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SOCIAL SECURITY & MEDICARE LIFETIME BENEFITS & TAXES: 2020

Erald Kolasi and C. Eugene Steuerle
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ABSTRACT

This report presents updated figures in 2020 dollars for the lifetime benefits earned and the lifetime taxes paid by hypothetical workers participating in Social Security and Medicare. For a single male earning average wages every year and retiring in 2020 at age 65, lifetime Social Security and Medicare benefits would equal about \$570,000 and, for a couple with average and low wages, about \$1,113,000. Those amounts rise and fall for other hypothetical households as their incomes rise and fall relative to average wages. They also increase significantly for future retirees, as benefits rise with real wages in the case of Social Security, and with higher health care costs and new health services in the case of Medicare. Lifetime Social Security and Medicare taxes are still scheduled to be significantly lower than lifetime Social Security and Medicare benefits for most workers in future decades, partly because the low Medicare tax was designed to cover only hospital costs, but not doctor, outpatient, and other hospital services costs (and even those hospital costs remain well above the revenues required to fund them).

Given the near-term depletion of Social Security and Medicare Hospital Insurance trust funds, these data allow policy makers to visualize how reforms might adjust currently scheduled retirement and health benefits and taxes along several dimensions: on a lifetime, as well as annual, basis; among people with different earnings histories; and intergenerationally, or across different future cohorts.

BACKGROUND

Social Security and Medicare together form perhaps the central core of the federal government's numerous social safety initiatives. About 64 million people received just over \$1 trillion in benefits from the Old Age, Survivors, and Disability Insurance program in 2019 (Board of Trustees, Federal Old-Age and Survivors Insurance Trust Funds 2020). In the same year, Medicare paid benefits totaling \$785 billion on behalf of 1 million beneficiaries (Board of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds 2020). The two programs have an enormous social and economic impact, particularly in keeping millions of people out of poverty during their years of retirement.

In this report, we focus on how much hypothetical workers with specific income profiles and belonging to different retirement cohorts, receive in lifetime and annual benefits and how much they pay out in lifetime taxes. We discourage people from using our data to draw simplistic conclusions about whether individuals got their "moneys' worth" out of the system. Social Security and Medicare, after all, operate primarily as pay-as-you-go systems, meaning that most taxes are not invested but simply used to pay benefits for current beneficiaries. This is easiest to see in those years when the trust funds approach zero, as in the years right before the 1983 reform and currently, as these systems move toward depletion. But even in years when the baby boom generation was most fully employed and had not yet started retiring, the trust fund buildup was only a small percentage of current revenue collections and a tiny fraction of rising liabilities.

Though each generation's taxes go to support the benefits of their parents' and grandparents' generations, this doesn't answer the question of what a new generation of retirees is owed by its own children and grandchildren. If fewer workers are around to support each retiree, then the tax rate from Social Security or other sources on those children and grandchildren must rise relative to what beneficiaries had to pay. Comparing scheduled lifetime benefits to taxes, however, does offer a systematic way to compare how the system operates across generations and can inform judgments as to whether different cohorts and types of households are treated fairly and efficiently by America's old-age systems. It also reveals how each generation might share in any increased burden from the reduced benefits or increased taxes required to bring those systems into balance and keep them there.

RESULTS AND DISCUSSION

The following tables show the expected present value at age 65 of benefits received in retirement and taxes paid over a career for households with different wage and marriage histories. The underlying data come from the 2020 Social Security and Medicare trustees' reports and supplemental data published by the Social Security Administration and Centers for Medicare & Medicaid Services (CMS). In calculating expected present values, we use gender-adjusted probabilities to account for chance of death after age 65 and a discount rate of 2 percent

plus inflation. This discount rate is above what is paid by many private annuities today, but is close to a long-term real rate of return on bonds.

For Medicare lifetime benefits, we use an alternative 2020 cost scenario from CMS that overrides a “current law” scenario where CMS assumes that Medicare reimbursement rates would decline relative to what private health insurance pays. If Medicare’s reimbursement of health providers falls too low, providers might stop accepting Medicare, which could threaten beneficiaries’ health and financial security. The CMS alternative scenario that we use effectively assumes that policymakers would act to prevent this from happening, as they have done in the past.

Changes from the last analysis we performed in 2018 are modest; the largest adjustment derives from presenting results in 2020 versus 2018 dollars. Other changes derive from updated mortality figures and two more years of economic data. The Social Security trustees also lowered their intermediate assumptions about future levels of inflation, but this change has little effect on our results because we present everything in terms of real values, not nominal values. Overall, we still see both lifetime benefits and taxes increasing for future workers and retirees, with differences among households at different levels of income identified in each table. Benefit growth rates tend to stagnate currently while a modest increase in the full retirement age continues to phase in for cohorts reaching age 62 between now and 2022.

The numbers presented are averages for hypothetical workers with specific work histories and longevity characteristics. Lifetime benefits and taxes experienced by specific households in the economy will vary based on several factors, including earnings patterns, health, and choices about marriage, divorce, children, and retirement. The greater average expected lifetime benefits of women compared with men with the same earnings profile stem from longer life expectancies for women

Benefits grow more generous over time as real wages grow, people live longer, and real health costs increase. Many single adults with average earnings retiring in 2020 will receive well over \$500,000 in lifetime benefits. A couple with one earner at average wages and one at low wages will receive roughly \$1 million in lifetime benefits. While Social Security annual benefits have grown over time as wages have risen, lifetime benefits for both Social Security reach this level also because an average individual is projected to live close to two decades at age 65, and the longer-living spouse of a couple will live close to three decades. The growth in health benefits per household derives from increases in the levels of services and goods provided over time and their related costs.

Under scheduled law, those millennials who will retire around 2060, are scheduled to receive benefits equaling nearly twice as much—that is, well over \$1 million for an average-income single adult and about \$2.5 million for a couple—as those baby boomers retiring in 2020 at the time of this report. While fiscal imbalances in Social Security, Medicare, and the rest of the federal budget may make this schedule of benefits hard to

maintain, the numbers do reveal substantial room for reformers to provide higher real levels of benefits over time even if they pare down the growth rate in benefits.

