Social Security Replacement Rates: "Nudging" in the Wrong Direction?

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Introduction

Social Security reform is both necessary and urgent, yet Congress remains reluctant to act.[1] This political inertia is primarily the result of two factors. First, the combined Social Security trust funds (OASDI) are projected to remain solvent until 2035, creating an undue sense of complacency.[2] Second, the only way to extend trust fund solvency consistent with the self-financing tradition of the program is to raise payroll taxes or reduce benefits, thereby alienating workers or beneficiaries. Hence, Congress has every incentive to delay action and postpone unpopular decisions. However, there is another important factor that also impedes reform – the use of traditional replacement rates to guide public policy decisions.

Replacement rates measure the ratio of benefits to wages–or how much of a worker's earnings are replaced by Social Security benefits in retirement. These ratios can provide a useful metric to assess the adequacy of benefits and evaluate alternative reforms. Unfortunately, these rates as traditionally presented provide a misleading and incomplete picture by obscuring the growth in real (inflation-adjusted) benefits and excluding the effects of marriage, life expectancy, and taxes.

This presentation bias creates a public policy dilemma. Maintaining the solvency of Social Security will require changes to current law. The use of replacement rates as typically presented serves to bias the choice between raising taxes and reducing benefits. When replacement rates are perceived to be too low, the public will be reluctant to accept any benefit reductions. When replacement rates are understood to be more substantial, the public might accept some reductions to avoid higher taxes. To make an informed choice, policymakers and the public need more complete and unbiased information.

This issue brief examines the distortions and limitations of traditional replacement rates and explains how Congress can obtain better data to inform the current debate over the future of Social Security.

Traditional Replacement Rates are Misleading

Social Security provides monthly cash benefits to retired and disabled workers, as well as their eligible spouses, dependents, and survivors. The current benefit formula, enacted in 1977, was first applied to individuals born in 1917, who turned 62 in 1979.[3] To assess the adequacy of the benefit formula, individual benefits are compared to individual wages. The ratio of benefits to wages – i.e., replacement rate – reflects the extent to which benefits replace the wages lost due to retirement, disability, or death. The higher the ratio, the easier it is for individuals to maintain their standard of living (combined with other sources of retirement income) after they become eligible for benefits.

There are two key features of the Social Security benefit formula. First, the formula is progressive. That means the formula provides higher replacement rates for lower-wage workers, and lower replacement rates for higher-wage workers. Higher-wage workers receive larger benefits in terms of absolute dollars, but those benefits replace a smaller portion of their previous wages. Second, the formula links initial (first-time) benefits to the annual change in the economy-wide average wage. Because wages typically rise faster than inflation, primarily due to productivity growth, replacement rates for newly eligible beneficiaries generally increase at every real (inflation-adjusted) wage level from one year to the next. This linkage is based on the Average Wage Index (AWI) as explained in the Appendix.

Although the progressive nature of the formula is readily apparent, the growth in real benefits can be obscured. As shown in Figures 1 and 2 below, replacement rates appear to be either constant or rising depending on how they are presented. Both figures show identical results for workers at age 65 in 2022 because they have the same wages, but Figure 1 shows future workers with constant real wages (Wages = CPI) have rising replacement rates; whereas Figure 2 shows future workers with rising real wages (Wages = AWI) have constant replacement rates.

Figure 1 shows benefits are progressive and replacement rates are rising. Workers earning $15,646 per year have higher replacement rates than workers earning $100,133 per year; but workers who turn 65 in future years have higher replacement rates than workers who turned 65 in previous years no matter their level of real wages.[4]

Figure 1: Replacement Rates for Hypothetical Workers at Age 65 (Wages = CPI)

Annual Wages*	Year Age 65				Percent Change (2022-2080)
	2022	2040	2060	2080	
$15,646	65.9%	70.9%	71.0%	71.1%	8%
$28,162	47.9%	53.5%	60.6%	69.6%	45%
$62,583	35.6%	38.0%	41.2%	45.2%	27%
$100,133	29.4%	33.2%	35.2%	37.7%	28%
Source: The Concord Coaltion				*Constant 2022 Dollars (CPI)	

Workers with the same real wages receive higher replacement rates because the formula increases their earnings to account for the economy-wide average wage growth (AWI) that occurred during their career. Thus, workers receive credit for more than 100 percent of their own inflation-adjusted wages. In addition, when wages rise with inflation while the formula "bend

points" increase with the AWI, the larger benefit multipliers (90%, 32%,15%) apply to a greater share of wages. (This is similar to "bracket-creep" in the tax code, but rather than higher taxes, the result is higher replacement rates.)

