2024 OASDI Trustees Report

C. PROGRAM-SPECIFIC ASSUMPTIONS AND METHODS

The Office of the Chief Actuary at the Social Security Administration uses a set of models to project future income and cost under the OASDI program. These models rely not only on the demographic and economic assumptions described in the previous sections, but also on a number of program-specific assumptions and methods. Values of many program parameters change from year to year as prescribed by formulas set out in the Social Security Act. These program parameters affect the level of payroll taxes collected and the level of benefits paid. The office uses complex models to project the numbers of future workers covered under OASDI and the levels of their covered earnings, as well as the numbers of future beneficiaries and the expected levels of their benefits. The following subsections provide descriptions of these program-specific assumptions and methods.

1. Automatically Adjusted Program Parameters

The Social Security Act requires that certain parameters affecting the determination of OASDI benefits and taxes be adjusted annually to reflect changes in particular economic measures. Formulas prescribed in the law, applied to reported statistics, change these program parameters annually. The law bases these automatic adjustments on measured changes in the national average wage index (AWI) and the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI).[1] This section shows values for program parameters adjusted using these indices from the time that these adjustments became effective through 2033. Projected values for future years depend on the economic assumptions described in the preceding section of this report.

Tables V.C1 and V.C2 present the historical and projected values of the CPI-based benefit increases, the AWI series, and the values of many of the wage-indexed program parameters. Each table shows projections under the three alternative sets of assumptions. Table V.C1 includes:

- *The annual cost-of-living benefit increase percentages.* The automatic cost-of-living adjustment provisions in the Social Security Act specify increases in OASDI monthly benefits based on increases in the CPI. Volatility in oil prices has resulted in substantial volatility in cost-of-living adjustments over the last two decades. A large cost-of-living adjustment for December 2008 was followed by no cost-of-living adjustments for December 2009 and December 2010. More recent volatility in oil prices again affected the CPI, resulting in no cost-of-living adjustment for December 2015. Cost-of-living adjustments resumed in December 2016. All three sets of assumptions include annual cost-of-living adjustments for all future years.

- *The annual levels of and percentage increases in the AWI.* Under section 215(b)(3) of the Social Security Act, Social Security benefit computations index taxable earnings (for most workers first becoming eligible for benefits in 1979 or later) using the AWI for each year after 1950. This procedure converts a worker's past earnings to approximately average-wage-indexed equivalent values near the time of his or her benefit eligibility. Other program parameters presented in this section that are subject to the automatic-adjustment provisions also rely on the AWI.

- *The wage-indexed contribution and benefit base.* For any year, the contribution and benefit base is the maximum amount of earnings subject to the OASDI payroll tax and creditable toward benefit computation. The Social Security Act defers any increase in the contribution and benefit base if there is no cost-of-living adjustment effective for December of the preceding year. There was no increase in the contribution and benefit base for 2010, 2011, or 2016 because there was no cost-of-living adjustment for the immediate prior December in each case. Under all three sets of assumptions, the contribution and benefit base is projected to increase for all future years.

- *The wage-indexed retirement earnings test exempt amounts.* The exempt amounts are the annual amount of earnings below which beneficiaries do not have benefits withheld. A lower exempt

amount applies for years prior to the year of attaining normal retirement age. A higher exempt amount applies beginning with the year in which a beneficiary attains normal retirement age. Starting in 2000, the retirement earnings test no longer applies beginning with the month of attaining normal retirement age. The Social Security Act defers any increase in these exempt amounts if there is no cost-of-living adjustment effective for December of the preceding year. There was no increase in these exempt amounts for 2010, 2011, or 2016 because there was no cost-of-living adjustment for the immediate prior December. Under all three sets of assumptions, the exempt amounts increase for all future years.

Table V.C1.—Cost-of-Living Benefit Increases, Average Wage Index, Contribution and Benefit Bases, and Retirement Earnings Test Exempt Amounts, 1975-2033

Calendar year	Cost-of-living benefit increase[a] (percent)	Average wage index (AWI) [b] Amount	Increase (percent)	Contribution and benefit base [c]	Retirement earnings test exempt amount Under NRA[d]	At NRA[e]
Historical data:						
1975	8.0	$8,630.92	7.5	$14,100	$2,520	$2,520
1976	6.4	9,226.48	6.9	15,300	2,760	2,760
1977	5.9	9,779.44	6.0	16,500	3,000	3,000
1978	6.5	10,556.03	7.9	17,700	3,240	4,000
1979	9.9	11,479.46	8.7	22,900	3,480	4,500
1980	14.3	12,513.46	9.0	25,900	3,720	5,000
1981	11.2	13,773.10	10.1	29,700	4,080	5,500
1982	7.4	14,531.34	5.5	32,400	4,440	6,000
1983	3.5	15,239.24	4.9	35,700	4,920	6,600
1984	3.5	16,135.07	5.9	37,800	5,160	6,960
1985	3.1	16,822.51	4.3	39,600	5,400	7,320
1986	1.3	17,321.82	3.0	42,000	5,760	7,800
1987	4.2	18,426.51	6.4	43,800	6,000	8,160
1988	4.0	19,334.04	4.9	45,000	6,120	8,400
1989	4.7	20,099.55	4.0	48,000	6,480	8,880
1990	5.4	21,027.98	4.6	51,300	6,840	9,360
1991	3.7	21,811.60	3.7	53,400	7,080	9,720
1992	3.0	22,935.42	5.2	55,500	7,440	10,200
1993	2.6	23,132.67	.9	57,600	7,680	10,560
1994	2.8	23,753.53	2.7	60,600	8,040	11,160
1995	2.6	24,705.66	4.0	61,200	8,160	11,280
1996	2.9	25,913.90	4.9	62,700	8,280	12,500
1997	2.1	27,426.00	5.8	65,400	8,640	13,500
1998	1.3	28,861.44	5.2	68,400	9,120	14,500
1999	[f]2.5	30,469.84	5.6	72,600	9,600	15,500
2000	3.5	32,154.82	5.5	76,200	10,080	17,000
2001	2.6	32,921.92	2.4	80,400	10,680	25,000
2002	1.4	33,252.09	1.0	84,900	11,280	30,000
2003	2.1	34,064.95	2.4	87,000	11,520	30,720
2004	2.7	35,648.55	4.6	87,900	11,640	31,080

Year						
2005	4.1	36,952.94	3.7	90,000	12,000	31,800
2006	3.3	38,651.41	4.6	94,200	12,480	33,240
2007	2.3	40,405.48	4.5	97,500	12,960	34,440
2008	5.8	41,334.97	2.3	102,000	13,560	36,120
2009	.0	40,711.61	-1.5	106,800	14,160	37,680
2010	.0	41,673.83	2.4	106,800	14,160	37,680
2011	3.6	42,979.61	3.1	106,800	14,160	37,680
2012	1.7	44,321.67	3.1	110,100	14,640	38,880
2013	1.5	44,888.16	1.3	113,700	15,120	40,080
2014	1.7	46,481.52	3.5	117,000	15,480	41,400
2015	.0	48,098.63	3.5	118,500	15,720	41,880
2016	.3	48,642.15	1.1	118,500	15,720	41,880
2017	2.0	50,321.89	3.5	127,200	16,920	44,880
2018	2.8	52,145.80	3.6	128,400	17,040	45,360
2019	1.6	54,099.99	3.7	132,900	17,640	46,920
2020	1.3	55,628.60	2.8	137,700	18,240	48,600
2021	5.9	60,575.07	8.9	142,800	18,960	50,520
2022	8.7	63,795.13	5.3	147,000	19,560	51,960
Intermediate:						
2023	[g]3.2	66,251.14	3.8	[g]160,200	[g]21,240	[g] 56,520
2024	2.6	68,792.94	3.8	[g]168,600	[g]22,320	[g]59,520
2025	2.2	71,244.83	3.6	174,900	23,280	61,800
2026	2.4	74,091.92	4.0	181,800	24,120	64,200
2027	2.4	77,253.92	4.3	188,100	24,960	66,480
2028	2.4	80,803.65	4.6	195,900	25,920	69,120
2029	2.4	84,369.71	4.4	204,000	27,120	72,120
2030	2.4	88,032.62	4.3	213,600	28,320	75,360
2031	2.4	91,881.05	4.4	222,900	29,520	78,720
2032	2.4	95,915.51	4.4	232,500	30,840	82,080
2033	2.4	99,767.94	4.0	242,700	32,160	85,680
Low-cost:						
2023	[g] 3.2	66,373.24	4.0	[g]160,200	[g]21,240	[g] 56,520
2024	2.7	69,680.31	5.0	[g]168,600	[g]22,320	[g]59,520
2025	3.0	73,441.54	5.4	175,500	23,280	61,920
2026	3.0	77,257.02	5.2	184,200	24,480	65,040
2027	3.0	81,460.97	5.4	194,100	25,800	68,520
2028	3.0	85,960.44	5.5	204,000	27,120	72,120
2029	3.0	90,672.82	5.5	215,100	28,560	75,960
2030	3.0	95,637.54	5.5	227,100	30,120	80,160
2031	3.0	101,025.94	5.6	239,700	31,800	84,600
2032	3.0	106,758.89	5.7	252,600	33,480	89,280
2033	3.0	112,402.33	5.3	267,000	35,400	94,200
High-cost:						

2023	[g]3.2	66,228.72	3.8	[g]160,200	[g]21,240	[g]56,520
2024	2.5	67,517.68	1.9	[g]168,600	[g]22,320	[g]59,520
2025	1.8	68,577.58	1.6	174,900	23,160	61,800
2026	1.8	71,043.67	3.6	178,500	23,640	63,000
2027	1.8	73,663.00	3.7	181,200	24,000	63,960
2028	1.8	76,370.00	3.7	187,800	24,960	66,240
2029	1.8	79,151.84	3.6	194,700	25,800	68,760
2030	1.8	82,014.27	3.6	201,900	26,760	71,280
2031	1.8	84,790.89	3.4	209,100	27,720	73,800
2032	1.8	87,420.48	3.1	216,600	28,800	76,560
2033	1.8	89,810.30	2.7	224,100	29,760	79,080

a Effective with benefits payable for June in each year 1975-82, and for December in each year after 1982.

b See table VI.G6 for projected dollar amounts of the AWI for years beyond the last year of this table.

c Public Law 95-216 specified amounts for 1978-81. Public Law 101-239 changed the indexing procedure and caused slightly higher bases after 1989.

d Normal retirement age. See table V.C3 for specific values.

e In 1955-82, the retirement earnings test did not apply at ages 72 and over. In 1983-99, the test did not apply at ages 70 and over. Beginning in 2000, the test does not apply beginning with the month of normal retirement age attainment. In the year of normal retirement age attainment, the higher exempt amount applies to earnings prior to the month of normal retirement age attainment. Public Law 95-216 specified amounts for 1978-82. Public Law 104-121 specified amounts for 1996-2002.

f Originally determined as 2.4 percent. Pursuant to Public Law 106-554, effectively 2.5 percent.

g Actual amount, as determined under automatic-adjustment provisions.

Table V.C2 shows values for other wage-indexed parameters. The table provides historical values from 1978, when indexing of the amount of earnings required for a quarter of coverage first began, through 2024, and also shows projected values through 2033. These other wage-indexed program parameters are:

- *The bend points in the formula for computing the primary insurance amount (PIA) for workers who reach age 62, become disabled, or die in a given year.* As figure V.C1 illustrates, these two bend points define three ranges in a worker's average indexed monthly earnings (AIME). The formula for the worker's PIA multiplies a 90, 32, or 15 percent factor by the portion of the worker's AIME that falls within the three respective ranges, and then adds the resulting products together.