Lifetime benefits schedules for some higher-income couples by 2060 will easily exceed \$3 million, and those estimates in the tables are probably low given the simplifying assumption of a similar mortality rate for all males, and, separately, for all females of a given cohort. After all, mortality rates tend to fall as income rises. By the same token, the estimates for lower-income earners are probably too high. Unfortunately, we do not have enough data to adjust for mortality by income for the hundred years of cohorts in these tables. However, researchers at the Urban Institute did conduct a related study to try to get a sense of the effect of mortality on benefit levels. See the discussion in the Appendix.

Lifetime taxes represent the amount of money a household would accrue if its Social Security and Medicare contributions had been saved in an account that earned a 2 percent real rate of return during the household's working years. When lifetime retirement and health benefits exceed lifetime Social Security and Medicare taxes, as is true for most households, the value of benefits from those programs becomes greater than the value of an annuity that the household would have been able to purchase with their lifetime taxes. While lifetime Social Security taxes have been rising and already exceeding benefits at higher income levels, lifetime Medicare benefits at all income levels are still far in excess of anything that could be covered by the Medicare or Hospital (HI) tax component of the payroll tax. Shortfalls, past and increasingly in the future, must be covered somehow—by non-Social Security revenues, general government borrowing, or higher Social Security or Medicare taxes.

TABLE 1

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Single male with low earnings (\$25,200 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	7,000	86,000	16,000	102,000	9,000	0	9,000
1965	7,300	96,000	29,000	125,000	15,000	0	15,000
1970	8,400	110,000	42,000	152,000	23,000	1,000	24,000
1975	9,800	122,000	56,000	178,000	34,000	2,000	36,000
1980	10,700	143,000	73,000	216,000	45,000	4,000	49,000
1985	10,100	134,000	91,000	225,000	57,000	7,000	64,000
1990	10,000	140,000	111,000	251,000	70,000	10,000	80,000
1995	10,700	152,000	132,000	284,000	85,000	14,000	99,000
2000	10,900	161,000	152,000	313,000	100,000	19,000	119,000
2005	12,000	184,000	174,000	358,000	114,000	24,000	138,000
2010	12,500	188,000	190,000	378,000	125,000	29,000	154,000
2015	12,500	188,000	210,000	398,000	134,000	33,000	167,000
2020	12,700	201,000	240,000	441,000	141,000	36,000	177,000
2025	12,600	201,000	274,000	475,000	150,000	39,000	189,000
2030	13,600	220,000	311,000	531,000	159,000	42,000	201,000
2035	14,500	239,000	351,000	590,000	167,000	44,000	211,000
2040	15,500	257,000	392,000	649,000	177,000	47,000	224,000
2045	16,400	275,000	433,000	708,000	186,000	50,000	236,000
2050	17,200	294,000	477,000	771,000	196,000	53,000	249,000
2055	18,200	313,000	522,000	835,000	208,000	56,000	264,000
2060	19,200	334,000	571,000	905,000	223,000	60,000	283,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A low earner earns 45 percent of the average wage.

TABLE 2

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Single male with average earnings (\$56,000 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	10,600	130,000	16,000	146,000	20,000	0	20,000
1965	11,200	147,000	29,000	176,000	33,000	0	33,000
1970	13,100	172,000	42,000	214,000	51,000	2,000	53,000
1975	15,700	197,000	56,000	253,000	74,000	5,000	79,000
1980	17,800	238,000	73,000	311,000	101,000	9,000	110,000
1985	16,700	221,000	91,000	312,000	126,000	15,000	141,000
1990	16,500	231,000	111,000	342,000	156,000	23,000	179,000
1995	17,700	251,000	132,000	383,000	190,000	31,000	221,000
2000	18,000	267,000	152,000	419,000	221,000	41,000	262,000
2005	19,800	303,000	174,000	477,000	253,000	53,000	306,000
2010	20,700	310,000	190,000	500,000	278,000	65,000	343,000
2015	20,600	311,000	210,000	521,000	297,000	74,000	371,000
2020	21,000	331,000	240,000	571,000	312,000	81,000	393,000
2025	20,800	332,000	274,000	606,000	333,000	87,000	420,000
2030	22,400	363,000	311,000	674,000	354,000	93,000	447,000
2035	24,000	394,000	351,000	745,000	371,000	98,000	469,000
2040	25,500	424,000	392,000	816,000	392,000	105,000	497,000
2045	27,000	454,000	433,000	887,000	413,000	110,000	523,000
2050	28,500	485,000	477,000	962,000	435,000	117,000	552,000
2055	30,000	517,000	522,000	1,039,000	463,000	124,000	587,000
2060	31,700	552,000	571,000	1,123,000	495,000	133,000	628,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration's national average wage index each year.

TABLE 3

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes

Single male with high earnings (\$89,600 in 2020 dollars)



Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	11,800	145,000	16,000	161,000	27,000	0	27,000
1965	12,300	161,000	29,000	190,000	42,000	0	42,000
1970	14,800	195,000	42,000	237,000	65,000	2,000	67,000
1975	18,400	230,000	56,000	286,000	96,000	7,000	103,000
1980	22,200	298,000	73,000	371,000	136,000	14,000	150,000
1985	21,000	278,000	91,000	369,000	173,000	23,000	196,000
1990	21,000	293,000	111,000	404,000	219,000	35,000	254,000
1995	22,600	321,000	132,000	453,000	272,000	48,000	320,000
2000	23,300	346,000	152,000	498,000	324,000	64,000	388,000
2005	26,100	399,000	174,000	573,000	379,000	82,000	461,000
2010	27,300	410,000	190,000	600,000	430,000	102,000	532,000
2015	27,200	412,000	210,000	622,000	471,000	117,000	588,000
2020	27,800	438,000	240,000	678,000	500,000	129,000	629,000
2025	27,500	438,000	274,000	712,000	533,000	140,000	673,000
2030	29,700	480,000	311,000	791,000	566,000	149,000	715,000
2035	31,700	521,000	351,000	872,000	593,000	157,000	750,000
2040	33,700	561,000	392,000	953,000	628,000	167,000	795,000
2045	35,700	601,000	433,000	1,034,000	660,000	177,000	837,000
2050	37,600	641,000	477,000	1,118,000	696,000	189,000	885,000
2055	39,700	683,000	522,000	1,205,000	740,000	203,000	943,000
2060	41,900	729,000	571,000	1,300,000	792,000	220,000	1,012,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A high earner earns 160 percent of the average wage.

