SSA, and David Black, Deputy Commissioner, SSA, November 24, 2020, Table 2, https://www.ssa.gov/OACT/solvency/UpdatedBaseline_20201124.pdf). In a January 27, 2021, letter to Senator Grassley, the Congressional Budget Office (CBO) projected that AWI would decline by 0.5% from 2019 to 2020. In September 2020, CBO had initially estimated a decline of 3.8% (see https://www.cbo.gov/system/files/2021-01/56973-AWI.pdf). See also CBO, *Baseline Projections: Social Security Old-Age and Survivors Insurance*, February 2021, p. 3, https://www.cbo.gov/system/files/2021-02/51308-2021-02-socialsecurity.pdf.

8.11%.[29] **Table 3** demonstrates how different growth rates in the AWI for 2020 would affect the AIMEs of hypothetical workers born in 1960.

Table 3. Projected Average Indexed Monthly Earnings (AIMEs) for Hypothetical Earners in the 1960 Birth Cohort by Earnings Levels and Changes in the 2020 Average Wage Index (AWI)

Percent Change in 2020 AWI	Very Low Earner AIME	Low Earner AIME	Medium Earner AIME	High Earner AIME	Maximum Earner AIME
3.5%	$1,164.00	$2,096.00	$4,660.00	$7,456.00	$11,501.00
0.0%	1,125.00	2,025.00	4,502.00	7,204.00	11,135.00
-1.0%	1,114.00	2,005.00	4,457.00	7,132.00	11,040.00
-2.0%	1,102.00	1,985.00	4,412.00	7,060.00	10,925.00
-3.0%	1,091.00	1,965.00	4,367.00	6,988.00	10,821.00
-4.0%	1,080.00	1,944.00	4,322.00	6,916.00	10,716.00
-5.0%	1,069.00	1,924.00	4,277.00	6,844.00	10,611.00
-6.0%	1,057.00	1,904.00	4,232.00	6,771.00	10,507.00

Source: CRS.

Notes: Wage-indexed earnings are rounded to the nearest cent, and AIMEs are rounded down to the nearest dollar (see 20 C.F.R. §404.211).

Under the different assumed values for AWI growth in 2020, **Table 4** shows how the PIA—and the bend points used to calculate PIA—would change for all workers and how the PIA would change for each hypothetical earnings level. The PIA generally represents the benefit amount a worker would collect at FRA without any additional adjustments.

In the first scenario, the AWI increases by 3.5%. For each hypothetical earnings level, the beneficiary would receive more than the amount the same hypothetical earner born a year earlier would have received due to a higher AIME as well as higher bend points in the PIA. In the second scenario, the AWI is assumed to have zero growth—that is, it would remain the same as 2019. Under this assumption, benefit levels for the hypothetical earners are roughly equivalent to those for the same hypothetical earners born a year earlier. In the remaining scenarios, the AWI is assumed to decrease at rates between -1.0% and -6.0%. In each of these cases, the hypothetical earners would experience lower AIMEs than if wage growth were to increase or remain level. Additionally, the bend points used to calculate PIA are shown to decrease as well, resulting in lower PIAs. These examples demonstrate the two ways in which negative wage growth in the economy affects benefit amounts.

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[29] Under the OCACT updated baseline, the updated projected growth rate for AWI in 2021 is 8.11% (see footnote 27). The growth rate assumed under the trustees' intermediate assumptions in the *2020 Annual Report* is 4.4%. As with other assumptions in the report, this did not reflect any potential effects of the COVID-19 (OCACT, *2020 Annual Report*, p. 118).

Table 4. Projected Primary Insurance Amounts (PIAs) for Hypothetical Earners in the 1960 Birth Cohort by Earnings Levels and Changes in the 2020 Average Wage Index (AWI)

Percent Change in 2020 AWI	First PIA Bend Point	Second PIA Bend Point	Very Low Earner PIA	Low Earner PIA	Medium Earner PIA	High Earner PIA	Maximum Earner PIA
3.5%	$1,031	$6,212	$970.40	$1,268.70	$2,089.10	$2,772.40	$3,379.10
0.0%	996	6,002	937.60	1,225.60	2,018.30	2,678.60	3,268.20
-1.0%	986	5,942	928.30	1,213.40	1,998.10	2,651.80	3,236.50
-2.0%	976	5,882	918.70	1,201.20	1,977.90	2,625.00	3,204.70
-3.0%	966	5,822	909.40	1,189.00	1,957.70	2,598.20	3,173.10
-4.0%	956	5,762	900.00	1,176.50	1,937.50	2,571.40	3,141.40
-5.0%	946	5,702	890.70	1,164.30	1,917.30	2,544.60	3,109.60
-6.0%	936	5,642	881.10	1,152.10	1,897.10	2,517.60	3,079.00

Source: CRS.