Figure V.C1.—Primary-Insurance-Amount Formula for Those Newly Eligible in 2024
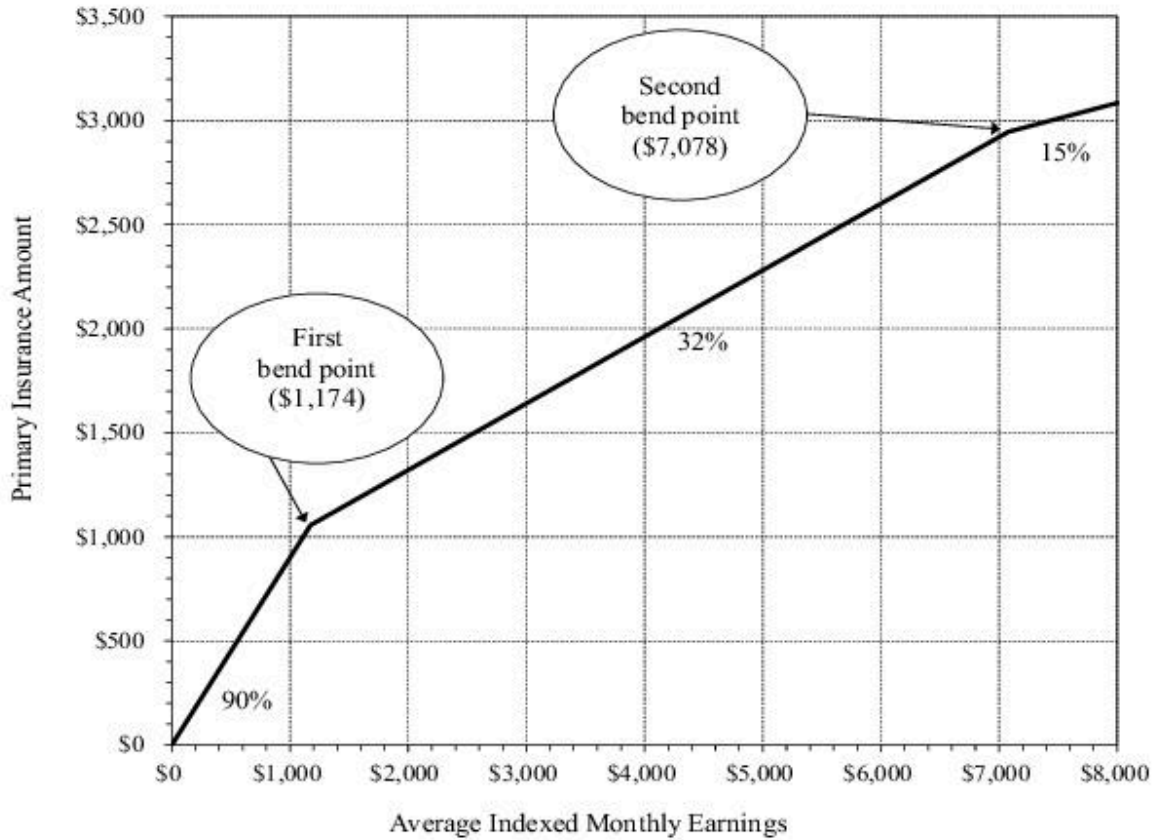
[D]

- *The bend points in the formula for computing the maximum total amount of monthly benefits payable based on the earnings record of a retired or deceased worker (maximum family benefit). As figure* V.C2 *illustrates, these three bend points define four ranges in a worker's PIA. The formula for the maximum family benefit multiplies a 150, 272, 134, or 175 percent factor by the portion of the worker's PIA that falls within the four respective ranges, and then adds the resulting products together.*

**Figure V.C2.—OASI Maximum-Family-Benefit Formula
for Those Newly Eligible in 2024**
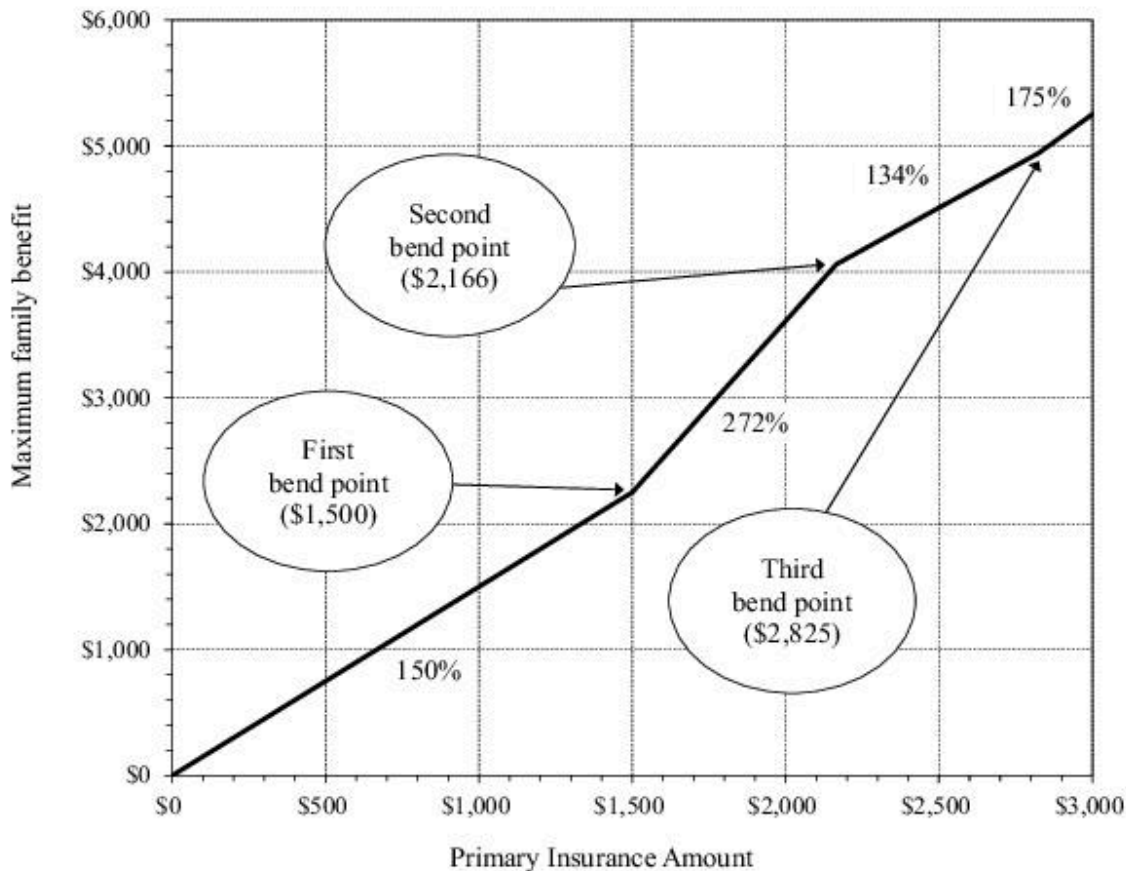
[D]

- *The amount of earnings required in a year to earn a quarter of coverage (QC).* The number and timing of QCs earned determines an individual's insured status — the basic requirement for benefit eligibility under OASDI.

- *The old-law contribution and benefit base—the contribution and benefit base that would have been in effect without enactment of the 1977 amendments.* This old-law base is used in determining special-minimum benefits for certain workers who have many years of low earnings in covered employment. Since 1986, the calculation of OASDI benefits for certain workers who are eligible to receive pensions based on noncovered employment uses the old-law base. In addition, the Railroad Retirement program and the Employee Retirement Income Security Act of 1974 use the old-law base for certain purposes.

**Table V.C2.—Values for Selected Wage-Indexed Program Parameters,
Calendar Years 1978-2033**

Calendar year	AIME bend points in PIA formula [a]		PIA bend points in OASI maximum-family-benefit formula [b]			Earnings required for a quarter of coverage	Old-law contribution and benefit base [c]
	First	Second	First	Second	Third		
Historical data:							
1978	[d]	[d]	[d]	[d]	[d]	[e] $250	[e] $17,700
1979	[e] $180	[e] $1,085	[e] $230	[e] $332	[e] $433	260	18,900
1980	194	1,171	248	358	467	290	20,400
1981	211	1,274	270	390	508	310	22,200
1982	230	1,388	294	425	554	340	24,300
1983	254	1,528	324	468	610	370	26,700
1984	267	1,612	342	493	643	390	28,200

1985	280	1,691	358	517	675	410	29,700
1986	297	1,790	379	548	714	440	31,500
1987	310	1,866	396	571	745	460	32,700
1988	319	1,922	407	588	767	470	33,600
1989	339	2,044	433	626	816	500	35,700
1990	356	2,145	455	656	856	520	38,100
1991	370	2,230	473	682	890	540	39,600
1992	387	2,333	495	714	931	570	41,400
1993	401	2,420	513	740	966	590	42,900
1994	422	2,545	539	779	1,016	620	45,000
1995	426	2,567	544	785	1,024	630	45,300
1996	437	2,635	559	806	1,052	640	46,500
1997	455	2,741	581	839	1,094	670	48,600
1998	477	2,875	609	880	1,147	700	50,700
1999	505	3,043	645	931	1,214	740	53,700
2000	531	3,202	679	980	1,278	780	56,700
2001	561	3,381	717	1,034	1,349	830	59,700
2002	592	3,567	756	1,092	1,424	870	63,000
2003	606	3,653	774	1,118	1,458	890	64,500
2004	612	3,689	782	1,129	1,472	900	65,100
2005	627	3,779	801	1,156	1,508	920	66,900
2006	656	3,955	838	1,210	1,578	970	69,900
2007	680	4,100	869	1,255	1,636	1,000	72,600
2008	711	4,288	909	1,312	1,711	1,050	75,900
2009	744	4,483	950	1,372	1,789	1,090	79,200
2010	761	4,586	972	1,403	1,830	1,120	79,200
2011	749	4,517	957	1,382	1,803	1,120	79,200
2012	767	4,624	980	1,415	1,845	1,130	81,900
2013	791	4,768	1,011	1,459	1,903	1,160	84,300
2014	816	4,917	1,042	1,505	1,962	1,200	87,000
2015	826	4,980	1,056	1,524	1,987	1,220	88,200
2016	856	5,157	1,093	1,578	2,058	1,260	88,200
2017	885	5,336	1,131	1,633	2,130	1,300	94,500
2018	895	5,397	1,144	1,651	2,154	1,320	95,400
2019	926	5,583	1,184	1,708	2,228	1,360	98,700
2020	960	5,785	1,226	1,770	2,309	1,410	102,300
2021	996	6,002	1,272	1,837	2,395	1,470	106,200
2022	1,024	6,172	1,308	1,889	2,463	1,510	109,200
2023	1,115	6,721	1,425	2,056	2,682	1,640	118,800
2024	1,174	7,078	1,500	2,166	2,825	1,730	125,100
Intermediate:							
2025	1,219	7,350	1,558	2,249	2,933	1,800	129,900
2026	1,266	7,632	1,618	2,335	3,046	1,860	135,000
2027	1,311	7,904	1,676	2,419	3,154	1,930	139,800
2028	1,364	8,220	1,743	2,515	3,281	2,010	145,500
2029	1,422	8,571	1,817	2,623	3,421	2,090	151,500
2030	1,487	8,965	1,900	2,743	3,578	2,190	158,400
2031	1,553	9,361	1,984	2,864	3,736	2,290	165,600
2032	1,620	9,767	2,070	2,989	3,898	2,390	172,800
2033	1,691	10,194	2,161	3,119	4,068	2,490	180,300
Low-cost:							
2025	1,222	7,364	1,561	2,253	2,939	1,800	130,200
2026	1,283	7,731	1,639	2,366	3,085	1,890	136,800