TABLE 4

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Single male with maximum taxable earnings (\$137,700 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	11,800	145,000	16,000	161,000	30,000	0	30,000
1965	12,300	161,000	29,000	190,000	46,000	0	46,000
1970	14,800	195,000	42,000	237,000	69,000	2,000	71,000
1975	18,400	231,000	56,000	287,000	101,000	7,000	108,000
1980	22,600	303,000	73,000	376,000	144,000	14,000	158,000
1985	21,900	290,000	91,000	381,000	189,000	27,000	216,000
1990	22,400	313,000	111,000	424,000	254,000	44,000	298,000
1995	24,700	350,000	132,000	482,000	331,000	63,000	394,000
2000	26,100	388,000	152,000	540,000	410,000	86,000	496,000
2005	30,000	458,000	174,000	632,000	498,000	112,000	610,000
2010	32,300	484,000	190,000	674,000	586,000	142,000	728,000
2015	32,900	497,000	210,000	707,000	667,000	168,000	835,000
2020	33,900	533,000	240,000	773,000	741,000	192,000	933,000
2025	33,500	536,000	274,000	810,000	814,000	212,000	1,026,000
2030	36,300	588,000	311,000	899,000	870,000	227,000	1,097,000
2035	38,900	638,000	351,000	989,000	915,000	241,000	1,156,000
2040	41,300	686,000	392,000	1,078,000	968,000	258,000	1,226,000
2045	43,700	736,000	433,000	1,169,000	1,023,000	276,000	1,299,000
2050	46,100	784,000	477,000	1,261,000	1,077,000	296,000	1,373,000
2055	48,500	835,000	522,000	1,357,000	1,143,000	320,000	1,463,000
2060	51,200	891,000	571,000	1,462,000	1,222,000	349,000	1,571,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. A maximum-taxable earner earns the Social Security maximum taxable wage every year (\$137,700 in 2020).

TABLE 5

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Single female with low earnings (\$25,200 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	7,100	112,000	27,000	139,000	9,000	0	9,000
1965	7,500	127,000	45,000	172,000	15,000	0	15,000
1970	8,600	144,000	62,000	206,000	23,000	1,000	24,000
1975	10,100	159,000	80,000	239,000	34,000	2,000	36,000
1980	10,700	176,000	99,000	275,000	45,000	4,000	49,000
1985	10,100	160,000	119,000	279,000	57,000	7,000	64,000
1990	10,000	164,000	139,000	303,000	70,000	10,000	80,000
1995	10,700	175,000	161,000	336,000	85,000	14,000	99,000
2000	10,900	182,000	181,000	363,000	100,000	19,000	119,000
2005	12,000	205,000	205,000	410,000	114,000	24,000	138,000
2010	12,500	209,000	224,000	433,000	125,000	29,000	154,000
2015	12,500	210,000	249,000	459,000	134,000	33,000	167,000
2020	12,700	222,000	282,000	504,000	141,000	36,000	177,000
2025	12,600	222,000	321,000	543,000	150,000	39,000	189,000
2030	13,600	243,000	362,000	605,000	159,000	42,000	201,000
2035	14,500	262,000	406,000	668,000	167,000	44,000	211,000
2040	15,500	281,000	451,000	732,000	177,000	47,000	224,000
2045	16,400	301,000	497,000	798,000	186,000	50,000	236,000
2050	17,200	320,000	545,000	865,000	196,000	53,000	249,000
2055	18,200	340,000	595,000	935,000	208,000	56,000	264,000
2060	19,200	363,000	648,000	1,011,000	223,000	60,000	283,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. A maximum-taxable earner earns the Social Security maximum taxable wage every year (\$137,700 in 2020).

TABLE 6

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Single female with average earnings (\$56,000 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	10,800	170,000	27,000	197,000	20,000	0	20,000
1965	11,600	196,000	45,000	241,000	33,000	0	33,000
1970	13,600	228,000	62,000	290,000	51,000	2,000	53,000
1975	16,300	257,000	80,000	337,000	74,000	5,000	79,000
1980	17,800	293,000	99,000	392,000	101,000	9,000	110,000
1985	16,700	265,000	119,000	384,000	126,000	15,000	141,000
1990	16,500	271,000	139,000	410,000	156,000	23,000	179,000
1995	17,700	288,000	161,000	449,000	190,000	31,000	221,000
2000	18,000	300,000	181,000	481,000	221,000	41,000	262,000
2005	19,800	339,000	205,000	544,000	253,000	53,000	306,000
2010	20,700	345,000	224,000	569,000	278,000	65,000	343,000
2015	20,600	346,000	249,000	595,000	297,000	74,000	371,000
2020	21,000	367,000	282,000	649,000	312,000	81,000	393,000
2025	20,800	367,000	321,000	688,000	333,000	87,000	420,000
2030	22,400	401,000	362,000	763,000	354,000	93,000	447,000
2035	24,000	433,000	406,000	839,000	371,000	98,000	469,000
2040	25,500	465,000	451,000	916,000	392,000	105,000	497,000
2045	27,000	497,000	497,000	994,000	413,000	110,000	523,000
2050	28,500	528,000	545,000	1,073,000	435,000	117,000	552,000
2055	30,000	562,000	595,000	1,157,000	463,000	124,000	587,000
2060	31,700	599,000	648,000	1,247,000	495,000	133,000	628,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year.