Notes: Under each hypothetical change in the 2020 AWI, the bend points shown in the table would apply to workers who first become eligible (i.e., turn 62) in 2022. Under current law, the PIA is rounded down to the nearest dime (42 U.S.C. §415(a)(1)(A)), and bend points are rounded to the nearest dollar (42 U.S.C. §415(a)(1)(B)(iii)).

Effects of wage indexing can result in what is commonly referred to as a *notch effect*. This occurs when one cohort of beneficiaries receives a different level of benefits compared to an age-adjacent cohort.[30] Many news articles have argued that relatively higher levels of unemployment in 2020 will lead to a decrease in AWI, causing a worker born in 1960 to receive a lower replacement rate than a similar worker who is one year older or younger.[31] The potential size of a notch effect between the 1959 birth cohort and the 1960 birth cohort is shown in **Table 5** for each AWI assumption. For each hypothetical earnings level, if AWI were to decrease in 2020, the hypothetical earner from the 1960 birth cohort would receive a lower PIA than a comparable hypothetical earner from the 1959 birth cohort.[32]

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[30] One example of a notch effect was experienced by Social Security beneficiaries born between 1917 and 1921. As a result of changes to the benefit formula in the 1972 Social Security Amendments (P.L. 92-336), many of the beneficiaries born in these years believe they are not receiving *fair* benefits as compared to beneficiaries born in earlier years. For more information on the notch effect, see CRS Report RS22678, *Social Security: The Notch Issue*, by Dawn Nuschler.

[31] A lower initial benefit would be compounded as it would result in a nominally lower COLA dollar increase every year. For more information, see CRS In Focus IF11599, *Social Security Benefits and the Effect of Declines in Average Wages and Prices*, by Barry F. Huston and Paul S. Davies. See footnote 1 for examples of news articles.

[32] Although an increase in the AWI could also be thought of as creating a notch effect in a narrow, technical sense, it would generally not be considered a notch because the AWI (and thus AIMEs and PIAs) is generally expected to increase from year to year. Over its history, the AWI has increased in all but one year (2009) at an average rate of 4.5% (see **Table A-2**).

Table 5. Comparison of Projected Primary Insurance Amounts (PIAs) for Hypothetical Earners in the 1959 and 1960 Birth Cohorts by Earnings Levels and Changes in the 2020 Average Wage Index (AWI)

	Very Low Earner	Low Earner	Medium Earner	High Earner	Max Earner
	PIAs for 1959 Birth Cohort				
	$936.70	$1,223.70	$2,014.10	$2,675.40	$3,262.70
Percentage Change in 2020 AWI	Dollar Change in PIAs for 1960s Birth Cohort (2020 PIAs Less 2019 PIAs)				
3.5%	$33.70	$45.00	$75.00	$97.00	$116.40
0.0%	0.90	1.90	4.20	3.20	5.50
-1.0%	-8.40	-10.30	-16.00	-23.60	-26.20
-2.0%	-18.00	-22.50	-36.20	-50.40	-58.00
-3.0%	-27.30	-34.70	-56.40	-77.20	-89.60
-4.0%	-36.70	-47.20	-76.60	-104.00	-121.30
-5.0%	-46.00	-59.40	-96.80	-130.80	-153.10
-6.0%	-55.60	-71.60	-117.00	-157.80	-184.70

Source: CRS.

Note: Under the scenario where there is no change in 2020 AWI (i.e., 0.0% growth in AWI from 2019 to 2020), there is still a change in PIAs between the 1959 and 1960 birth cohorts. This difference is attributable to the different earnings periods that are indexed. The 1959 birth cohort began work in 1980, while the 1960 birth cohort began work in 1981.

In addition, a potential decrease in AWI in 2020 would also affect dependents and survivors who claim benefits based on the earning records of workers who were born in 1960. Benefits for family members that are based on the benefits of a retired worker that are indexed during a year of declining wage growth would also be affected, as those benefits are calculated as a percentage of the worker's PIA.[33]

Social Security Benefits and the COLA

Recent values of the Social Security COLA, illustrating the years in which no COLA was payable, are shown in **Table 6**. Historical values of the CPI-W and the Social Security COLA are provided in **Table A-3**.