Traditionally, the annual Social Security Trustees' report included replacement rates for hypothetical workers with stylized earnings. These replacement rates were subject to criticism and removed from the 2014 and subsequent reports.[5] However, the report still contains the data needed to calculate replacement rates, and the Social Security Administration's Office of the Chief Actuary continues to publish these rates separately.[6]

Figure 2, which is consistent with the methodology in previous Trustee's reports, shows benefits are progressive and replacement rates are roughly constant. (There is a slight reduction due to the increase in the full retirement age from 66.5 to 67 that occurs during this period.) Workers earning 25% of the AWI have higher replacement rates than workers earning 160% of the AWI. Workers who turn 65 in future years have roughly the same replacement rate as workers who turned 65 in earlier years no matter how much they earn relative to the AWI.[7] However, the AWI is projected to increase from $62,583 to $124,514 over this period. Thus, the workers in 2080 earn nearly twice as much as the workers in 2022.

Figure 2: Replacement Rates for Hypothetical Workers at Age 65 (Wages = AWI)

Annual Wages*	Year Age 65				Percent Change (2022-2080)
	2022	2040	2060	2080	
Very Low (25%)	65.9%	65.1%	65.3%	65.4%	-1%
Low (45%)	47.9%	47.4%	47.5%	47.6%	-1%
Medium (100%)	35.6%	35.2%	35.3%	35.3%	-1%
High (160%)	29.4%	29.1%	29.2%	29.2%	-1%
AWI in Constant 2022 Dollars (CPI)	$62,583	$79,937	$99,505	$124,514	99%
Source: The Concord Coalition					*Percent of AWI

Figure 1 shows constant real wages and rising replacement rates, whereas Figure 2 shows rising real wages and constant replacement rates. Thus, whether replacement rates are seen to be rising or constant depends on whether the hypothetical workers are assumed to have constant or rising wages from one birth cohort to the next.

Advocates of presenting replacement rates as shown in Figure 2 seem to believe workers should have the same replacement rates regardless of how much the AWI increases in the future. However, this belief runs counter to the progressive nature of the program that says workers with higher wages should have lower replacement rates.

Traditional Replacement Rates Are Incomplete

Social Security not only provides benefits to individual workers, but it also provides auxiliary benefits to their eligible spouses, dependents, and survivors. Social Security benefits are also subject to preferential tax treatment. Traditional replacement rates compare annual pre-tax

benefits to annual pre-tax wages, thereby ignoring the value of shared lifetime benefits and lower taxes.

Social Security provides an auxiliary benefit to a non-working (or lower earning) spouse equal to 50 percent of the primary worker's benefit. Thus, married couples can receive an amount equal to 150 percent of the higher-earning spouse's benefit. Lower-earning spouses receive their own benefit plus the difference between their own benefit and 50 percent of the higher-earning spouse's benefit.[8] (These results assume both spouses have attained the full retirement age. Benefits at earlier ages are subject to actuarial reductions and will be less than 50 percent.)

Social Security benefits are also paid on a lifetime basis. The longer beneficiaries live, the more benefits they receive. In the case of married couples or divorced spouses, when one spouse dies, the surviving spouse can receive the deceased spouse's benefit if it is more than their own benefit.[9]

Unlike wages, Social Security benefits are exempt from the payroll tax and the income tax only applies to 50 or 85 percent of benefits depending on the beneficiary's total income.[10] Moreover, beneficiaries typically receive capital gains and qualified dividends, which are subject to a lower income tax rate than wages. Thus, beneficiaries typically pay less taxes than workers who have the same total income.