2027	1,352	8,148	1,727	2,493	3,252	1,990	144,000
2028	1,422	8,571	1,817	2,623	3,421	2,090	151,500
2029	1,499	9,038	1,916	2,765	3,607	2,210	159,900
2030	1,582	9,537	2,022	2,918	3,806	2,330	168,600
2031	1,669	10,060	2,133	3,078	4,015	2,460	177,900
2032	1,760	10,611	2,249	3,247	4,235	2,590	187,500
2033	1,859	11,209	2,376	3,430	4,473	2,740	198,300
High-cost:							
2025	1,219	7,348	1,558	2,248	2,932	1,790	129,900
2026	1,243	7,491	1,588	2,292	2,989	1,830	132,600
2027	1,262	7,608	1,613	2,328	3,036	1,860	134,700
2028	1,308	7,882	1,671	2,412	3,146	1,920	139,500
2029	1,356	8,173	1,732	2,501	3,262	2,000	144,600
2030	1,406	8,473	1,796	2,593	3,381	2,070	149,700
2031	1,457	8,782	1,862	2,687	3,505	2,140	155,400
2032	1,510	9,099	1,929	2,784	3,631	2,220	160,800
2033	1,561	9,407	1,994	2,879	3,754	2,300	166,500

[a] The formula to compute a PIA is: (1) 90% of AIME below the first bend point, plus (2) 32% of AIME in excess of the first bend point but not in excess of the second, plus (3) 15% of AIME in excess of the second bend point. The bend points are determined based on the first year a beneficiary becomes eligible for benefits.

[b] The formula to compute an OASI family maximum is: (1) 150% of PIA below the first bend point, plus (2) 272% of PIA in excess of the first bend point but not in excess of the second, plus (3) 134% of PIA in excess of the second bend point but not in excess of the third, plus (4) 175% of PIA in excess of the third bend point. This formula also determines family maximums for disabled-worker beneficiaries first eligible after 1978 and entitled before July 1980.

[c] Contribution and benefit base that would have been in effect without enactment of the Social Security Amendments of 1977. Public Law 101-239 changed the indexing procedure and caused slightly higher bases after 1989.

[d] No provision in law for this amount in this year.

[e] Amount specified by Social Security Amendments of 1977.

In addition to the economic factors that affect the determination of OASDI benefits, there are certain legislated changes that affect current and future benefit amounts. Two such changes are the scheduled increases in the normal retirement age and in the delayed retirement credits. Table V.C3 shows the scheduled changes in these parameters and the resulting effects on benefit levels expressed as a percentage of PIA.

Table V.C3.—Legislated Changes in Normal Retirement Age and Delayed Retirement
Credits for Persons Attaining Age 62 in Each Year 1986 and Later

Year of birth	Year of attainment of age 62	Normal retirement age (NRA)	Credit for each year of delayed retirement after	Benefit, as a percentage of PIA, beginning at age —				
				62	65	66	67	70

			NRA (percent)					
1924	1986	65	3	80	100	103	106	115
1925	1987	65	$3\frac{1}{2}$	80	100	$103\frac{1}{2}$	107	$117\frac{1}{2}$
1926	1988	65	$3\frac{1}{2}$	80	100	$103\frac{1}{2}$	107	$117\frac{1}{2}$
1927	1989	65	4	80	100	104	108	120
1928	1990	65	4	80	100	104	108	120
1929	1991	65	$4\frac{1}{2}$	80	100	$104\frac{1}{2}$	109	$122\frac{1}{2}$
1930	1992	65	$4\frac{1}{2}$	80	100	$104\frac{1}{2}$	109	$122\frac{1}{2}$
1931	1993	65	5	80	100	105	110	125
1932	1994	65	5	80	100	105	110	125
1933	1995	65	$5\frac{1}{2}$	80	100	$105\frac{1}{2}$	111	$127\frac{1}{2}$
1934	1996	65	$5\frac{1}{2}$	80	100	$105\frac{1}{2}$	111	$127\frac{1}{2}$
1935	1997	65	6	80	100	106	112	130
1936	1998	65	6	80	100	106	112	130
1937	1999	65	$6\frac{1}{2}$	80	100	$106\frac{1}{2}$	113	$132\frac{1}{2}$
1938	2000	65, 2 mo	$6\frac{1}{2}$	$79\frac{1}{6}$	$98\frac{8}{9}$	$105\frac{5}{12}$	$111\frac{11}{12}$	$131\frac{5}{12}$
1939	2001	65, 4 mo	7	$78\frac{1}{3}$	$97\frac{7}{9}$	$104\frac{2}{3}$	$111\frac{2}{3}$	$132\frac{2}{3}$
1940	2002	65, 6 mo	7	$77\frac{1}{2}$	$96\frac{2}{3}$	$103\frac{1}{2}$	$110\frac{1}{2}$	$131\frac{1}{2}$
1941	2003	65, 8 mo	$7\frac{1}{2}$	$76\frac{2}{3}$	$95\frac{5}{9}$	$102\frac{1}{2}$	110	$132\frac{1}{2}$
1942	2004	65, 10 mo	$7\frac{1}{2}$	$75\frac{5}{6}$	$94\frac{4}{9}$	$101\frac{1}{4}$	$108\frac{3}{4}$	$131\frac{1}{4}$
1943-54	2005-16	66	8	75	$93\frac{1}{3}$	100	108	132
1955	2017	66, 2 mo	8	$74\frac{1}{6}$	$92\frac{2}{9}$	$98\frac{8}{9}$	$106\frac{2}{3}$	$130\frac{2}{3}$
1956	2018	66, 4 mo	8	$73\frac{1}{3}$	$91\frac{1}{9}$	$97\frac{7}{9}$	$105\frac{1}{3}$	$129\frac{1}{3}$
1957	2019	66, 6 mo	8	$72\frac{1}{2}$	90	$96\frac{2}{3}$	104	128
1958	2020	66, 8 mo	8	$71\frac{2}{3}$	$88\frac{8}{9}$	$95\frac{5}{9}$	$102\frac{2}{3}$	$126\frac{2}{3}$
1959	2021	66, 10 mo	8	$70\frac{5}{6}$	$87\frac{7}{9}$	$94\frac{4}{9}$	$101\frac{1}{3}$	$125\frac{1}{3}$
1960 & later	2022 & later	67	8	70	$86\frac{2}{3}$	$93\frac{1}{3}$	100	124

2. Covered Employment

Projections of the total U.S. civilian labor force and unemployment rate (see table V.B2) are based on Bureau of Labor Statistics definitions from the Current Population Survey (CPS). These projections represent the average weekly number of employed and unemployed persons, age 16 and over, in the U.S. in a calendar year. Covered employment for a calendar year is defined as the total number of persons who have any OASDI covered earnings (that is, earnings subject to the OASDI payroll tax) at any time during that year. For those age 16 and over, projected covered employment is the sum of age-sex groups, each reflecting the growth projected for the group's total U.S employment and average weeks worked per year.[2] For the short-range period, the age-sex-adjusted average weeks worked declines slightly as the age-sex-adjusted unemployment rate rises to its ultimate assumed value of 4.5 percent. After 2033, the average weeks worked for each age-sex group is assumed to remain constant. The projection method also accounts for changes in non-OASDI-covered employment and the increase in coverage of Federal civilian employment as a result of the 1983 Social Security Amendments. It also reflects changes in the number and employment status of other-than-LPR immigrants residing within the Social Security coverage area, such as undocumented immigrants and foreign workers and students with temporary visas.

The covered-worker rate is the ratio of OASDI covered workers to the Social Security area population. For men and boys age 16 and over, the projected age-adjusted covered-worker rates[3] for 2098 are 66.8,

66.8, and 66.7 percent for the low-cost, intermediate, and high-cost assumptions, respectively. For women and girls age 16 and over, the projected age-adjusted covered-worker rates for 2098 are 65.6, 65.0, and 64.7 percent for the low-cost, intermediate, and high-cost assumptions, respectively. An important factor in the variation among the projected rates for the three alternatives is the portion of the men and women in the population that is projected to be other-than-LPR immigrants. For men and boys, the intermediate projected rate for 2098 is lower than the 2022 age-adjusted rate of 68.5 percent primarily due to the projected increase in the portion of the Social Security area population that consists of other-than-LPR immigrants. For women and girls, the intermediate projected rate for 2098 is higher than the 2022 age-adjusted rate of 63.8 percent because the projected increase in the age-adjusted labor force participation rate more than offsets the projected increase in the portion of the population that will be other-than-LPR immigrants.

3. Insured Population

Eligibility for worker benefits under the OASDI program requires some threshold level of work in covered employment. A worker satisfies this requirement by his or her accumulation of quarters of coverage (QCs). Prior to 1978, a worker earned one QC for each calendar quarter in which he or she earned at least $50. In 1978, when annual earnings reporting replaced quarterly reporting, the amount required to earn a QC (up to a maximum of four per year) was set at $250. As specified in the law, the Social Security Administration has adjusted this amount each year since then according to changes in the AWI. Its value in 2024 is $1,730.

There are three types of insured status that a worker can earn under the OASDI program. The number and recency of QCs earned determine each status. A worker is fully insured when his or her total number of QCs is greater than or equal to the number of years elapsed after the year of attainment of age 21 (but not less than six). After a worker has accumulated 40 QCs, he or she remains permanently fully insured. A worker is disability insured if he or she is: (1) a fully insured worker who has accumulated 20 QCs during the 40-quarter period ending with the current quarter, (2) a fully insured worker aged 24-30 who has accumulated QCs during one-half of the quarters elapsed after the quarter of attainment of age 21 and up to and including the current quarter, or (3) a fully insured worker under age 24 who has accumulated six QCs during the 12-quarter period ending with the current quarter. A worker is currently insured when he or she has accumulated six QCs during the 13-quarter period ending with the current quarter. Periods of disability reduce the number of quarters required for insured status, but not below the minimum of six QCs.

There are many types of benefits payable to workers and their family members under the OASDI program. A worker must be fully insured to be eligible for a primary retirement benefit and for his or her spouse or children to be eligible for auxiliary retirement benefits. A deceased worker must have been either currently insured or fully insured at the time of death for his or her children (and their mother or father) to be eligible for benefits. If there are no eligible surviving children, the deceased worker must have been fully insured at the time of death for his or her surviving spouse to be eligible. A worker must be disability insured to be eligible for a primary disability benefit and for his or her spouse or children to be eligible for auxiliary disability benefits.

The Office of the Chief Actuary estimates the fully insured population, as a percentage of the Social Security area population, by single year of age and sex starting in 1969. The short-range model extrapolates the historical trend in these rates from data in the Continuous Work History Sample (CWHS). The model uses information on quarters of coverage earned due to employment covered by Social Security derived from tabulations of the CWHS. The model also uses historical administrative data on beneficiaries in force and estimated historical mortality rates. The model combines this information to estimate the proportion of individuals who were alive and fully insured as of the end of each historical year. Using projected mortality rates and covered workers, the model extrapolates these rates into the future and applies them to the historical and projected population to arrive at the fully insured population by age and sex through the end of the short-range period.