TABLE 7

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes

Single female with high earnings (\$89,600 in 2020 dollars)



Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	12,100	190,000	27,000	217,000	27,000	0	27,000
1965	12,700	215,000	45,000	260,000	42,000	0	42,000
1970	15,400	260,000	62,000	322,000	65,000	2,000	67,000
1975	19,400	305,000	80,000	385,000	96,000	7,000	103,000
1980	22,200	367,000	99,000	466,000	136,000	14,000	150,000
1985	21,000	332,000	119,000	451,000	173,000	23,000	196,000
1990	21,000	344,000	139,000	483,000	219,000	35,000	254,000
1995	22,600	369,000	161,000	530,000	272,000	48,000	320,000
2000	23,300	389,000	181,000	570,000	324,000	64,000	388,000
2005	26,100	446,000	205,000	651,000	379,000	82,000	461,000
2010	27,300	456,000	224,000	680,000	430,000	102,000	532,000
2015	27,200	458,000	249,000	707,000	471,000	117,000	588,000
2020	27,800	486,000	282,000	768,000	500,000	129,000	629,000
2025	27,500	485,000	321,000	806,000	533,000	140,000	673,000
2030	29,700	530,000	362,000	892,000	566,000	149,000	715,000
2035	31,700	573,000	406,000	979,000	593,000	157,000	750,000
2040	33,700	614,000	451,000	1,065,000	628,000	167,000	795,000
2045	35,700	657,000	497,000	1,154,000	660,000	177,000	837,000
2050	37,600	698,000	545,000	1,243,000	696,000	189,000	885,000
2055	39,700	743,000	595,000	1,338,000	740,000	203,000	943,000
2060	41,900	791,000	648,000	1,439,000	792,000	220,000	1,012,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A high earner earns 160 percent of the average wage.

TABLE 8

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Single female with maximum taxable earnings (\$137,700 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	12,100	190,000	27,000	217,000	30,000	0	30,000
1965	12,700	215,000	45,000	260,000	46,000	0	46,000
1970	15,400	260,000	62,000	322,000	69,000	2,000	71,000
1975	19,400	306,000	80,000	386,000	101,000	7,000	108,000
1980	22,600	373,000	99,000	472,000	144,000	14,000	158,000
1985	21,900	347,000	119,000	466,000	189,000	27,000	216,000
1990	22,400	367,000	139,000	506,000	254,000	44,000	298,000
1995	24,700	402,000	161,000	563,000	331,000	63,000	394,000
2000	26,100	436,000	181,000	617,000	410,000	86,000	496,000
2005	30,000	512,000	205,000	717,000	498,000	112,000	610,000
2010	32,300	538,000	224,000	762,000	586,000	142,000	728,000
2015	32,900	553,000	249,000	802,000	667,000	168,000	835,000
2020	33,900	591,000	282,000	873,000	741,000	192,000	933,000
2025	33,500	592,000	321,000	913,000	814,000	212,000	1,026,000
2030	36,300	648,000	362,000	1,010,000	870,000	227,000	1,097,000
2035	38,900	702,000	406,000	1,108,000	915,000	241,000	1,156,000
2040	41,300	752,000	451,000	1,203,000	968,000	258,000	1,226,000
2045	43,700	804,000	497,000	1,301,000	1,023,000	276,000	1,299,000
2050	46,100	855,000	545,000	1,400,000	1,077,000	296,000	1,373,000
2055	48,500	907,000	595,000	1,502,000	1,143,000	320,000	1,463,000
2060	51,200	966,000	648,000	1,614,000	1,222,000	349,000	1,571,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. A maximum-taxable earner earns the Social Security maximum taxable wage every year (\$137,700 in 2020).

TABLE 9

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Married one-earner couple with low earnings (\$25,200 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	10,500	161,000	43,000	204,000	9,000	0	9,000
1965	11,000	181,000	74,000	255,000	15,000	0	15,000
1970	12,600	206,000	104,000	310,000	23,000	1,000	24,000
1975	14,700	227,000	136,000	363,000	34,000	2,000	36,000
1980	16,100	262,000	172,000	434,000	45,000	4,000	49,000
1985	15,200	240,000	210,000	450,000	57,000	7,000	64,000
1990	15,000	248,000	250,000	498,000	70,000	10,000	80,000
1995	16,100	266,000	293,000	559,000	85,000	14,000	99,000
2000	16,300	278,000	333,000	611,000	100,000	19,000	119,000
2005	18,000	314,000	379,000	693,000	114,000	24,000	138,000
2010	18,800	320,000	415,000	735,000	125,000	29,000	154,000
2015	18,700	321,000	459,000	780,000	134,000	33,000	167,000
2020	19,100	340,000	522,000	862,000	141,000	36,000	177,000
2025	18,900	340,000	595,000	935,000	150,000	39,000	189,000
2030	20,400	372,000	674,000	1,046,000	159,000	42,000	201,000
2035	21,800	402,000	756,000	1,158,000	167,000	44,000	211,000
2040	23,200	431,000	843,000	1,274,000	177,000	47,000	224,000
2045	24,500	461,000	930,000	1,391,000	186,000	50,000	236,000
2050	25,900	491,000	1,021,000	1,512,000	196,000	53,000	249,000
2055	27,300	522,000	1,117,000	1,639,000	208,000	56,000	264,000
2060	28,800	557,000	1,219,000	1,776,000	223,000	60,000	283,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A low earner earns 45 percent of the average wage.

TABLE 10

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Married one-earner couple with average earnings (\$56,000 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	15,900	243,000	43,000	286,000	20,000	0	20,000
1965	16,800	278,000	74,000	352,000	33,000	0	33,000
1970	19,700	323,000	104,000	427,000	51,000	2,000	53,000
1975	23,500	364,000	136,000	500,000	74,000	5,000	79,000
1980	26,700	435,000	172,000	607,000	101,000	9,000	110,000
1985	25,100	397,000	210,000	607,000	126,000	15,000	141,000
1990	24,800	409,000	250,000	659,000	156,000	23,000	179,000
1995	26,500	438,000	293,000	731,000	190,000	31,000	221,000
2000	26,900	459,000	333,000	792,000	221,000	41,000	262,000
2005	29,700	518,000	379,000	897,000	253,000	53,000	306,000
2010	31,000	528,000	415,000	943,000	278,000	65,000	343,000
2015	30,900	529,000	459,000	988,000	297,000	74,000	371,000
2020	31,500	562,000	522,000	1,084,000	312,000	81,000	393,000
2025	31,200	562,000	595,000	1,157,000	333,000	87,000	420,000
2030	33,700	614,000	674,000	1,288,000	354,000	93,000	447,000
2035	36,000	664,000	756,000	1,420,000	371,000	98,000	469,000
2040	38,300	712,000	843,000	1,555,000	392,000	105,000	497,000
2045	40,500	761,000	930,000	1,691,000	413,000	110,000	523,000
2050	42,700	810,000	1,021,000	1,831,000	435,000	117,000	552,000
2055	45,000	862,000	1,117,000	1,979,000	463,000	124,000	587,000
2060	47,600	918,000	1,219,000	2,137,000	495,000	133,000	628,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year.