Table 6. Average Third-Quarter Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) and Resulting Social Security Cost-of-Living Adjustment (COLA), Selected Years

Year	Average CPI-W for the Third Quarter	Resulting COLA
2007	203.596	2.3%
2008	215.495	5.8

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[33] For more information on benefits for workers' family members, see CRS Report R42035, *Social Security Primer*, by Barry F. Huston.

Year	Average CPI-W for the Third Quarter	Resulting COLA
2009	211.001	no COLA
2010	214.136	no COLA
2011	223.233	3.6
2012	226.936	1.7
2013	230.327	1.5
2014	234.242	1.7
2015	233.278	no COLA
2016	235.057	0.3
2017	239.668	2.0
2018	246.352	2.8
2019	250.200	1.6
2020	253.412	1.3

Source: CRS calculations using data from Department of Labor, Bureau of Labor Statistics.

Notes: The Social Security COLA is payable for benefits due in January of the following year.

It is commonly understood that the COLA affects current beneficiaries because it is used to adjust benefits already in payment. However, the COLA also affects individuals who are eligible for retirement benefits but are not yet receiving them. The lack of a COLA in a given year can lead to a birth cohort of beneficiaries having markedly different benefit levels compared with age-adjacent birth cohorts. For example, benefits for individuals born in 1947 (i.e., those who became eligible for retirement benefits at age 62 in 2009) were lower relative to earlier birth cohorts given the combined effects of a higher than usual 5.8% COLA payable in January 2009 (effective December 2008) and no COLA payable in January 2010 (effective December 2009). Recall that a decline in the CPI-W (or negative price growth) does not result in a negative COLA, whereas a decline in the AWI would result in lower AIMEs and PIAs (as discussed earlier).

Several Social Security program elements are indexed to wages rather than prices but may increase only when a COLA is payable. These program elements include the contribution and benefit base (CBB, or the maximum level of earnings subject to the Social Security payroll tax in a given year); the retirement earnings test exempt amounts; and the substantial gainful activity threshold for blind Social Security beneficiaries.[34] In years in which no COLA is payable, the value of these program elements is unchanged. For example, had a COLA been payable for Social Security benefits due in January 2016, the CBB would have increased from $118,500 in 2015 to $122,700 in 2016.[35] Because no COLA was payable in January 2016, the CBB remained unchanged. Then, when a COLA was payable for Social Security benefits due in January 2017, the CBB for 2017 was increased based on its 2015 value to reflect two years of wage growth.

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[34] For more details, see CRS Report R46658, *Social Security: Benefit Calculation*, by Barry F. Huston; CRS Report R41242, *Social Security Retirement Earnings Test: How Earnings Affect Benefits*, by Zhe Li; and CRS Report R44948, *Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI): Eligibility, Benefits, and Financing*, by William R. Morton.

[35] Such a hypothetical increase in the CBB is dependent on positive wage growth. It is possible for a COLA to be payable during a period in which the AWI is decreasing.

Projections and Legislative Options

Projections for AWI and COLA

In their *2020 Annual Report*, the Social Security Board of Trustees' intermediate assumptions projected the AWI to grow at 3.5% in 2020 and projected COLA values of 2.3% for 2020 and 2.5% for 2021.[36] The trustees' intermediate set of assumptions generally reflect their best estimates of future experience. However, the *2020 Annual Report* does not include any potential effects resulting from COVID-19. (The assumptions reflect the trustees' understanding at the start of 2020.) The actual 2020 COLA (for benefits payable in 2021) was later revealed to be 1.3%.[37] Since the publication of the *2020 Annual Report*, projections for AWI have changed. Updated COLA projections have not been released.