The long-range fully insured model uses 30,000 simulated work histories for each sex and birth cohort, representing everyone except the other-than-LPR immigrant population.[4] For the other-than-LPR immigrant population, the model generates substantially lower percentages attaining fully insured

status. The model constructs simulated work histories using past coverage rates, earnings distributions, and amounts required for crediting QCs, and develops them in a manner that replicates historical individual variations in work patterns. The probability of covered employment in any year is assumed to be higher for those who have worked more consistently in the recent past. Model parameters are selected so that simulated fully insured percentages are consistent with the fully insured percentages estimated by the short-range model for the recent historical period.

The Office of the Chief Actuary estimates the disability insured population, as a percentage of the fully insured population, by age and sex starting in 1969. The office bases historical values on a tabulation of the disability insured population from the CWHS and estimates of the fully insured population. The short-range model projects these percentages by using the relationship between the historical percentages and covered-worker rates. The long-range model projects these percentages by using the same simulated work histories used to project the fully insured percentages. The long-range model makes additional adjustments to the model simulations in order to bring the disability insured percentages in the historical and short-range periods into close agreement with those estimated from the CWHS and the short-range model.

The office does not project the currently insured population because the number of beneficiaries who are entitled to benefits based solely on currently insured status has been very small recently and is likely to remain small in the future.

Using these insured models, the percentage of the Social Security area population aged 62 and over that is fully insured is projected to change from its estimated level of 87.9 for December 31, 2021, to 85.8, 87.6, and 90.1 for December 31, 2100, under the low-cost, intermediate, and high-cost alternatives, respectively. Over the projection period, the percentages for both men and women change significantly. The percentage for men declines, reflecting, in part, increases in the percent of the population that is classified as other-than-LPR immigrants and is thus less likely to have earnings reported and credited to them. The percentage for women increases, reflecting the past substantial growth in the employment of younger cohorts of women. Under the intermediate assumptions, for example, the percentage for men decreases from 92.9 to 86.3, and the percentage for women increases from 83.7 to 88.7.

4. Old-Age and Survivors Insurance Beneficiaries

The Office of the Chief Actuary projects the number of OASI beneficiaries for each type of benefit separately by the sex of the worker on whose earnings the benefits are based and by the age of the beneficiary. For the long-range period, the office also projects the number of beneficiaries by marital status for several types of benefits. The office uses two separate models in making these projections. The short-range model makes projections during the first 10 years of the projection period and the long-range model makes projections thereafter.

The short-range model develops the number of retired-worker beneficiaries by applying award rates to the aged fully insured population, excluding those already receiving retired-worker, disabled-worker, aged-widow(er), or aged-spouse benefits, and by applying termination rates to the number of retired-worker beneficiaries.

The long-range model projects the number of retired-worker beneficiaries who were not previously converted from disabled-worker beneficiary status as a percentage of the exposed population.[5] For age 62, the model projects this percentage by using a linear regression based on the historical relationship between this percentage, the employment rate[6] at age 62, and the number of months from age 62 to normal retirement age. The percentage for ages 70 and over is nearly 100 because delayed retirement credits cannot be earned after age 70. The long-range model projects the percentage for each age 63 through 69 based on historical experience with an adjustment for changes in the portion of the primary insurance amount that is payable at each age of entitlement. The model adjusts these percentages for ages 62 through 69 to reflect changes in the normal retirement age.

The long-range model calculates the number of retired-worker beneficiaries previously converted from disabled-worker beneficiary status using an extension of disabled-worker death rates by age, sex, and duration.

The Office of the Chief Actuary estimates the number of aged-spouse beneficiaries, excluding those who are also receiving a retired-worker benefit, from the population projected by age and sex. Benefits of aged-spouse beneficiaries depend on the earnings records of their husbands or wives, who are referred to as "earners." The short-range model projects insured aged-spouse beneficiaries in conjunction with the retired-worker beneficiaries. This model projects uninsured aged-spouse beneficiaries by applying award rates to the aged uninsured male or female population and by applying termination rates to the population already receiving such benefits.

The long-range model estimates aged-spouse beneficiaries separately for those married and divorced. The model projects the number of married aged-spouse beneficiaries, by age and sex, by applying a series of factors to the number of spouses, aged 62 and over, in the population. These factors are the probabilities that the spouse and the earner meet all of the conditions of eligibility — that is, the probabilities that: (1) the earner is 62 or over, (2) the earner is insured, (3) the earner is receiving benefits, (4) the spouse is not receiving a benefit for the care of an entitled child, (5) the spouse is either not insured or is insured but not receiving benefits, and (6) the spouse is not eligible to receive a significant government pension based on earnings from noncovered employment. To calculate the estimated number of aged-spouse beneficiaries, the model applies a projected prevalence rate to the resulting number of spouses. Due to the Bipartisan Budget Act of 2015, for those turning age 62 in 2016 and later, deemed filing now applies to all retired workers and spouses even after initial entitlement, regardless of age. Thus, spouses who are insured are no longer eligible to delay their retired-worker benefit while receiving an aged-spouse benefit.[7]

The long-range model estimates the number of divorced aged-spouse beneficiaries, by age and sex, by applying the same factors to the number of divorced persons aged 62 and over in the population, with three differences. First, the model applies a factor to reflect the probability that the earner (former spouse) is still alive. If the former spouse is not alive, the person may be entitled to a divorced widow(er) benefit. Second, the model applies a factor to reflect the probability that the marriage to the former spouse lasted at least 10 years. Third, the model does not apply factor (3) in the previous paragraph because, effective January 1985, a divorced person is generally no longer required to wait for the former spouse to receive benefits.

The Office of the Chief Actuary bases the projected numbers of children under age 18, and students aged 18 and 19, who are eligible for benefits as children of retired-worker beneficiaries, on the projected number of children in the population. The short-range model develops the number of entitled children by applying award rates to the number of children in the population who have two living parents and by applying termination rates to the number of children already receiving benefits.

The long-range model projects separately the number of entitled children by sex of the earner parent. For each age under 18, the model multiplies the projected number of children with a parent aged 62 and over by the ratio of the number of retired workers aged 62 to 71 to the number of members of the population aged 62 to 71. For student beneficiaries, the model multiplies the number of children aged 18 and 19 in the population by the probabilities that: (1) the parent is alive, aged 62 or over, insured, and receiving a retired-worker benefit; and (2) the child is attending high school.

The Office of the Chief Actuary projects the number of disabled children, aged 18 and over, of retired-worker beneficiaries from the adult population. The short-range model applies award rates to the population and applies termination rates to the number of disabled children already receiving benefits. The long-range model projects the number of disabled children in a manner similar to that used for student children except for a factor that reflects the probability of being disabled before age 22.

The short-range model develops the number of spouses of retired workers, who are entitled to spouse benefits because they are caring for a child who is under age 16 or disabled, by applying award rates to the number of awards to children of retired workers and by applying termination rates to the number of young spouses with a child in their care who are already receiving benefits. The long-range model projects the number of young-spouse beneficiaries with a child in their care as a proportion of the number of child beneficiaries of retired workers, including projected changes in average family size.

The Office of the Chief Actuary projects the number of aged-widow(er) beneficiaries, excluding those who are also receiving a retired-worker benefit, from the population by age and sex. The short-range

model projects fully insured aged-widow(er) beneficiaries in conjunction with the retired-worker beneficiaries. The model projects the number of uninsured aged-widow(er) beneficiaries by applying award rates to the aged uninsured male or female population and by applying termination rates to the population already receiving such benefits. The long-range model projects uninsured aged-widow(er) beneficiaries by marital status. The model multiplies the number of widow(er)s in the population aged 60 and over by the probabilities that: (1) the deceased earner is fully insured at death, (2) the widow(er) is not receiving a benefit for the care of an entitled child, (3) the widow(er) is not fully insured, and (4) the widow(er) benefits are not withheld because of receipt of a significant government pension based on earnings in noncovered employment. In addition, the model applies the same factors to the number of divorced persons aged 60 and over in the population and includes additional factors representing the probability that the person's former earner spouse has died and that the marriage lasted at least 10 years. The model projects the number of insured aged-widow(er) beneficiaries who are ages 60 through 71 in a manner similar to that for uninsured aged-widow(er) beneficiaries. In addition, the model assumes that some insured widow(er)s who had not applied for their retired-worker benefits will receive widow(er) benefits. The model projects insured aged-widow(er) beneficiaries over age 71 by applying termination rates to the population that started receiving such benefits prior to age 71.

The short-range model develops the number of disabled-widow(er) beneficiaries by applying award rates to the male or female population and by applying termination rates to the population already receiving a disabled-widow(er) benefit. The long-range model projects the number for each cohort by age from 50 to normal retirement age as percentages of the widowed and divorced populations, adjusted for the insured status of the deceased spouse, the prevalence of disability, and the probability that the disabled spouse is not receiving another type of benefit.

The Office of the Chief Actuary bases the projected number of children under age 18, and students aged 18 and 19, who are entitled to benefits as survivors of deceased workers, on the number of children in the population whose mothers or fathers are deceased. The short-range model develops the number of entitled children by applying award rates to the number of orphaned children and by applying termination rates to the number of children already receiving benefits.

The long-range model projects the number of surviving-child beneficiaries in a manner similar to that for student beneficiaries of retired workers, except that the model replaces the probability that the parent is aged 62 or over with the probability that the parent is deceased.

The Office of the Chief Actuary projects the number of surviving-disabled-child beneficiaries, aged 18 and over, from the adult population. The short-range model applies award rates to the population and applies termination rates to the number of surviving-disabled-child beneficiaries already receiving benefits. The long-range model projects the number of surviving-disabled-child beneficiaries in a manner similar to that for surviving-student-child beneficiaries, except for including an additional factor to reflect the probability of being disabled before age 22.

The short-range model develops the numbers of entitled surviving-mother and surviving-father beneficiaries by applying award rates to the number of awards to surviving-child beneficiaries, in cases where the children are either under age 16 or disabled, and by applying termination rates to the number of surviving-mother and surviving-father beneficiaries already receiving benefits. The long-range model estimates the numbers of surviving-mother and surviving-father beneficiaries, assuming they are not remarried, from the number of surviving-child beneficiaries.

The Office of the Chief Actuary projects the number of surviving-parent beneficiaries based on the historical pattern of the number of such beneficiaries.

Table V.C4 shows the projected number of beneficiaries under the OASI program by type of benefit. The retired-worker beneficiary counts include those persons who receive a residual auxiliary benefit in addition to their retired-worker benefit. The office makes estimates of the number and amount of residual payments separately for spouses and widow(er)s.