TABLE 11

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Married one-earner couple with high earnings (\$89,600 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	17,700	270,000	43,000	313,000	27,000	0	27,000
1965	18,500	305,000	74,000	379,000	42,000	0	42,000
1970	22,300	365,000	104,000	469,000	65,000	2,000	67,000
1975	27,600	427,000	136,000	563,000	96,000	7,000	103,000
1980	33,400	544,000	172,000	716,000	136,000	14,000	150,000
1985	31,500	498,000	210,000	708,000	173,000	23,000	196,000
1990	31,500	519,000	250,000	769,000	219,000	35,000	254,000
1995	33,900	560,000	293,000	853,000	272,000	48,000	320,000
2000	34,900	595,000	333,000	928,000	324,000	64,000	388,000
2005	39,100	682,000	379,000	1,061,000	379,000	82,000	461,000
2010	41,000	699,000	415,000	1,114,000	430,000	102,000	532,000
2015	40,800	700,000	459,000	1,159,000	471,000	117,000	588,000
2020	41,800	744,000	522,000	1,266,000	500,000	129,000	629,000
2025	41,200	742,000	595,000	1,337,000	533,000	140,000	673,000
2030	44,500	811,000	674,000	1,485,000	566,000	149,000	715,000
2035	47,600	877,000	756,000	1,633,000	593,000	157,000	750,000
2040	50,600	941,000	843,000	1,784,000	628,000	167,000	795,000
2045	53,600	1,007,000	930,000	1,937,000	660,000	177,000	837,000
2050	56,400	1,071,000	1,021,000	2,092,000	696,000	187,000	883,000
2055	59,500	1,139,000	1,117,000	2,256,000	740,000	200,000	940,000
2060	62,900	1,214,000	1,219,000	2,433,000	792,000	216,000	1,008,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A high earner earns 160 percent of the average wage.

TABLE 12

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes

Married one-earner couple with maximum taxable earnings (\$137,700 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	17,700	270,000	43,000	313,000	30,000	0	30,000
1965	18,500	305,000	74,000	379,000	46,000	0	46,000
1970	22,300	365,000	104,000	469,000	69,000	2,000	71,000
1975	27,600	427,000	136,000	563,000	101,000	7,000	108,000
1980	33,900	553,000	172,000	725,000	144,000	14,000	158,000
1985	32,900	520,000	210,000	730,000	189,000	27,000	216,000
1990	33,600	555,000	250,000	805,000	254,000	44,000	298,000
1995	37,000	612,000	293,000	905,000	331,000	63,000	394,000
2000	39,100	667,000	333,000	1,000,000	410,000	86,000	496,000
2005	45,000	784,000	379,000	1,163,000	498,000	112,000	610,000
2010	48,400	824,000	415,000	1,239,000	586,000	142,000	728,000
2015	49,300	846,000	459,000	1,305,000	667,000	168,000	835,000
2020	50,800	905,000	522,000	1,427,000	741,000	192,000	933,000
2025	50,300	907,000	595,000	1,502,000	814,000	212,000	1,026,000
2030	54,500	993,000	674,000	1,667,000	870,000	227,000	1,097,000
2035	58,300	1,075,000	756,000	1,831,000	915,000	240,000	1,155,000
2040	61,900	1,153,000	843,000	1,996,000	968,000	255,000	1,223,000
2045	65,600	1,233,000	930,000	2,163,000	1,023,000	272,000	1,295,000
2050	69,100	1,311,000	1,021,000	2,332,000	1,077,000	291,000	1,368,000
2055	72,700	1,392,000	1,117,000	2,509,000	1,143,000	313,000	1,456,000
2060	76,800	1,483,000	1,219,000	2,702,000	1,222,000	340,000	1,562,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. A maximum-taxable earner earns the Social Security maximum taxable wage every year (\$137,700 in 2020).

TABLE 13

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Married couple with two low earners (\$50,400 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	14,100	195,000	43,000	238,000	18,000	0	18,000
1965	14,800	222,000	74,000	296,000	30,000	0	30,000
1970	16,900	255,000	104,000	359,000	46,000	1,000	47,000
1975	19,900	282,000	136,000	418,000	67,000	4,000	71,000
1980	21,400	320,000	172,000	492,000	91,000	8,000	99,000
1985	20,300	294,000	210,000	504,000	114,000	14,000	128,000
1990	20,000	304,000	250,000	554,000	141,000	21,000	162,000
1995	21,400	327,000	293,000	620,000	171,000	28,000	199,000
2000	21,700	343,000	333,000	676,000	199,000	37,000	236,000
2005	24,000	389,000	379,000	768,000	227,000	47,000	274,000
2010	25,000	397,000	415,000	812,000	250,000	58,000	308,000
2015	24,900	398,000	459,000	857,000	267,000	66,000	333,000
2020	25,500	423,000	522,000	945,000	281,000	72,000	353,000
2025	25,200	423,000	595,000	1,018,000	300,000	79,000	379,000
2030	27,200	463,000	674,000	1,137,000	318,000	84,000	402,000
2035	29,100	501,000	756,000	1,257,000	334,000	89,000	423,000
2040	30,900	538,000	843,000	1,381,000	353,000	94,000	447,000
2045	32,700	576,000	930,000	1,506,000	371,000	99,000	470,000
2050	34,500	614,000	1,021,000	1,635,000	391,000	105,000	496,000
2055	36,400	653,000	1,117,000	1,770,000	416,000	112,000	528,000
2060	38,400	697,000	1,219,000	1,916,000	446,000	119,000	565,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A low earner earns 45 percent of the average wage.