In September 2020, the Congressional Budget Office (CBO) projected that AWI would decrease by 3.8% from 2019 to 2020.[38] In a January 27, 2021, letter to Senator Grassley, CBO revised its estimate to project that the AWI would decrease by 0.5% from 2019 to 2020.[39] On November 24, 2020, SSA's Office of the Chief Actuary updated the baseline for the actuarial status of the trust funds and projected that the AWI would decline by 4.01% from 2019 to 2020.[40]

Options to Address a Decline in AWI

Policymakers have several legislative options to address the negative effect that a decline in the AWI would have on Social Security benefit amounts. One option is to do nothing, as was done in 2009 (see **Table A-2**). In 2009, the AWI decreased by -1.51%, affecting the benefit amounts for those turning 60 in that year (i.e., the 1949 birth cohort). Alternatively, Congress could administer ad hoc benefit increases to birth cohorts that are adversely affected by changes in the AWI, effectively "resetting" a cohort's lifetime benefit levels. Still another solution would be to use the same growth rate from 2009 in years where the AWI declines. This method would effectively make the negative effects of a decline in AWI no worse than the last cohort to experience negative wage growth in the year they turned 60. Yet another alternative could be to use wage index data only from the first quarter of 2020 (i.e., pre-COVID-19). These measures are essentially one-time

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[36] OCACT, *2020 Annual Report*, p. 118. In the annual reports, the trustees present three alternative (intermediate, low-cost, and high-cost) sets of assumptions for demographic, economic, and program-specific factors. The intermediate set of assumptions represents the trustees' best estimate of likely future conditions. Relative to the set of intermediate assumptions, the low-cost set of assumptions is significantly more optimistic, whereas the high-cost set of assumptions is significantly more pessimistic.

[37] SSA, "Social Security Announces 1.3 Percent Benefit Increase for 2021," October 13, 2020, https://www.ssa.gov/news/press/factsheets/colafacts2021.pdf,

[38] In answers to questions for the record, CBO Director Swagel noted, "As a result, CBO projected in its September report on the budget outlook that the AWI will be about 7 percent lower in 2020 than it estimated at the beginning of this year. The labor market recovery has proceeded faster than anticipated when that projection was made, suggesting that the decline in the AWI will probably be considerably less than the 7 percent projected in September." For more information, see CBO, "Answers to Questions for the Record Following a Hearing Conducted by the Senate Committee on the Budget on CBO's Budget Projections," December 18, 2020, https://www.cbo.gov/system/files/2020-12/56908-senate-updated-budgetoutlook.pdf.

[39] Letter from Phillip L. Swagel, Director of CBO, to Senator Grassley, January 27, 2021, https://www.cbo.gov/system/files/2021-01/56973-AWI.pdf.

[40] See Goss and Glenn, Table 2.

solutions that, if adopted, would not prevent the issue from recurring (i.e., post-1960 birth cohorts).

Policymakers could also opt for a permanent solution. For example, one approach would be to use a multiyear average of wages. However, a multiyear average could be subject to consecutive years of negative wage growth.

In the 116th Congress, policymakers introduced proposals that followed different approaches.

Senators Kaine and Cassidy proposed S. 4180, Protecting Benefits for Retirees Act, which would have amended Section 209(k) of the Social Security Act.[41] Essentially, this bill would have made the AWI used in calculations in one year at least as high as the AWI used in calculations for the previous year.[42] For example, if the AWI for 2020 decreases, it would have been determined to be equal to the 2019 AWI for purposes of computing Social Security benefits. The Social Security benefits for the 1960 birth cohort would not be negatively impacted. Instead, the AWI applied in the previous year would be applied to these workers' Social Security benefits.

A similar approach was provided by Representative Larson in H.R. 7499 and by Senator Hirono in S. 4986, the Social Security COVID Correction and Equity Act. Among other things, this bill would have required the use of any prior year's AWI if it exceeds the current year's AWI in the calculation of a worker's AIME and for indexing the bend points used to calculate the PIA. Effectively, this bill would have required the largest AWI among all previous years to be used in benefit calculations for all years after 2019.[43]

As of the publication date of this report, no proposals were identified to address the AWI issue in the 117th Congress.

Options to Address the COLA

Policymakers also have several legislative options to address the COLA. Searching Congress.gov for legislative text that references the cost-of-living section of the Social Security Act (Section 215(i)) or the parallel section in the *U.S. Code* (42 U.S.C. §415(i)) retrieved over 30 bills from the 116th Congress.[44] However, some of these bills do not include provisions to change the COLA.[45] The following summary of bills reflect options proposed to amend the COLA in the 116th Congress.[46]

One option involves mandating a specific COLA for a particular year. For example, Representative DeFazio in H.R. 8598 would have established that the COLA for 2020 be 3%.

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[41] 42 U.S.C. §409(k).

[42] This change to the formula would be financed from the Social Security trust funds, as the bill does not authorize transfers from the General Fund of the U.S. Treasury.