**Table V.C4.—OASI Beneficiaries With Benefits in Current-Payment Status
at the End of Calendar Years 1945-2100**
[In thousands]

Calendar year	Retired workers and auxiliaries			Survivors				Total
	Worker[1]	Spouse	Child	Widow-widower	Mother-father	Child	Parent	
Historical data:								
1945	518	159	13	94	121	377	6	1,288
1950	1,771	508	46	314	169	653	15	3,477
1955	4,474	1,192	122	701	292	1,154	25	7,961
1960	8,061	2,269	268	1,544	401	1,577	36	14,157
1965	11,101	2,614	461	2,371	472	2,074	35	19,128
1970	13,349	2,668	546	3,227	523	2,688	29	23,030
1975	16,589	2,867	643	3,888	582	2,919	21	27,509
1980	19,564	3,018	639	4,415	563	2,610	15	30,823
1985	22,435	3,069	456	4,862	372	1,918	10	33,122
1990	24,841	3,104	421	5,098	304	1,777	6	35,551
1995	26,679	3,027	441	5,213	275	1,884	4	37,522
2000	28,505	2,798	459	4,901	203	1,878	3	38,747
2005	30,461	2,524	488	4,569	178	1,903	2	40,126
2010	34,593	2,316	580	4,285	159	1,913	2	43,847
2015	40,089	2,335	648	4,050	140	1,893	1	49,155
2016	41,233	2,370	661	4,004	133	1,893	1	50,296
2017	42,447	2,375	675	3,961	128	1,904	1	51,491
2018	43,721	2,391	690	3,908	121	1,911	1	52,743
2019	45,094	2,430	701	3,878	117	1,916	1	54,137
2020	46,330	2,323	704	3,823	115	1,936	1	55,231
2021	47,293	2,165	687	3,773	114	1,976	1	56,009
2022	48,588	2,022	682	3,728	112	2,020	1	57,152
2023	50,148	1,895	685	3,688	108	2,037	1	58,562
Intermediate:								
2024	51,559	1,834	704	3,654	106	2,062	1	59,920
2025	52,920	1,795	720	3,632	103	2,069	1	61,239
2030	59,437	1,647	818	3,558	91	2,121	1	67,672
2035	63,865	1,559	914	3,439	92	2,137	1	72,007
2040	66,682	1,400	1,006	3,173	102	2,154	1	74,518
2045	68,118	1,287	1,102	2,932	106	2,180	1	75,726
2050	69,789	1,249	1,163	2,781	104	2,151	1	77,237
2055	72,232	1,241	1,202	2,659	99	2,085	1	79,519
2060	75,497	1,250	1,237	2,559	95	2,006	1	82,645
2065	78,458	1,276	1,245	2,508	91	1,940	1	85,519
2070	81,400	1,307	1,256	2,486	89	1,906	1	88,444
2075	84,243	1,337	1,274	2,464	88	1,895	1	91,303
2080	86,180	1,367	1,285	2,424	87	1,885	1	93,229
2085	87,128	1,382	1,290	2,374	84	1,856	1	94,116
2090	87,254	1,406	1,278	2,340	81	1,818	1	94,178
2095	88,253	1,441	1,300	2,321	79	1,781	1	95,176
2100	90,492	1,489	1,335	2,317	77	1,752	1	97,462
Low-cost:								
2024	51,518	1,834	706	3,649	106	2,067	1	59,880
2025	52,830	1,794	722	3,626	104	2,080	1	61,156
2030	58,973	1,649	831	3,535	94	2,183	1	67,266

2035	62,684	1,531	942	3,470	93	2,312	1	71,033
2040	64,613	1,367	1,054	3,231	106	2,452	1	72,824
2045	65,166	1,243	1,167	3,018	112	2,585	1	73,292
2050	66,030	1,184	1,235	2,888	112	2,631	1	74,081
2055	67,765	1,160	1,293	2,777	111	2,626	1	75,732
2060	70,382	1,151	1,361	2,680	109	2,604	1	78,289
2065	72,714	1,150	1,384	2,621	110	2,607	1	80,586
2070	74,946	1,148	1,410	2,590	113	2,664	1	82,873
2075	77,057	1,138	1,452	2,557	117	2,761	1	85,083
2080	78,296	1,128	1,481	2,510	121	2,848	1	86,384
2085	78,613	1,110	1,503	2,459	123	2,896	1	86,704
2090	78,427	1,109	1,498	2,447	124	2,926	1	86,532
2095	80,038	1,141	1,561	2,480	126	2,961	1	88,307
2100	83,531	1,185	1,639	2,533	128	3,013	1	92,030
High-cost:								
2024	51,611	1,835	703	3,659	105	2,057	1	59,971
2025	53,034	1,795	717	3,641	102	2,058	1	61,349
2030	60,042	1,646	805	3,588	87	2,055	1	68,225
2035	65,471	1,609	884	3,384	88	1,931	1	73,369
2040	69,514	1,456	950	3,077	92	1,808	1	76,897
2045	72,193	1,361	1,020	2,800	92	1,729	1	79,195
2050	75,046	1,349	1,074	2,622	85	1,640	1	81,817
2055	78,430	1,371	1,083	2,485	78	1,537	1	84,983
2060	82,539	1,414	1,069	2,375	70	1,429	1	88,897
2065	86,243	1,475	1,050	2,323	63	1,332	1	92,488
2070	89,919	1,540	1,038	2,298	57	1,255	1	96,107
2075	93,496	1,598	1,026	2,282	53	1,194	1	99,650
2080	96,141	1,637	1,011	2,238	48	1,143	1	102,219
2085	97,682	1,654	995	2,175	44	1,090	1	103,641
2090	97,907	1,654	970	2,104	40	1,036	1	103,711
2095	97,482	1,649	950	2,018	37	985	1	103,121
2100	97,234	1,657	939	1,958	34	938	1	102,761

[1] Retired-worker beneficiaries include persons who also receive a residual benefit consisting of the excess of an auxiliary benefit over their retired-worker benefit.

Notes:

1. The number of beneficiaries does not include uninsured individuals who receive benefits under section 228 of the Social Security Act. Transfers from the General Fund of the Treasury reimburse the OASI Trust Fund for the cost of most of these individuals.

2. Components may not sum to totals because of rounding.

5. Disability Insurance Beneficiaries

The DI Trust Fund pays for benefits to workers who: (1) satisfy the disability insured requirements, (2) have applied for disabled-worker benefits, (3) are determined to be unable to engage in any substantial gainful activity due to a medically determinable physical or mental impairment severe enough to satisfy the requirements of the program, and (4) have not yet attained normal retirement age. Spouses and children of such disabled-worker beneficiaries may also receive DI benefits provided they satisfy certain criteria, primarily age and earnings requirements.

The Office of the Chief Actuary projects the number of disabled-worker beneficiaries in current-payment status (disability prevalence) for each future year. The projections start with the number in

current-payment status as of December 2023. Projections of the number of applicants and new beneficiaries awarded benefits each year (disability incidence) and the number of beneficiaries leaving the disability rolls each year then determine the number in current-payment status in later years. Beneficiaries leave the rolls due to death and recovery (disability terminations) and due to conversion from disabled-worker to retired-worker beneficiary status at normal retirement age, after which the OASI Trust Fund pays for benefits. The remainder of this section describes the concepts of disability incidence, termination, and prevalence.

a. Disability Incidence

The disability incidence rate is the ratio of the number of applicants newly awarded disabled-worker benefits during each year to the number of individuals who meet insured requirements but are not yet receiving benefits (the disability-exposed population[8]). The Office of the Chief Actuary projects the number of newly awarded beneficiaries for each future year by multiplying assumed age-sex-specific disability incidence rates and the projected disability-exposed population by age and sex.

Figure V.C3 illustrates the projected incidence rates under the three alternatives along with historical rates. Incidence rates have varied substantially during the historical period since 1970 due to a variety of demographic and economic factors, along with changes in legislation and program administration. The solid lines in figure V.C3 show the age-sex-adjusted incidence rate consistent with the age-sex distribution of the disability-exposed population for 2000. This adjustment allows a meaningful comparison of incidence rates over time by focusing on the likelihood of being awarded disabled-worker benefits, excluding the effects of a changing distribution of the population toward ages where disability is more or less likely.

The dashed lines in figure V.C3 represent the gross (unadjusted) incidence rates. The changing age-sex distribution of the exposed population over time influences these unadjusted rates. The gross incidence rate declined relative to the age-sex-adjusted rate between 1970 and 1990 as the baby-boom generation increased the size of the younger working-age population, where disability incidence is lower than in older populations. Between 1990 and 2010, the gross rate increased relative to the age-sex-adjusted rate as the baby-boom generation moved into an age range where disability incidence is higher. The projected gross incidence rate generally declines relative to the age-sex-adjusted rate as the baby-boom generation moves above the normal retirement age and the lower-birth-rate cohorts of the 1970s enter prime disability ages (50 to normal retirement age). As these smaller cohorts age beyond normal retirement age, by about 2050, the gross incidence rate returns to a higher relative level under the intermediate assumptions. Thereafter, the gross rate remains higher than the age-sex-adjusted rate, and reflects the persistently higher average age of the working-age population compared to the population in 2000, which is largely due to lower birth rates since 1965, and to the increase in the normal retirement age.

For the first 10 years of the projection period (through 2033), incidence rates reflect several factors following on the experience since the recession of 2007-09. At the beginning of the period of high unemployment that began in 2007, disability incidence rates started to rise to a level well above the general trend level, with rates reaching a peak in 2010. Between 2010 and 2012, incidence rates subsided as the economy recovered, but the decline continued after 2012, reaching levels well below those expected over the long-term. A portion of the elevation of disability incidence rates experienced during the recession of 2007-09 likely contributed to the lowering of incidence rates experienced during and subsequent to the economic recovery that followed, as many individuals applied for disability benefits earlier than they would have otherwise.

For 2023, the actual age-sex-adjusted incidence rate (2.9 per thousand) was below the level projected in last year's report (3.0 per thousand). In this year's report, as in last year's report, incidence rates under the intermediate alternative are projected to rise slowly early in the projection period, consistent with the low incidence levels experienced recently. Incidence rates are projected to rise to a temporary peak level for 2027 as some of the reduced levels of new benefit awards in recent years are realized in the next few years. After 2027, incidence rates decline from the peak, reaching the ultimate assumed level of incidence at the end of the short-range period.

In 2033, at the end of the short-range period, age-sex-specific incidence rates are assumed to reach the ultimate rates assumed for the long-range projections. These ultimate age-sex-specific disability incidence rates were selected based on careful analysis of historical levels and patterns and expected future conditions, including the impact of scheduled increases in the normal retirement age.[9] The ultimate incidence rates represent the expected average rates of incidence for the future.

For the intermediate alternative, the Trustees assume that the ultimate age-sex-adjusted incidence rate (adjusted to the disability-exposed population for the year 2000) will be 4.5 awards per thousand exposed, which is 0.3 per thousand lower than the ultimate rate assumed in last year's report. Figure V.C3 illustrates that the age-sex-adjusted incidence rate averaged 5.0 per thousand over the historical period 1970 through 2023, but has dropped substantially below that level since 2013. The rates seen in recent years are not consistent with an assumption of a full rise back to longer-term past historical averages. The Trustees continue to monitor experience and review the disability incidence rate assumption.

The Trustees assume that the ultimate age-sex-adjusted incidence rates for the low-cost and high-cost alternatives will be 3.6 and 5.4 awards per thousand exposed, or about 20 percent lower and higher, respectively, than the ultimate incidence rate for the intermediate alternative. These ultimate low-cost and high-cost incidence rates are lower than those in last year's report by roughly 0.2 and 0.4 awards per thousand exposed, respectively.