TABLE 14

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Married couple with one average earner and one low earner
(\$81,200 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	17,700	259,000	43,000	302,000	29,000	0	29,000
1965	18,700	296,000	74,000	370,000	49,000	0	49,000
1970	21,700	345,000	104,000	449,000	74,000	2,000	76,000
1975	25,800	387,000	136,000	523,000	108,000	7,000	115,000
1980	28,500	455,000	172,000	627,000	147,000	14,000	161,000
1985	26,900	416,000	210,000	626,000	183,000	22,000	205,000
1990	26,600	429,000	250,000	679,000	227,000	33,000	260,000
1995	28,400	459,000	293,000	752,000	275,000	45,000	320,000
2000	28,800	482,000	333,000	815,000	321,000	60,000	381,000
2005	31,800	545,000	379,000	924,000	367,000	76,000	443,000
2010	33,200	555,000	415,000	970,000	403,000	94,000	497,000
2015	33,000	556,000	459,000	1,015,000	431,000	107,000	538,000
2020	33,800	591,000	522,000	1,113,000	453,000	117,000	570,000
2025	33,400	591,000	595,000	1,186,000	483,000	127,000	610,000
2030	36,000	645,000	674,000	1,319,000	513,000	135,000	648,000
2035	38,600	698,000	756,000	1,454,000	538,000	143,000	681,000
2040	41,000	750,000	843,000	1,593,000	569,000	152,000	721,000
2045	43,400	802,000	930,000	1,732,000	598,000	160,000	758,000
2050	45,700	853,000	1,021,000	1,874,000	630,000	169,000	799,000
2055	48,200	908,000	1,117,000	2,025,000	671,000	181,000	852,000
2060	50,900	968,000	1,219,000	2,187,000	718,000	195,000	913,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A low earner earns 45 percent of the average wage.

TABLE 15

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Married couple with two average earners (\$112,000 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	21,400	295,000	43,000	338,000	41,000	0	41,000
1965	22,800	342,000	74,000	416,000	67,000	0	67,000
1970	26,700	401,000	104,000	505,000	102,000	3,000	105,000
1975	31,900	455,000	136,000	591,000	149,000	10,000	159,000
1980	35,600	532,000	172,000	704,000	202,000	19,000	221,000
1985	33,500	487,000	210,000	697,000	252,000	30,000	282,000
1990	33,100	502,000	250,000	752,000	313,000	46,000	359,000
1995	35,300	539,000	293,000	832,000	379,000	63,000	442,000
2000	35,900	567,000	333,000	900,000	443,000	82,000	525,000
2005	39,600	642,000	379,000	1,021,000	506,000	105,000	611,000
2010	41,400	655,000	415,000	1,070,000	556,000	130,000	686,000
2015	41,200	657,000	459,000	1,116,000	594,000	147,000	741,000
2020	42,100	698,000	522,000	1,220,000	625,000	161,000	786,000
2025	41,500	699,000	595,000	1,294,000	667,000	175,000	842,000
2030	44,900	764,000	674,000	1,438,000	707,000	186,000	893,000
2035	48,000	827,000	756,000	1,583,000	742,000	197,000	939,000
2040	51,000	889,000	843,000	1,732,000	785,000	209,000	994,000
2045	54,000	951,000	930,000	1,881,000	825,000	221,000	1,046,000
2050	56,900	1,013,000	1,021,000	2,034,000	870,000	236,000	1,106,000
2055	60,000	1,078,000	1,117,000	2,195,000	925,000	254,000	1,179,000
2060	63,400	1,150,000	1,219,000	2,369,000	990,000	276,000	1,266,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year.

TABLE 16

Expected Present Value of Lifetime Social Security and Medicare Benefits and Taxes



Married couple with one high earner and one average earner
(\$145,600 in 2020 dollars)

Year cohort turns age 65	First year Social Security benefit	Lifetime Benefits			Lifetime Taxes		
		Social Security	Medicare (net of premiums)	Total	Social Security	Medicare	Total
1960	22,600	315,000	43,000	358,000	47,000	0	47,000
1965	23,900	360,000	74,000	434,000	76,000	0	76,000
1970	28,400	431,000	104,000	535,000	116,000	4,000	120,000
1975	34,600	499,000	136,000	635,000	170,000	12,000	182,000
1980	40,000	616,000	172,000	788,000	237,000	23,000	260,000
1985	37,700	565,000	210,000	775,000	300,000	38,000	338,000
1990	37,500	587,000	250,000	837,000	376,000	58,000	434,000
1995	40,300	633,000	293,000	926,000	461,000	80,000	541,000
2000	41,200	671,000	333,000	1,004,000	546,000	105,000	651,000
2005	45,900	766,000	379,000	1,145,000	632,000	135,000	767,000
2010	48,000	785,000	415,000	1,200,000	708,000	166,000	874,000
2015	47,800	787,000	459,000	1,246,000	768,000	190,000	958,000
2020	48,900	836,000	522,000	1,358,000	812,000	209,000	1,021,000
2025	48,200	835,000	595,000	1,430,000	867,000	227,000	1,094,000
2030	52,100	913,000	674,000	1,587,000	920,000	242,000	1,162,000
2035	55,800	988,000	756,000	1,744,000	964,000	256,000	1,220,000
2040	59,200	1,061,000	843,000	1,904,000	1,020,000	273,000	1,293,000
2045	62,700	1,135,000	930,000	2,065,000	1,073,000	291,000	1,364,000
2050	66,100	1,208,000	1,021,000	2,229,000	1,131,000	313,000	1,444,000
2055	69,700	1,286,000	1,117,000	2,403,000	1,203,000	341,000	1,544,000
2060	73,600	1,371,000	1,219,000	2,590,000	1,287,000	375,000	1,662,000

Source: C. Eugene Steuerle and Erald Kolasi, Urban Institute. Based on earlier work with Stephanie Rennane and Adam Carasso.

Notes: 2020 dollars, adjusted to present value at age 65 using a 2 percent real interest rate. Adjusts for mortality after age 65. Assumes benefits scheduled in law will be paid. Worker works every year starting at age 22 and retires at age 65. An average earner has earnings equal to the Social Security Administration’s national average wage index each year. A high earner earns 160 percent of the average wage.