[43] This provision, and other provisions in these bills that would increase the cost of the Social Security program, would be financed by transfers from the general fund.

[44] The complete search results can be viewed at https://go.usa.gov/x64tr.

[45] For example, P.L. 116-178 directed the Department of Veterans Affairs to increase, as of December 1, 2020, the rates of veterans' disability compensation, additional compensation for dependents, the clothing allowance for certain disabled veterans, and dependency and indemnity compensation for surviving spouses and children by the same percentage increase as the cost-of-living increase for Social Security recipients. Other bills, such as S. 580 and H.R. 1496, address the allowances for former Presidents.

[46] Some bills may not have been retrieved from this search, as not all bills may have had the bill text available when the search was conducted.

This proposal also has a hold-harmless clause so that the Social Security trust funds would be replenished with general funds as if this provision had not taken effect.

Another option involves issuing a compensating payment in years without a COLA. Representative Lee's Social Security Safety Dividend Act of 2019 (H.R. 46) would have directed the Department of the Treasury to disburse to recipients of Social Security benefits or certain other federal benefits a $250 payment in years where no COLA is payable.

Representative Smith in H.R. 8600 would have also addressed the possibility of no COLA by directing that a minimum COLA of 3% be granted for 2020. Representative Smith's bill also recommended a permanent change in the calculation of the COLA to use the Consumer Price Index for the Elderly (CPI-E) instead of the CPI-W as used under current law.[47] Representative Engel in H.R. 3389 (and Senator Whitehouse in S. 1923) would have similarly revised the method used to calculate COLAs for certain Social Security benefits by ordering the Bureau of Labor Statistics to develop a price index that tracks the spending patterns of older consumers for purposes of calculating the COLA (i.e., the CPI-E), while also requiring that individuals over 62 must receive, at minimum, a 3% annual cost-of-living increase in any year.[48]

Other options, illustrated by Representative Walberg in H.R. 7765, proposed that either the CPI-W be applied as under current law or, if the amount would be higher, the COLA would be based on a 10-year average of previous COLAs.

Similar to the AWI, no proposals were identified to address the COLA issue in the 117th Congress.

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[47] Some proposals, such as those identified here from the 116th Congress, would base the COLA on the CPI-E, which is generally projected to increase Social Security COLAs relative to current law. Other proposals would base the COLA on the Chained CPI for All Urban Consumers, which is generally projected to reduce Social Security COLAs relative to current law. No bills were introduced in the 116th Congress that would have adopted the chained CPI. More discussion of alternative methods for calculating the COLA can be found in CRS Report R43363, *Alternative Inflation Measures for the Social Security Cost-of-Living Adjustment (COLA)*, by Julie M. Whittaker.

[48] The option to calculate the COLA using the CPI-E instead of the CPI-W appears in several legislative proposals from the 116th Congress, including H.R. 4121, H.R. 2654, H.R. 2302, H.R. 1170, H.R. 860, S. 478, S. 269, and S. 112.