Figure V.C3.—DI Disability Incidence Rates, 1970-2100
[Awards per thousand disability-exposed]
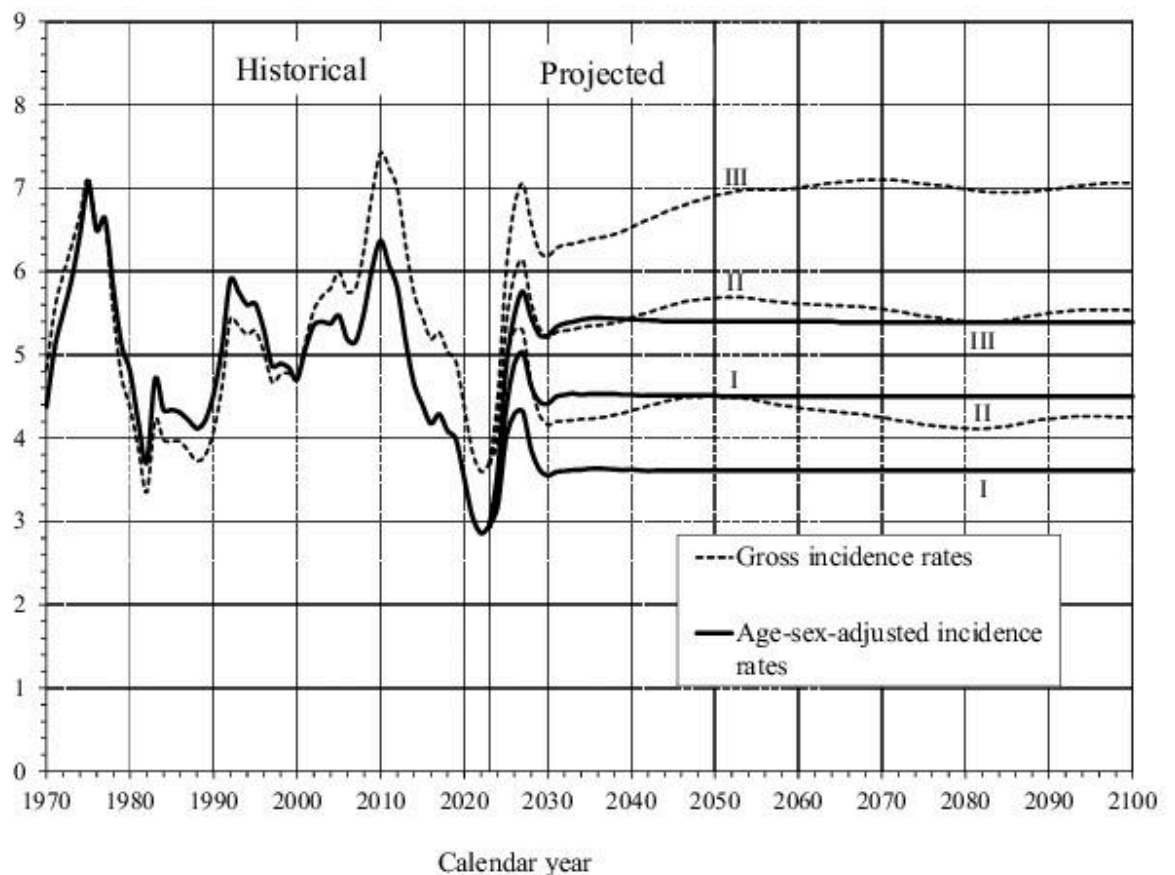
[D]

b. Disability Termination

Beneficiaries stop receiving disability benefits when they die, experience an improvement in their medically-determinable impairment such that they are deemed able to engage in substantial gainful activity, or return to substantial work. Disabled-worker beneficiaries who return to substantial work for an extended period are deemed to have recovered, and their benefits are then terminated. The

termination rate is the ratio of the number of terminations for these reasons to the average number of disabled-worker beneficiaries during the year.

The Office of the Chief Actuary projects termination rates by age, sex, and reason for termination. In addition, the office projects termination rates by duration of entitlement to disabled-worker benefits in the long-range period (post-2033).

In the short-range period (through 2033), the projected age-sex-adjusted death rate (adjusted to the 2000 disabled-worker beneficiary population) under the intermediate assumptions declines from the temporarily elevated rate of 26.8 deaths per thousand beneficiaries for 2023 to about 23.6 per thousand for 2033. These rates are assumed to remain elevated through 2024 due to the COVID-19 pandemic, and then return to follow the underlying declining trend in general population mortality. The projected age-sex-adjusted recovery rate (medical improvement and return to substantial work) under the intermediate assumptions decreases from the relatively high level of 21.0 per thousand beneficiaries for 2023 to 10.8 per thousand beneficiaries for 2033. The recovery rate has been high in recent years due to an ongoing administrative effort to eliminate a backlog of medical continuing disability reviews. The recovery rate is expected to decrease as the backlog of disabled-worker reviews is assumed to be eliminated by the end of 2026. Thereafter, the rate decreases toward the expected long-term projected rate. Under the low-cost and high-cost assumptions, total age-sex-adjusted termination rates due to death and recovery are roughly 10 to 20 percent higher or lower, respectively, than under the intermediate assumptions.

For the long-range period (post-2033), the Office of the Chief Actuary projects death and recovery rates by age, sex, and duration of entitlement relative to the average level of rates experienced over the base period 2011 through 2015. The assumed ultimate age-sex-adjusted recovery rate for disabled-worker beneficiaries is 10.8 per thousand beneficiaries under the intermediate alternative, which is 0.4 per thousand higher than the ultimate rate assumed in last year's report. The assumed ultimate age-sex-adjusted recovery rates for the low-cost and high-cost alternatives are 13.0 and 8.6 recoveries per thousand beneficiaries, respectively. These ultimate low-cost and high-cost recovery rates are higher than those in last year's report by roughly 0.5 and 0.3 per thousand, respectively. Death rates by age and sex change throughout the long-range period at the same rate as death rates in the general population. The age-sex-adjusted death rate decreases from 26.8 per thousand beneficiaries in 2023 to 21.5, 12.4, and 6.2 per thousand disabled-worker beneficiaries for 2098 under the low-cost, intermediate, and high-cost assumptions, respectively.

Figure V.C4 illustrates gross and age-sex-adjusted total termination rates (including both recoveries and deaths) for disabled-worker beneficiaries for the historical period since 1970, and for the projection period through 2100. As with incidence rates, the age-sex-adjusted termination rate illustrates the real change in the tendency to terminate benefits. Changes in the age-sex distribution of the beneficiary population influence the gross termination rate. A shift in the disabled-worker beneficiary population to older ages, as occurred over the past 20 years when the baby-boom generation moved into pre-retirement ages, increases gross death termination rates relative to the age-sex-adjusted rates.

Figure V.C4.—DI Disability Termination Rates, 1970-2100
[Terminations per thousand disabled-worker beneficiaries]

Calendar year

[D]
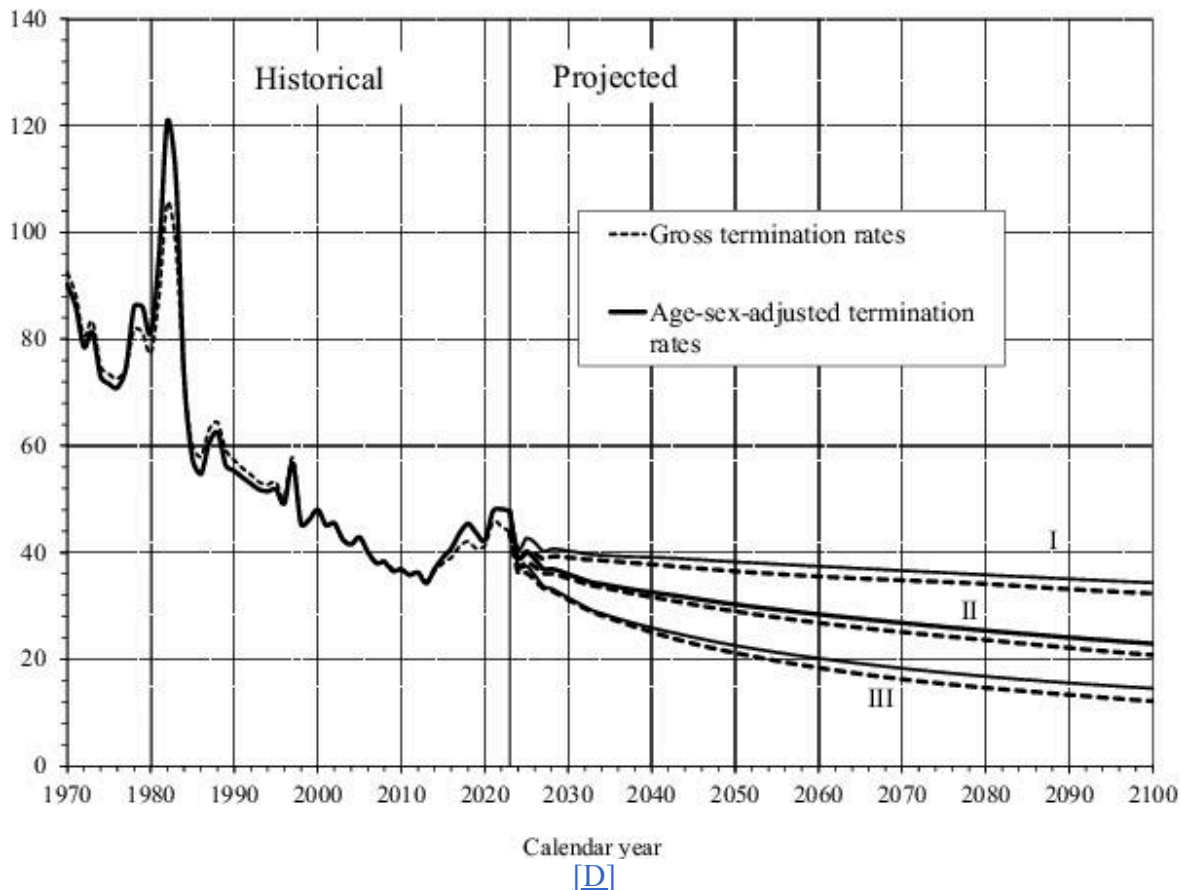
c. DI Beneficiaries and Disability Prevalence Rates

Incidence and termination rates are the foundation for projecting the number of disabled-worker beneficiaries in current-payment status. At normal retirement age, all disabled-worker beneficiaries convert to retired-worker status and leave the DI rolls.

The Office of the Chief Actuary makes detailed projections of disabled-worker awards, terminations, and conversions and combines these to project the number of disabled workers receiving benefits over the next 75 years. Table V.C5 presents the projected numbers of disabled-worker beneficiaries in current-payment status. The number of disabled-worker beneficiaries in current-payment status grows from 7.4 million at the end of 2023, to 9.7 million, 11.2 million, and 11.2 million at the end of 2100, under the low-cost, intermediate, and high-cost assumptions, respectively. Of course, much of this growth results from the growth and changing age distribution of the population described earlier in this chapter. Table V.C5 also presents projected numbers of auxiliary beneficiaries and disability prevalence rates on both a gross basis and an age-sex-adjusted basis.