BASIC DATA AND ASSUMPTIONS

DATA

Program rules, economic projections, and mortality assumptions are taken from the 2020 annual reports of the Social Security and Medicare trustees and from supplemental data provided in the Social Security Bulletin and the Centers for Medicare & Medicaid Services actuaries. Our assumptions come from the intermediate scenarios provided in the trustees' report, with the exception of the Medicare benefits described below.

WORK AND EARNINGS HISTORIES

Following Social Security's use of hypothetical workers, individuals start working at age 22 and work continuously until they retire on their 65th birthdays. Their wage levels are set according to the Social Security Administration's national average wage index. An average worker earns the average wages of all workers as adjusted annually by the national wage index in every year of work, while low-earning workers earn 45 percent of the index and high-earning workers earn 160 percent of the index each year. A maximum taxable worker earns the maximum taxable wage for Social Security taxes every year. The national average wage index is estimated as \$55,642 in 2020. Each hypothetical worker stays at the same relative income level in each year, except for the worker earning the maximum taxable wage, which, although indexed currently, has also changed with legislation.

We use the Social Security definition of average wage because of its common use as a standard in many Social Security publications. Many workers have varied labor force participation over their careers, and the average wage is calculated only for people who have earnings that year. Because many individuals have some years with zero earnings because of childcare, unemployment or other circumstances, they would have lower average lifetime earnings than the person who earned the average wage every year.

We examined this phenomenon in a recent report (Steuerle, Cosic, and Quakenbush, 2019) using the Dynasim microsimulation model that allowed us to examine the distribution of taxes and benefits for the population. Unfortunately, we have no reliable historical and projected data to perform that type of analysis over long periods such as the hundred years included in this report. Accordingly, hypothetical households remain most useful for making like-to-like and easy-to-understand comparisons of people in similar circumstances over a large part of history and scheduled future. A comparison of results from these two methods in that 2019 report showed that the largest impact of assuming a constant work history and retirement was to overstate lifetime taxes paid but only modestly overstate lifetime benefits. These differences reflect the facts that Social Security only counts 35 years of earnings in determining benefits, spousal and survivor benefits are add-ons that require no earnings by those spouses nor reduction in annual benefit by the worker on whose

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earnings those additional benefits are determined. For presentational purposes, therefore, we often suggest that users of this report use the couple with average/low earnings as roughly representing lifetime benefits for some typical average couple.

MARRIAGE

Spouses in the calculations for couples are assumed to be the same age and marry at age 24. Couples are married continuously throughout their careers and retirement. Therefore, no divorce benefits are included in the calculation of lifetime benefits. Since real-life spouses often differ by age, our projections of total years of benefit for the same-aged couple will generally be lower than the total years of benefits for couples of different ages. For the same reason, we also understate modestly probable years of survivorship and availability of survivor benefits. We also include no child benefits in these calculations.

MORTALITY

All individuals are assumed to live to age 65. After age 65, sex-adjusted probabilities are applied to retirees receiving benefits to arrive at expected values of benefits received. These values come from life tables provided by the Social Security Administration to the Urban Institute and used in the 2020 trustees report. They do not include adjustments for income or other factors (e.g., a female worker with high lifetime earnings is assumed to have the same life expectancy as a female worker with low lifetime earnings). Because women on average have longer life expectancies than men, expected lifetime benefits for women are higher than for men with identical earnings histories.

DISCOUNT RATES

The model applies a 2 percent real (inflation-adjusted) discount rate for both benefits and taxes. Assuming a higher discount rate would lead to estimates of higher lifetime taxes and lower lifetime benefits, while a lower discount rate would lead to lower lifetime taxes and higher lifetime benefits. The Social Security Administration's historical and projected series for the consumer price index for urban wage earners and clerical workers is used to adjust all numbers for inflation.

CALCULATING LIFETIME TAXES

INCLUDED TAXES

Workers pay payroll taxes every year they earn wages. Calculated lifetime taxes include contributions for the retirement portion of Social Security (OASI) and for the Hospital Insurance (HI) portion of Medicare, also known as Part A. Medicare taxes also include the 0.9 percent "surtax" paid by individual workers earning \$200,000 or

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more and married couples earning more than \$250,000 combined that took effect in 2013. Those minimum earnings levels are not adjusted for inflation and only in the distant future will a few workers at the earnings levels examined in our study be affected.

By statute, the payroll tax, except for the HI surtax, is split evenly between workers and employers, with each paying 5.3 percent for the OASI tax and 1.45 percent for the HI tax. These two taxes comprise most of the 7.65 percent OASDHI tax usually referred to as the Social Security tax, but exclude the 0.9 percent disability (DI) portion. However, a standard economic assumption is that in the long run, employers pass the employer portion of this payroll tax onto workers by slowing wage growth or offering fewer fringe benefits. Therefore, we assume that workers pay both the employer and employee shares of the payroll tax.

We do not adjust for the temporary provision in the Tax Cuts and Jobs Act of 2017 for a 20 percent deduction for the income of individuals arising from income from such “pass-through” arrangements as partnerships, self-employment, and Subchapter S corporations, since it was designed as a deduction only against income, not Social Security taxes.

EXCLUDED TAXES

Disability Insurance payroll taxes were excluded because our model includes no calculation of Disability Insurance benefits

We also exclude the partial income taxation of Social Security benefits, as this would require additional assumptions about people’s non-Social Security income after age 65. Also, this income mingles with other income subject to tax. While the Treasury formally makes transfers to the Social Security trust fund on the liberal assumption that this income gets stacked last at the marginal (not average) tax rate, such an assumption for all government programs would lead to a substantial overstatement of the total tax paid by individuals for all government services and benefits received.

For related reasons, such as how to determine who eventually pays for Social Security and non-Social Security debt, we exclude transfers from the general fund used to finance non-HI Medicare benefits and any shortfalls in trust fund obligations. Also, our examples only extend to the maximum per-worker Social Security taxable earnings level; workers with earnings above that level, or \$137,700 in 2020, will also pay additional HI tax with no corresponding increase in benefits.