Appendix. Supporting Information

Figure A-1. Scaled Factors by Hypothetical Earnings Level and Age

Percent of Average Wage Index (AWI)
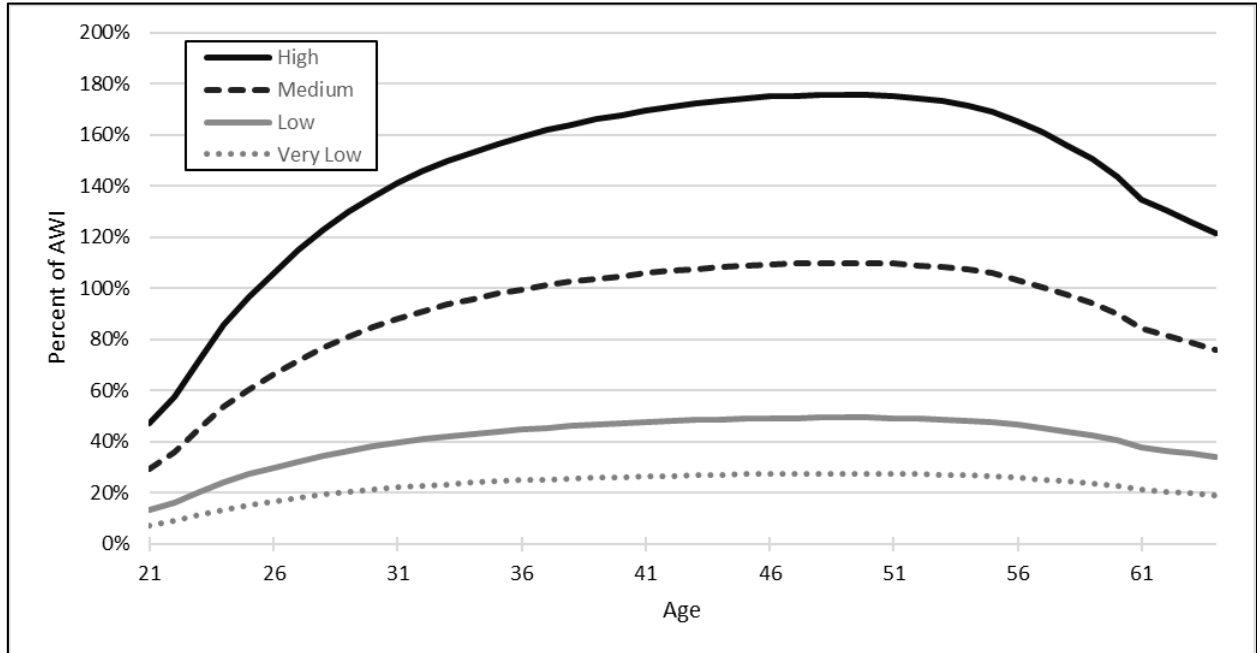
Source: Social Security Administration, Office of the Chief Actuary, *Scaled Factors for Hypothetical Earnings Examples Under the 2020 Trustees Report Assumptions*, Table 6, April 2020, https://www.ssa.gov/OACT/NOTES/ran3/an2020-3.pdf.

Notes: There is no scaled factor for a maximum earner. Maximum earners are assumed to have earned at or above the contribution base in each respective year (see **Table A-2**).

Table A-1. Hypothetical Wages for 1960 Birth Cohort by Earnings Level

Year	Age	Very Low Earner	Low Earner	Medium Earner	High Earner	Maximum Earner
1981	21	$1,019.21	$1,831.82	$4,063.06	$6,514.68	$29,700.00
1982	22	1,307.82	2,354.08	5,216.75	8,355.52	32,400.00
1983	23	1,722.03	3,093.57	6,888.14	11,017.97	35,700.00
1984	24	2,162.10	3,888.55	8,648.40	13,843.89	37,800.00
1985	25	2,540.20	4,575.72	10,143.97	16,250.54	39,600.00
1986	26	2,875.42	5,179.22	11,484.37	18,378.45	42,000.00
1987	27	3,316.77	5,951.76	13,248.66	21,190.49	43,800.00
1988	28	3,712.14	6,689.58	14,848.54	23,761.54	45,000.00
1989	29	4,080.21	7,336.34	16,320.83	26,089.22	48,000.00
1990	30	4,457.93	8,032.69	17,852.76	28,577.02	51,300.00
1991	31	4,820.36	8,659.21	19,237.83	30,797.98	53,400.00
1992	32	5,229.28	9,403.52	20,894.17	33,439.84	55,500.00

Year	Age	Very Low Earner	Low Earner	Medium Earner	High Earner	Maximum Earner
1993	33	5,413.04	9,738.85	21,652.18	34,652.74	57,600.00
1994a	34	5,700.85	10,237.77	22,755.88	36,414.16	60,600.00
1995a	35	6,052.89	10,870.49	24,186.84	38,689.06	61,200.00
1996	36	6,452.56	11,609.43	25,810.24	41,306.76	62,700.00
1997	37	6,938.78	12,478.83	27,755.11	44,402.69	65,400.00
1998	38	7,388.53	13,333.99	29,611.84	47,361.62	68,400.00
1999	39	7,891.69	14,229.42	31,627.69	50,610.40	72,600.00
2000	40	8,424.56	15,177.08	33,698.25	53,923.63	76,200.00
2001	41	8,724.31	15,670.83	34,864.31	55,769.73	80,400.00
2002	42	8,878.31	15,994.26	35,513.23	56,827.82	84,900.00
2003	43	9,163.47	16,487.44	36,653.89	58,659.84	87,000.00
2004	44	9,660.76	17,396.49	38,643.03	61,814.59	87,900.00
2005	45	10,051.20	18,106.94	40,278.70	64,408.97	90,000.00
2006	46	10,590.49	19,016.49	42,284.64	67,678.62	94,200.00
2007	47	11,071.10	19,919.90	44,284.41	70,830.81	97,500.00
2008	48	11,325.78	20,419.48	45,344.46	72,542.87	102,000.00
2009	49	11,154.98	20,111.54	44,660.64	71,489.59	106,800.00
2010	50	11,418.63	20,586.87	45,757.87	73,179.25	106,800.00
2011	51	11,776.41	21,188.95	47,105.65	75,343.26	106,800.00
2012	52	12,055.49	21,717.62	48,310.62	77,252.67	110,100.00
2013	53	12,119.80	21,860.53	48,568.99	77,701.40	113,700.00
2014	54	12,457.05	22,404.09	49,828.19	79,715.81	117,000.00
2015	55	12,698.04	22,894.95	50,888.35	81,430.98	118,500.00
2016	56	12,549.67	22,618.60	50,247.34	80,405.47	118,500.00
2017	57	12,630.79	22,795.82	50,623.82	80,967.92	127,200.00
2018	58	12,723.58	22,892.01	50,842.16	81,399.59	128,400.00
2019	59	12,713.50	22,938.40	50,962.19	81,528.68	132,900.00
2020a	60	-	-	-	-	-
2021a	61	-	-	-	-	-