**Table V.C5.—DI Beneficiaries With Benefits in Current-Payment Status
at the End of Calendar Years 1960-2100**
[Beneficiaries in thousands; prevalence rates per thousand persons insured for disability benefits]

Calendar year	Disabled-worker beneficiaries	Auxiliary beneficiaries		Total beneficiaries	Disability prevalence rates	
		Spouse	Child		Gross	Age-sex-adjusted[a]
Historical data:						
1960	455	77	155	687		
1965	988	193	558	1,739		
1970	1,493	283	889	2,665	20	18

	1975	2,488	453	1,411	4,351	29	28
	1980	2,856	462	1,359	4,677	28	31
	1985	2,653	306	945	3,904	24	26
	1990	3,007	266	989	4,261	25	28
	1995	4,179	264	1,409	5,852	33	35
	2000	5,036	165	1,466	6,667	36	36
	2005	6,519	157	1,633	8,309	45	40
	2010	8,204	161	1,820	10,185	55	44
	2015	8,909	143	1,756	10,808	59	45
	2016	8,809	136	1,667	10,612	58	44
	2017	8,695	127	1,590	10,412	56	43
	2018	8,537	119	1,507	10,164	55	41
	2019	8,378	114	1,434	9,927	54	40
	2020	8,151	105	1,364	9,620	52	39
	2021	7,877	97	1,245	9,219	50	37
	2022	7,604	92	1,146	8,842	48	34
	2023	7,366	89	1,061	8,515	46	33
Intermediate:							
	2024	7,254	89	1,032	8,375	45	32
	2025	7,336	90	1,039	8,465	45	32
	2030	7,575	91	1,148	8,814	46	34
	2035	7,805	86	1,250	9,141	47	35
	2040	8,267	77	1,451	9,796	49	37
	2045	8,934	82	1,635	10,651	52	38
	2050	9,378	86	1,719	11,183	54	38
	2055	9,691	87	1,743	11,521	56	39
	2060	9,735	85	1,737	11,556	55	39
	2065	9,869	87	1,728	11,684	56	39
	2070	9,973	90	1,741	11,804	56	39
	2075	9,922	90	1,783	11,795	55	40
	2080	9,944	91	1,842	11,877	55	40
	2085	10,056	91	1,891	12,038	54	40
	2090	10,514	96	1,925	12,535	55	40
	2095	10,940	101	1,950	12,990	57	40
	2100	11,165	102	1,976	13,243	57	40
Low-cost:							
	2024	7,213	89	1,025	8,326	45	32
	2025	7,222	90	1,020	8,332	44	31
	2030	6,841	89	1,035	7,965	41	30
	2035	6,588	72	1,082	7,742	39	29
	2040	6,678	60	1,239	7,977	39	29
	2045	7,061	61	1,398	8,519	40	29
	2050	7,327	61	1,468	8,857	41	29
	2055	7,535	61	1,495	9,091	41	30
	2060	7,566	59	1,496	9,121	40	30
	2065	7,685	60	1,505	9,250	40	30
	2070	7,802	61	1,546	9,409	39	30
	2075	7,837	61	1,621	9,519	39	30
	2080	7,971	62	1,712	9,744	38	30
	2085	8,244	62	1,787	10,094	38	30
	2090	8,866	68	1,848	10,782	39	30

2095	9,390	72	1,900	11,362	40	30
2100	9,702	73	1,959	11,733	40	30
High-cost:						
2024	7,306	89	1,042	8,436	45	32
2025	7,488	91	1,066	8,645	47	33
2030	8,305	92	1,245	9,641	52	38
2035	9,066	102	1,385	10,552	55	41
2040	9,920	97	1,574	11,591	60	44
2045	10,906	108	1,732	12,747	65	46
2050	11,545	115	1,806	13,466	69	48
2055	11,967	118	1,809	13,893	73	49
2060	11,994	117	1,783	13,894	74	49
2065	12,102	119	1,741	13,962	75	49
2070	12,121	121	1,700	13,942	77	50
2075	11,863	119	1,670	13,653	77	50
2080	11,592	118	1,659	13,369	77	50
2085	11,269	113	1,652	13,034	76	50
2090	11,164	112	1,638	12,914	76	50
2095	11,233	115	1,617	12,965	77	51
2100	11,213	116	1,591	12,920	78	51

a Adjusted to the age-sex distribution of the disability insured population for the year 2000.

Note: Components may not sum to totals because of rounding.

The disability prevalence rate is the ratio of the number of disabled-worker beneficiaries in current-payment status to the number of persons insured for disability benefits. Figure V.C5 illustrates the historical and projected disability prevalence rates on both a gross basis and on an age-sex-adjusted basis (adjusted to the age-sex distribution of the disability insured population for the year 2000).

Changes in prevalence rates are a direct result of changes in incidence rates and termination rates. Annual incidence and termination rates are not directly comparable or combinable because their denominators differ.

Figure V.C5.—DI Disability Prevalence Rates, 1970-2100
[Rate per thousand persons insured for disability benefits]

[D]
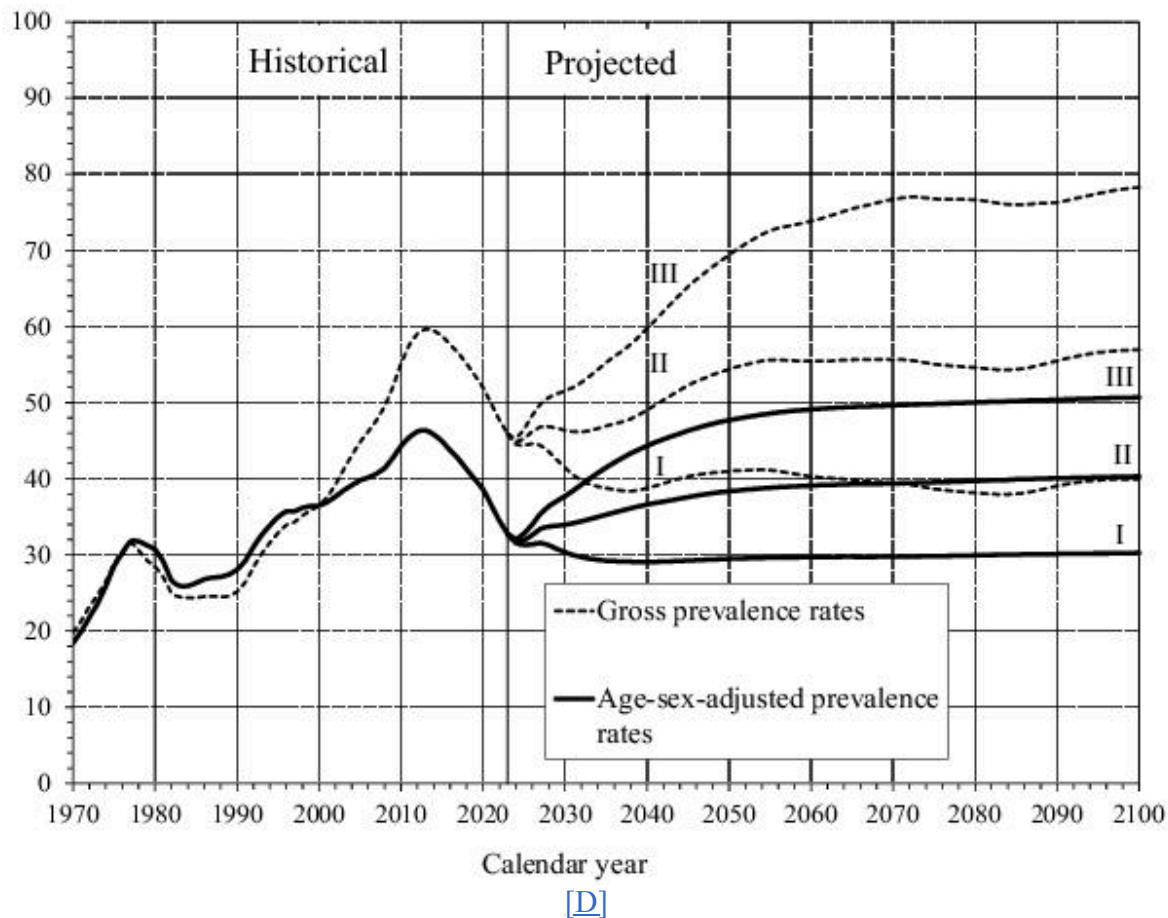
Age-sex-adjusted prevalence rates have increased primarily because: (1) termination rates, in particular death termination rates, have declined; (2) incidence rates at younger ages have increased relative to rates at older ages (new beneficiaries at younger ages have more potential years on the disability rolls); (3) incidence rates have increased substantially for women to parity with men; and (4) the maturation of the DI program (disabled-worker benefits became available to those over age 50 at the start of the program in 1957 and to younger workers in 1960, and disability insured status requirements were eased for those under age 31 in 1968). Gross prevalence rates have increased more than age-sex-adjusted prevalence rates since the baby-boom generation began to reach ages 45 through normal retirement age, a time of life when disability incidence rates are relatively high. The Office of the Chief Actuary projects both gross and age-sex adjusted prevalence rates to grow at a slower pace based on assumed stabilization in these four factors: (1) the age distribution of the general population, (2) the age distribution of the disability insured population, (3) incidence rates by age and sex, and (4) DI program age and insured requirements. As these factors gradually stabilize, the declining death termination rate continues to have a small influence toward higher disability prevalence rates.

As mentioned above in the discussion of incidence and termination rates, the age-sex-adjusted prevalence rate isolates the changing trend in the underlying likelihood of receiving benefits for the insured population, without reflecting changes in the age and sex distribution of the population. As with incidence rates, gross disability prevalence rates declined relative to the age-sex-adjusted rate when the baby-boom generation reached working age between 1970 and 1990; this trend reflects the lower disability prevalence rates associated with younger ages. Conversely, the gross rate of disability prevalence has increased relative to the age-sex-adjusted rate after 1990 due to the aging of the baby-boom generation into ages with higher disability prevalence rates.

Under the intermediate assumptions, the projected age-sex-adjusted disability prevalence rate grows from 32.7 per thousand disability insured workers at the end of 2023 to 40.3 per thousand at the end of 2100. The projected age-sex-adjusted disability prevalence rate at the end of 2100 is 30.3 per thousand under the low-cost assumptions and 50.7 per thousand under the high-cost assumptions.

Table V.C5 presents projections of the numbers of auxiliary beneficiaries paid from the DI Trust Fund. As indicated at the beginning of this subsection, auxiliary beneficiaries are qualifying spouses and children of disabled-worker beneficiaries. A spouse must either be at least age 62 or have an eligible child beneficiary in his or her care who is either under age 16 or disabled prior to age 22. A child must be: (1) under age 18, (2) age 18 or 19 and still a student in high school, or (3) age 18 or older and disabled prior to age 22.

The projection of the number of auxiliary beneficiaries relies on the projected number of disabled-worker beneficiaries. In the short-range period (2024 through 2033), the Office of the Chief Actuary projects incidence and termination rates for each category of auxiliary beneficiary. After 2033, the office projects child beneficiaries at ages 18 and under in relation to the projected number of children in the population using the probability that either of their parents is a disabled-worker beneficiary. The office projects the remaining categories of children and spouses in a similar manner.

6. Covered and Taxable Earnings, Taxable Payroll, and Payroll Tax Contributions

Covered earnings include both covered wages and covered self-employment net earnings. The Office of the Chief Actuary projects covered wages for component sectors of the economy (i.e., private, State and local government, Federal civilian, and military) based on the projected overall growth of sectoral and total wages in the U.S. economy. The projections of covered wages also reflect changes in covered employment due to a relative increase in non-covered undocumented immigrants and to the mandatory coverage of new hires in the Federal civilian sector. The office projects covered self-employment net earnings based on the growth in net proprietors' income in the U.S. economy.

Taxable earnings are the portion of covered earnings subject to the Social Security payroll tax. Taxable wages for an employee are total covered wages from all wage employment up to the contribution and benefit base. Taxable wages for an employer are the sum of all covered wages paid to each employee up to the base. Employees with multiple jobs whose total wages exceed the base are eligible for a refund of excess employee taxes withheld; employers are not eligible for a refund on this basis. For self-employed workers with no taxable wages, taxable earnings are the amount of covered self-employment net earnings up to the base. For self-employed workers with taxable wages less than the base, covered self-employment net earnings are taxable up to the difference between the base and their taxable wages. For projection purposes, the Office of the Chief Actuary computes taxable earnings based on a proportion of covered earnings that is at or below the base.