CALCULATING EXPECTED LIFETIME BENEFITS

SOCIAL SECURITY BENEFITS

The model calculates a first-year Social Security benefit based on rules in effect for a cohort at the time of retirement. Since all workers are assumed to retire at age 65, retirees born after 1937 and turning 65 in 2002 receive a phased-in reduction in annual benefits for retiring before the full retirement age. The choice of age 65 as the age of retirement has only a modest effect on the calculation of lifetime benefits for each cohort. That is, the annual penalty reduction for early retirement is designed to be roughly actuarially neutral, so this has only a small effect on lifetime benefits (i.e., the reduction for early retirement roughly offsets the gain from collecting benefits for additional years). In years after age 65, benefits are increased by the cost-of-living adjustment assumed in the Social Security trustees' reports and discounted back to age 65 using the 2 percent real discount rate.

MEDICARE BENEFITS

To calculate annual Medicare benefits, the model uses average Medicare expenditures per Medicare enrollee for both HI and Supplemental Medical Insurance (Parts A, B, and D). As with Social Security lifetime benefits, the stream of Medicare benefits is adjusted for probability of dying each year after age 65 and discounted using the 2 percent real rate back to age 65.

In reality, the distribution of both annual and lifetime Medicare expenditures is highly uneven, though less so in the latter case, with most expenditures in any given year focused on a relatively small number of high-cost people. However, the estimates here should be considered as rough estimates of the insurance cost of Medicare, calculated as the average cost of providing those benefits across the beneficiary population. In addition, average expenditures normally increase with age, as those just turning 65 are on average healthier than those at more advanced ages. The lifetime value of health benefits would thus be higher if we had provided an age-adjusted measure of insurance value (Steuerle and Quakenbush 2012).

MEDICARE PREMIUMS

To account for premiums paid for enrollees in Medicare Parts B and D, we subtract average premiums from average Medicare expenditures to present benefits net of premiums. Higher premiums for high-income beneficiaries—formally labeled an “Income Related Monthly Adjustment Amount (IRMAA)” —are not included here since they generally do not apply to people with incomes at the levels shown, except those with substantial income from work or assets accumulated by time of retirement. For instance, in 2020, a couple needed to report a modified adjusted gross income on their 2018 returns above \$174,000 to pay this additional IRMAA. Over time, more households become subject to the income-based premium adjustments because the

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income thresholds were not indexed to inflation until 2020 and because real wages will rise over time, pushing more households above the thresholds (Cubanski and Neuman 2017).

MEDICARE COST SCENARIO

Lifetime Medicare benefits are estimated using an “illustrative alternative scenario” published by CMS actuaries (Shatto and Clemens 2020). Before the 2015 trustees’ reports, the intermediate current law scenario assumed that deep cuts in physician payment rates scheduled in law would take effect, resulting in lower projected Medicare expenditures. In reality, Congress prevented most of these cuts, which could have resulted in fewer service providers accepting Medicare. The CMS actuaries produced a supplemental analysis with the Medicare trustees’ report each year to illustrate cost effects, assuming that physician payment rates would not be cut and that several other cost-reducing measures, many introduced in the Affordable Care Act, would not be fully implemented. This alternative scenario formed the basis of our updates from 2012 forward.

The Medicare Access and CHIP Reauthorization Act of 2015 introduced a permanent adjustment to the formulas used to calculate physician reimbursement rates so these periodic “doc fixes” would no longer be required. However, the CMS actuaries report that under the new formulas, reimbursement rates for physicians accepting Medicare will continue to fall over time relative to the reimbursement rate of private insurance, and this decline may not be sustainable over the long run. The actuaries’ illustrative scenario, used here, assumes these provisions are scaled back over time, resulting in higher projected Medicare expenditures and therefore higher estimated lifetime benefits.

REFERENCES

Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds. 2020, *The 2020 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds*. Washington, DC: Boards of Trustees, Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds.

Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds. 2020. *The 2020 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds*. Washington, DC: US Government Printing Office.

Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds. Annual Report. *The 2020 Annual Report of the Board of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds*. Washington, DC: US Government Printing Office.

Cubanski, Juliette, and Tricia Neuman. 2017. "Medicare's Income-Related Premiums Under Current Law and Proposed Changes." Washington, DC: Kaiser Family Foundation.

Shatto, John D. and M. Kent Clemens, "Projected Medicare Expenditures under an Illustrative Scenario with Alternative Payment Updates to Medicare Providers," April 22, 2020, Centers for Medicare & Medicaid Services, <https://www.cms.gov/files/document/illustrative-alternative-scenario-2020.pdf>

Social Security. Office of Retirement and Disability Policy. "Facts & Figures about Social Security, 2019." Washington, DC: Social Security Administration.

Steuerle, C. Eugene, Damir Cosic, and Caleb Quakenbush. 2019. "How Do Lifetime Social Security Benefits and Taxes Differ by Earnings?" Washington, DC: The Urban Institute.

Steuerle, C. Eugene and Caleb Quakenbush. 2012. "Alternative Assumptions for Present Value Calculations of Lifetime Medicare Benefits." Washington, DC: The Urban Institute.

ABOUT THE AUTHORS

Eugene Steuerle is an Institute fellow and the Richard B. Fisher chair at the Urban Institute. Among past positions, he was deputy assistant secretary of the US Department of the Treasury for Tax Analysis (1987–89), president of the National Tax Association (2001–02), codirector of the Urban-Brookings Tax Policy Center, chair of the 1999 Technical Panel advising Social Security on its methods and assumptions, and chair of the 2015–16 National Academy of Sciences Committee on Advancing the Power of Economic Evidence to Inform Investments in Children, Youth, and Families. Between 1984 and 1986, he was the economic coordinator and original organizer of the Treasury’s tax reform effort.

Erald Kolasi is a research associate in the Income and Benefits Policy Center at the Urban Institute. He develops computer models and simulations designed to study the effects of proposed retirement and economic policies. His research areas include state and local pension systems, Social Security, and the federal budget. Kolasi received his BA in physics and history from the University of Virginia and earned his MS and PhD from George Mason University, both in physics.

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