A more complete and unbiased measure of replacement rates would include these auxiliary benefits and account for the preferential tax treatment of Social Security benefits. Both the Congressional Budget Office (CBO) and the Social Security Administration's Office of Research, Evaluation and Statistics (ORES) have the capability to calculate alternative replacement rates based on shared lifetime after-tax income.[11]

These calculations allocate wages, benefits, and taxes to each worker on an individual basis in the years they are single, and on a shared basis (evenly divided between spouses) in the years they are married. This approach accounts for the auxiliary benefits associated with marriage, divorce, and subsequent remarriage if applicable, and the differential tax treatment of wages and benefits.

Figure 3 compares traditional replacement rates with alternative replacement rates for "long-career" workers as calculated by the CBO.[12] These results differ from Figures 1 and 2 because they are based on the CBO's projection of lifetime earnings, rather than hypothetical workers with stylized earnings. The CBO's analysis shows replacement rates vary depending on how wages and benefits are measured. For example, replacement rates for workers in the lowest earnings quintile range from 49 to 56 percent under the traditional method versus 85 to 104 percent under the alternative method.[13]

Figure 3: Replacement Rates by Income Quintile and Birth Cohort

Quintile of Shared Lifetime Earnings*	Traditional Method 10-Year Birth Cohort			Alternative Method 10-Year Birth Cohort		
	1940s	1960s	1980s	1940s	1960s	1980s
	Individual Pre-Tax Benefits at Age 65			Shared Lifetime After-Tax Benefits		
Lowest	52%	49%	56%	94%	85%	104%
Second	42%	38%	42%	72%	68%	81%
Middle	39%	35%	37%	64%	59%	71%
Fourth	35%	32%	33%	57%	51%	61%
Highest	28%	24%	24%	45%	37%	42%
Source: Congressional Budget Office				*Includes wages and net earnings from self-employment		

The striking disparity between these two methods is the result of different analytical choices. Traditional replacement rates compare annual pre-tax benefits at age 65 with average pre-tax earnings, based on the highest 35 years of earnings, adjusted by the average wage index (AWI). Alternative replacement rates compare shared lifetime after-tax benefits (converted into an annual annuity) to the average shared lifetime after-tax earnings from ages 22 to 61, adjusted by the consumer price index (CPI), based on the CBO's projected claiming age.[14]

These choices reflect different perspectives about the purpose of replacement rates, which in turn reflect different preferences about the role of Social Security.

Replacement Rates Drive Policy Choices

The way information is presented can influence the choices people make. Economist Richard Thaler and Cass Sunstein use the term "choice architecture" to describe this phenomenon.[15] They claim people often make bad choices, so policymakers should "nudge" them in the right direction. In this context, replacement rates are part of Social Security's choice architecture. Unfortunately, traditional replacement rates and alternative replacement rates nudge in opposite directions.

Social Security benefits are often described as modest or even inadequate. Such descriptions are intended to create the impression that current workers cannot afford to forgo even a modest portion of their future benefits. This impression is reinforced by using traditional replacement rates which essentially compare the benefits of newly eligible beneficiaries to the wages of workers who are still employed, thereby minimizing the relative value of those benefits.

Alternative replacement rates compare the benefits of newly eligible beneficiaries to their own previous wages, adjusted for inflation. This approach is consistent with the life cycle-permanent income (LC-HI) hypothesis, which holds that individuals want to maintain a constant level of consumption based on their expected average lifetime income. From this perspective, benefits are seen to be more generous, so current workers might be willing to accept a future reduction to avoid higher taxes.

Given the conflicting message conveyed by these two measures, the decision to favor one over the other ultimately reveals a preference about the desired role of the Social Security program.

Historically, Social Security has been viewed as one part of a multi-tiered income-support system, including means-tested public assistance, personal savings, and employer pensions.

Social Security's progressive formula complements the other tiers by providing relatively more to those relying on public assistance and relatively less to those with savings and pensions.

The use of traditional replacement rates supports the view that benefits should rise along with the increase in the economy-wide average wage (AWI). This view holds that despite rising wages, future workers should rely more on Social Security and less on their own savings and pensions. Thus, future taxes should be higher than currently scheduled.