Source: CRS.

Notes: Very low, low, medium, and high earners are assumed to work at specified ages with earnings equivalent to the respective scaled earners as shown in Social Security Administration, Office of the Chief Actuary, *Scaled Factors for Hypothetical Earnings Examples Under the 2020 Trustees Report Assumptions*, Table 6, April 2020, https://www.ssa.gov/OACT/NOTES/ran3/an2020-3.pdf. All dollar values are shown in nominal terms (i.e., not indexed). Maximum earners are assumed to have earned at or above the contribution base in each respective year (see **Table A-2**).

a. The average wage index (AWI) of 2020 and all subsequent years is unknown until it is calculated by SSA on November 1, 2021 (see footnote 27). In **Table 4**, a range of different AWI levels were assumed to calculate each hypothetical earner's earnings and wage-indexed earnings.

Table A-2. Average Wage Index (AWI), Contribution and Benefit Base, and Primary Insurance Amount (PIA) Bend Points for Select Years

Year	AWI	Annual Change (AWI)	Contribution and Benefit Base (Taxable Maximum)	First PIA Bend Point	Second PIA Bend Point
1981	$13,773.1	10.07%	$29,700	$211	$1,274
1982	14,531.34	5.51%	32,400	230	1,388
1983	15,239.24	4.87%	35,700	254	1,528
1984	16,135.07	5.88%	37,800	267	1,612
1985	16,822.51	4.26%	39,600	280	1,691
1986	17,321.82	2.97%	42,000	297	1,790
1987	18,426.51	6.38%	43,800	310	1,866
1988	19,334.04	4.93%	45,000	319	1,922
1989	20,099.55	3.96%	48,000	339	2,044
1990	21,027.98	4.62%	51,300	356	2,145
1991	21,811.60	3.73%	53,400	370	2,230
1992	22,935.42	5.15%	55,500	387	2,333
1993	23,132.67	0.86%	57,600	401	2,420
1994	23,753.53	2.68%	60,600	422	2,545
1995	24,705.66	4.01%	61,200	426	2,567
1996	25,913.90	4.89%	62,700	437	2,635
1997	27,426.00	5.84%	65,400	455	2,741
1998	28,861.44	5.23%	68,400	477	2,875
1999	30,469.84	5.57%	72,600	505	3,043
2000	32,154.82	5.53%	76,200	531	3,202
2001	32,921.92	2.39%	80,400	561	3,381
2002	33,252.09	1.00%	84,900	592	3,567
2003	34,064.95	2.44%	87,000	606	3,653
2004	35,648.55	4.65%	87,900	612	3,689
2005	36,952.94	3.66%	90,000	627	3,779
2006	38,651.41	4.60%	94,200	656	3,955
2007	40,405.48	4.54%	97,500	680	4,100
2008	41,334.97	2.30%	102,000	711	4,288
2009	40,711.61	-1.51%	106,800	744	4,483
2010	41,673.83	2.36%	106,800	761	4,586
2011	42,979.61	3.13%	106,800	749	4,517
2012	44,321.67	3.12%	110,100	767	4,624
2013	44,888.16	1.28%	113,700	791	4,768

Year	AWI	Annual Change (AWI)	Contribution and Benefit Base (Taxable Maximum)	First PIA Bend Point	Second PIA Bend Point
2014	46,481.52	3.55%	117,000	816	4,917
2015	48,098.63	3.48%	118,500	826	4,980
2016	48,642.15	1.13%	118,500	856	5,157
2017	50,321.89	3.45%	127,200	885	5,336
2018	52,145.80	3.62%	128,400	895	5,397
2019	54,099.99	3.75%	132,900	926	5,583
2020	-	-	137,700	960	5,785
2021	-	-	142,800	996	6,002

Source: CRS.