The use of alternative replacement rates supports the view that a progressive system should not provide increasingly higher benefits to future workers with higher wages. This view holds that due to rising wages, future workers will be able to save more for their own retirement, and thus be less reliant on Social Security. Thus, future benefits should be lower than currently scheduled.

Choosing between these two perspectives involves a value judgment regarding the desired role of Social Security in the future. The public should not be nudged in only one direction. They deserve the opportunity to consider both possible outcomes. And careful consideration starts with a better understanding of replacement rates and their public policy implications.

Conclusion

The Social Security benefit formula is designed to provide lower replacement rates to higher wage workers. Considering the substantial increase in wages projected to occur in the future, it might seem reasonable to expect replacement rates to decline. In fact, the opposite is true. Replacement rates are projected to rise at every wage level. This result is obscured when traditional replacement rates are used to measure the value of future benefits. Traditional replacement rates also exclude the value of shared lifetime benefits and lower taxes.

The use of alternative replacement rates developed by the CBO and the ORES would provide policymakers and the public with more complete and unbiased information. Such information is essential to making better decisions about the future of Social Security.

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Appendix – How to Calculate Social Security Benefits

The Social Security benefit formula is based on a combination of wages and prices. Initial (first-time) benefits for newly eligible beneficiaries are linked to the average wage index (AWI) produced by the Social Security Administration (SSA)[16], and subsequent benefits paid after the initial year of eligibility are linked to the consumer price index (CPI) produced by the Bureau of Labor Statistics (BLS).[17]

Initial benefits are linked to wages in three ways. First, SSA uses annual tax return data (W-2s) to determine the average wage for all U.S. workers, which is used to create an average wage index (AWI).[18] Second, the AWI is used to increase each worker's annual wages through age

60 based on average wage growth in the entire U.S. economy. Each worker's highest 35 years of wages (including unadjusted wages after age 60) are used to determine his or her average indexed monthly earnings (AIME).[19] Third, the AWI is used to increase the benefit formula thresholds ("bend points") that determine which benefit replacement factor (90%, 32%, 15%) applies to the applicable portion of the AIME used to calculate each worker's primary insurance amount (PIA).[20]

The AWI adjustment is accomplished by multiplying each worker's annual wages by the ratio of the AWI in the year the worker attained age 60 and the AWI in the year the wages were earned. For example, a worker who earned $10,000 at age 40, $20,000 at age 50, and $30,000 at age 60 would have indexed wages equal to $17,300, $26,697, and $30,000, respectively.

Figure A1: Example of AWI Adjustment for Worker who Attains Age 60 in 2020

Year	Age	Actual Wages (A)	AWI (B)	AWI_{60} / AWI_{age} (C)	Indexed Wages (A x C)
2000	40	$10,000	32,155	1.730	$17,300
2010	50	$20,000	41,674	1.335	$26,697
2020	60	$30,000	55,629	1.000	$30,000

Source: The Concord Coalition

In 2022, a hypothetical 62-year-old worker who always earned the maximum taxable wage would have an AIME of $11,430 and a PIA of $3,358. The PIA is the initial monthly benefit prior to any adjustment for early or delayed retirement. Workers who retire between age 62 and the full retirement age (FRA) receive lower monthly benefits to offset the additional years of expected retirement. Workers who retire between the FRA and age 70 receive higher monthly benefits to compensate for fewer years of expected retirement. The FRA varies between 65, 66, and 67, depending on the individual's birth year.[21]

Figure A2: PIA Calculation for Maximum Taxable Wage Earner at Age 62 in 2022

Bend Points	Replacement Factors	AIME x RFs	PIA
Under $1,024	90%	$1,024 x 90%	$922
$1,024 to $6,172	32%	($6,172-$1,024) x 32%	$1,647
Over $6,172*	15%	($11,430-$6,172) x 15%	$789
		TOTAL =	$3,358

Source: The Concord Coalition   *Upper limit determined by the maximum taxable amount

Subsequent benefits after the initial year of eligibility are linked to prices in two ways. First, the PIA includes any cost-of-living adjustments (COLAs) that occur between age 62 and the worker's actual retirement age (if older than 62). Second, once benefit payments begin the monthly amount is increased each January of the following year by the annual COLA. Annual COLAs are based on the consumer price index.[22]

Because wages typically rise faster than prices due to economy-wide productivity growth, this bifurcated approach has the effect of increasing real (inflation-adjusted) benefits for each successive generation (birth cohort) of workers while preventing these benefits from being eroded by inflation after the initial year of eligibility.