Notes: Dashes indicate data not available. As discussed in "Social Security Benefits and the Average Wage Index," given the lag time in computing AWI, bend points are computed using the AWI value from the prior two years.

Table A-3. Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) and Social Security Cost-of-Living Adjustment (COLA) for Selected Years

Year	CPI-W, Annual Average Value	Annual Percentage Change in CPI-W	Social Security COLA
1985	106.9	3.5%	3.1%
1986	108.6	1.6	1.3
1987	112.5	3.6	4.2
1988	117.0	4.0	4.0
1989	122.6	4.8	4.7
1990	129.0	5.3	5.4
1991	134.3	4.0	3.7
1992	138.2	2.9	3.0
1993	142.1	2.8	2.6
1994	145.6	2.5	2.8
1995	149.8	2.8	2.6
1996	154.1	2.9	2.9
1997	157.6	2.2	2.1
1998	159.7	1.3	1.3
1999	163.2	2.2	2.5
2000	168.9	3.5	3.5
2001	173.5	2.7	2.6
2002	175.9	1.4	1.4
2003	179.8	2.2	2.1

Year	CPI-W, Annual Average Value	Annual Percentage Change in CPI-W	Social Security COLA
2004	184.5	2.6	2.7
2005	191.0	3.5	4.1
2006	197.1	3.2	3.3
2007	202.8	2.9	2.3
2008	211.1	4.1	5.8
2009	209.6	-0.7	0.0
2010	214.0	2.1	0.0
2011	221.6	3.6	3.6
2012	226.2	2.1	1.7
2013	229.3	1.4	1.5
2014	232.8	1.5	1.7
2015	231.8	-0.4	0.0
2016	234.1	1.0	0.3
2017	239.1	2.1	2.8
2018	245.1	2.5	2.8
2019	249.2	1.7	1.6
2020	-	-	1.3

Source: Department of Labor, Bureau of Labor Statistics (BLS), Consumer Price Index (CPI) Databases, Urban Wage Earners and Clerical Workers (Current Series), https://data.bls.gov/PDQWeb/cw; and Social Security Administration, Office of the Chief Actuary, "Cost-of-Living Adjustments," https://www.ssa.gov/OACT/COLA/colaseries.html.

Notes: The average annual CPI-W value is the arithmetical average of that year's monthly CPI-W values, U.S. city average, all items, not seasonally adjusted, as reported by BLS (1982-1984 = 100). The Social Security COLA is calculated by measuring the percentage increase in the CPI-W between the third quarter of the current calendar year and the CPI-W of the third quarter of the previous year. The percentage change is rounded to the nearest one-tenth of 1% (0.1%) and cannot be less than zero. Dashes indicate that data are not available.

Table A-4. Selected Items Used in the Social Security Program and Their Relationship with the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) and/or Average Wage Index (AWI)

Items	Citation for Indexation	Indexing Measure	Possible Change When CPI-W Declines	Possible Change When AWI Declines
Social Security Cost-of-Living Adjustment	42 U.S.C. §415(i)	CPI-W	No	—
Contribution and Benefit Base	42 U.S.C. §430(b)	AWI	No	No
Quarter of Coverage	42 U.S.C. §413(d)	AWI	No	No
Average Indexed Monthly Earnings	42 U.S.C. §415(b)(3)(A)	AWI	—	Yes

Bend Points for Primary Insurance Amount	42 U.S.C. §415(a)(1)(B)	AWI	—	Yes
Bend Points for Family Maximum Benefits	42 U.S.C. §403(a)(2)	AWI	—	Yes

Source: CRS review of statutory and regulatory provisions, as well as sub-regulatory guidance, pertaining to each item.

Notes: Dashes indicate not relevant.

Author Information

Barry F. Huston, Coordinator
Analyst in Social Policy

Tamar B. Breslauer
Senior Research Librarian

Paul S. Davies
Specialist in Income Security

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