[1] Social Security: Why Action Should be Taken Soon (ssab.gov); Social Security Shortfall Warrants Action Soon (pewtrusts.org)

[2] Trustees Report Summary (ssa.gov)

[3] Benefits for workers born 1917 to 1928 were based on 23 to 34 years of wages, rather than 35 years.

[4] Replacement rates at age 65 vary with changes in the full retirement age (FRA) and when the real-wage differential (AWI minus CPI) deviates from the historical trend.

[5] The Life Cycle Model, Replacement Rates, and Retirement Income Adequacy (aei.org); Measuring and Communicating Social Security Earnings Replacement Rates (aei.org); Replacement Rates Blahous v1-0.pdf (mercatus.org)

[6] C. PROGRAM-SPECIFIC ASSUMPTIONS AND METHODS (ssa.gov); an155_ReplacementRatesfor Retirees.fm (ssa.gov)

[7] Replacement rates at age 65 vary with changes in the full retirement age (FRA) and when the real-wage differential (AWI minus CPI) deviates from the historical trend.

[8] Fast Facts & Figures About Social Security, 2020 (ssa.gov); IF10738 (congress.gov)

[9] Couples must be married at least one year to be eligible for spouse and survivor benefits, or at least 10 years in the case of divorce. Widows and ex-spouses who remarry after they attain age 60 can also collect auxiliary benefits based on their former spouse's benefit amount, or their current spouse's benefit amount, whichever is higher.

[10] Social Security Benefit Taxation Highlights (congress.gov); Beneficiaries with income above $25,000 (single) and $32,000 (couple) pay income taxes on as much as 50% of their benefits; and income above $34,000 (single) and $44,000 (couple) pay income taxes on as much as 85% of their benefits.

[11] Social Security Replacement Rates and Other Benefit Measures: An In-Depth Analysis |(cbo.gov); Alternate Measures of Replacement Rates for Social Security Benefits and Retirement Income (ssa.gov)

[12] Long-career workers have 20 or more years of earnings greater than 10 percent of the AWI in the corresponding year and are eligible to claim retirement benefits at age 62, and are not receiving disability benefits.

[13] Social Security Replacement Rates and Other Benefit Measures: An In-Depth Analysis |(cbo.gov), Interactive Tool and Supplemental Data. Lifetime benefits are converted into an annual annuity based on their discounted present value (PV) at age 65. After-tax replacement rates are understated because they do not include the additional payroll taxes needed to pay scheduled benefits after the trust fund is exhausted.

[14] The CBO projects benefit claiming ages – which vary between 62 and 70 – based on economic and demographic characteristics and the applicable full retirement age (FRA).

[15] [Thaler & Sunstein Release "Nudge: The Final Edition" (chicagobooth.edu)](chicagobooth.edu)

[16] [National Average Wage Index (ssa.gov)](ssa.gov)

[17] [CPI Home : U.S. Bureau of Labor Statistics (bls.gov)](bls.gov)

[18] W-2s include both covered and non-covered workers (primarily state and local government employees), as well as wages above and below the maximum taxable amount ($147,000 in 2022).

[19] Disability and survivor benefits may be based on fewer than 35 years, depending on the age of the disabled or deceased worker. Annual earnings are indexed through the second year prior to eligibility, which could occur before age 60 in the case of disability or survivor benefits.

[20] [Benefit Formula Bend Points (ssa.gov)](ssa.gov)

[21] [Normal retirement age (NRA) (ssa.gov)](ssa.gov)

[22] [Cost-Of-Living Adjustments (ssa.gov)](ssa.gov)