The OASDI taxable payroll (see table VI.G6) for a year is computed as the amount of earnings which, when multiplied by the combined OASDI employee-employer payroll tax rate for that year, yields the total amount of payroll taxes due from wages paid and self-employment net earnings for the year. Taxable payroll is used as the denominator for income rates, cost rates, and actuarial balances. Taxable payroll is derived by adjusting total taxable earnings to account for categories of earnings that are taxed at rates other than the combined employee-employer rate and to take into account amounts credited as wages that were not included in normally reported wages. For 1951 and later, taxable earnings are reduced by one-half of the amount of wages paid to employees with multiple jobs that exceed the contribution and benefit base. For 1983 through 2001, deemed wage credits for military service after 1956 are added to taxable earnings. The self-employment tax rates for 1951 through 1983 were less than the combined employee-employer rates; therefore, the self-employment component of taxable payroll for those years is reduced by multiplying the ratio of the self-employment rate to the combined employee-employer rate times the taxable self-employment net earnings. Finally, for 1966 through 1979, employers were exempt from paying their share of payroll tax on their employees' tips and, for 1980 through 1987, employers paid tax on only part of their employees' tips. For those years, the taxable payroll is reduced by half of the amount of tips for which the employer owed no payroll tax.

The ratio of taxable payroll to covered earnings (the taxable ratio) declined from 88.6 percent for 1984 to 82.6 percent for 2000, mostly due to much larger increases in wage levels for very high earners than for all other earners. From 2000 to 2010, the taxable ratio varied with the business cycle, rising during economic downturns and declining during recoveries. Specifically, the taxable ratio rose to 85.7 percent for 2002, declined to 82.4 percent for 2007, rose to 85.2 percent for 2009, and averaged 83.0 percent for the period 2010 to 2019.

The ratio declined to 82.2 percent for 2020 from the previous year's 83.1 percent. Unlike previous economic downturns, the pandemic-induced recession led to a much greater decrease in wages for earners at the low end of the earnings distribution than for those at the high end. This resulted in a relatively higher proportion of total wages being above the contribution and benefit base than has typically been the case in other economic downturns. The ratio declined further to 80.4 percent for 2021, mainly due to increases in bonuses paid to high earners and the exercising of stock options. The taxable ratio is estimated to increase to 82.1 percent for 2022.

For each alternative, the ratios move gradually from 2022 to the assumed level at the end of the short-range period (2033): 84.0 percent for the low-cost assumptions, 82.5 percent for the intermediate assumptions, and 81.0 percent for the high-cost assumptions.[10] These are the same assumptions that the Trustees used for the end of the short-range period (2032) for the 2023 report.

The Office of the Chief Actuary projects payroll tax contributions using the patterns of tax collection required by Federal laws and regulations. The office determines payroll tax liabilities by multiplying the scheduled tax rates for each year by the amount of taxable wages and self-employment net earnings for that year. The office then splits these liabilities into amounts by collection period. For wages, Federal law requires that employers withhold OASDI and HI payroll taxes and Federal individual income taxes from employees' pay. As an employer's accumulation of such taxes (including the employer share of payroll taxes) meets certain thresholds, which the Department of the Treasury determines, the employer must deposit these taxes with the U.S. Treasury by a specific day, depending on the amount of money involved.[11] For projection purposes, the office splits the payroll tax contributions related to wages into amounts paid in the same quarter as incurred and in the following quarter. Self-employed workers must make estimated tax payments on their earnings four times during the year and make up any underestimate on their individual income tax returns. The projection splits the self-employed tax liabilities by collection quarter to reflect this pattern.

The projected tax contributions also reflect the method used to ensure that money transferred to the trust funds is adjusted, over time, to equal the actual liability owed. Because payers generally make tax payments without identifying the separate OASDI contribution amounts, Treasury makes daily transfers of money from the General Fund to the trust funds on an initial estimated basis. The Social Security Administration periodically certifies the amounts of wages and self-employment net earnings on which tax contributions are owed for each year, at which time Treasury determines adjustments to appropriations to reconcile tax liabilities with deposits in the trust funds. This process also includes periodic transfers from the trust funds to the General Fund for contributions on wages in excess of the contribution and benefit base.

Table V.C6 shows the payroll tax contribution rates applicable under current law in each calendar year and the allocation of these rates between the OASI and DI Trust Funds.[12] It also shows the contribution and benefit base for each year through 2024.

Table V.C6.—Contribution and Benefit Base and Payroll Tax Contribution Rates

Calendar years	Contribution and benefit base	Payroll tax contribution rates (percent)					
		Employees and employers, combined[a]			Self-employed[b]		
		OASDI	OASI	DI	OASDI	OASI	DI
1937-49	$3,000	2.00	2.00	—	—	—	—
1950	3,000	3.00	3.00	—	—	—	—
1951-53	3,600	3.00	3.00	—	2.2500	2.2500	—
1954	3,600	4.00	4.00	—	3.0000	3.0000	—
1955-56	4,200	4.00	4.00	—	3.0000	3.0000	—
1957-58	4,200	4.50	4.00	0.50	3.3750	3.0000	0.3750
1959	4,800	5.00	4.50	.50	3.7500	3.3750	.3750
1960-61	4,800	6.00	5.50	.50	4.5000	4.1250	.3750
1962	4,800	6.25	5.75	.50	4.7000	4.3250	.3750

1963-65	4,800	7.25	6.75	.50	5.4000	5.0250	.3750
1966	6,600	7.70	7.00	.70	5.8000	5.2750	.5250
1967	6,600	7.80	7.10	.70	5.9000	5.3750	.5250
1968	7,800	7.60	6.65	.95	5.8000	5.0875	.7125
1969	7,800	8.40	7.45	.95	6.3000	5.5875	.7125
1970	7,800	8.40	7.30	1.10	6.3000	5.4750	.8250
1971	7,800	9.20	8.10	1.10	6.9000	6.0750	.8250
1972	9,000	9.20	8.10	1.10	6.9000	6.0750	.8250
1973	10,800	9.70	8.60	1.10	7.0000	6.2050	.7950
1974	13,200	9.90	8.75	1.15	7.0000	6.1850	.8150
1975	14,100	9.90	8.75	1.15	7.0000	6.1850	.8150
1976	15,300	9.90	8.75	1.15	7.0000	6.1850	.8150
1977	16,500	9.90	8.75	1.15	7.0000	6.1850	.8150
1978	17,700	10.10	8.55	1.55	7.1000	6.0100	1.0900
1979	22,900	10.16	8.66	1.50	7.0500	6.0100	1.0400
1980	25,900	10.16	9.04	1.12	7.0500	6.2725	.7775
1981	29,700	10.70	9.40	1.30	8.0000	7.0250	.9750
1982	32,400	10.80	9.15	1.65	8.0500	6.8125	1.2375
1983	35,700	10.80	9.55	1.25	8.0500	7.1125	.9375
1984 [c]	37,800	11.40	10.40	1.00	11.4000	10.4000	1.0000
1985 [c]	39,600	11.40	10.40	1.00	11.4000	10.4000	1.0000
1986 [c]	42,000	11.40	10.40	1.00	11.4000	10.4000	1.0000
1987 [c]	43,800	11.40	10.40	1.00	11.4000	10.4000	1.0000
1988 [c]	45,000	12.12	11.06	1.06	12.1200	11.0600	1.0600
1989 [c]	48,000	12.12	11.06	1.06	12.1200	11.0600	1.0600
1990	51,300	12.40	11.20	1.20	12.4000	11.2000	1.2000
1991	53,400	12.40	11.20	1.20	12.4000	11.2000	1.2000
1992	55,500	12.40	11.20	1.20	12.4000	11.2000	1.2000
1993	57,600	12.40	11.20	1.20	12.4000	11.2000	1.2000
1994	60,600	12.40	10.52	1.88	12.4000	10.5200	1.8800
1995	61,200	12.40	10.52	1.88	12.4000	10.5200	1.8800
1996	62,700	12.40	10.52	1.88	12.4000	10.5200	1.8800
1997	65,400	12.40	10.70	1.70	12.4000	10.7000	1.7000
1998	68,400	12.40	10.70	1.70	12.4000	10.7000	1.7000
1999	72,600	12.40	10.70	1.70	12.4000	10.7000	1.7000
2000	76,200	12.40	10.60	1.80	12.4000	10.6000	1.8000
2001	80,400	12.40	10.60	1.80	12.4000	10.6000	1.8000
2002	84,900	12.40	10.60	1.80	12.4000	10.6000	1.8000
2003	87,000	12.40	10.60	1.80	12.4000	10.6000	1.8000
2004	87,900	12.40	10.60	1.80	12.4000	10.6000	1.8000
2005	90,000	12.40	10.60	1.80	12.4000	10.6000	1.8000
2006	94,200	12.40	10.60	1.80	12.4000	10.6000	1.8000
2007	97,500	12.40	10.60	1.80	12.4000	10.6000	1.8000
2008	102,000	12.40	10.60	1.80	12.4000	10.6000	1.8000
2009	106,800	12.40	10.60	1.80	12.4000	10.6000	1.8000
2010 [d]	106,800	12.40	10.60	1.80	12.4000	10.6000	1.8000
2011 [d]	106,800	10.40	8.89	1.51	10.4000	8.8900	1.5100
2012 [d]	110,100	10.40	8.89	1.51	10.4000	8.8900	1.5100
2013	113,700	12.40	10.60	1.80	12.4000	10.6000	1.8000
2014	117,000	12.40	10.60	1.80	12.4000	10.6000	1.8000

2015	118,500	12.40	10.60	1.80	12.4000	10.6000	1.8000
2016	118,500	12.40	10.03	2.37	12.4000	10.0300	2.3700
2017	127,200	12.40	10.03	2.37	12.4000	10.0300	2.3700
2018	128,400	12.40	10.03	2.37	12.4000	10.0300	2.3700
2019	132,900	12.40	10.60	1.80	12.4000	10.6000	1.8000
2020	137,700	12.40	10.60	1.80	12.4000	10.6000	1.8000
2021	142,800	12.40	10.60	1.80	12.4000	10.6000	1.8000
2022	147,000	12.40	10.60	1.80	12.4000	10.6000	1.8000
2023	160,200	12.40	10.60	1.80	12.4000	10.6000	1.8000
2024	168,600	12.40	10.60	1.80	12.4000	10.6000	1.8000
2025 and later	e	12.40	10.60	1.80	12.4000	10.6000	1.8000

a Except as noted below, the combined employee/employer rate is divided equally between employees and employers.

b Beginning in 1990, self-employed persons receive a deduction, for purposes of computing their net earnings, equal to half of the combined OASDI and HI contributions that would be payable without regard to the contribution and benefit base. The OASDI contribution rate then applies to net earnings after this deduction, but subject to the OASDI base.

c In 1984 only, employees received an immediate credit of 0.3 percent of taxable wages against their OASDI payroll tax contributions. The self-employed received similar credits of 2.7 percent, 2.3 percent, and 2.0 percent against their combined OASDI and Hospital Insurance (HI) contributions on net earnings from self-employment in 1984, 1985, and 1986-89, respectively. The General Fund of the Treasury reimbursed the trust funds for these credits.

d Public Law 111-147 exempted most employers from paying the employer share of OASDI payroll tax on wages paid during the period March 19, 2010 through December 31, 2010 to certain qualified individuals hired after February 3, 2010. Public Law 111-312 reduced the OASDI payroll tax rate for 2011 by 2 percentage points for employees and for self-employed workers. Public Law 112-96 extended the 2011 rate reduction through 2012. These laws require that the General Fund of the Treasury reimburse the OASI and DI Trust Funds for these temporary reductions in 2010 through 2012 payroll tax revenue, in order to "replicate to the extent possible" revenue that would have been received if the combined employee/employer payroll tax rates had remained at 12.4 percent for OASDI (10.6 percent for OASI and 1.8 percent for DI).

e Subject to automatic adjustment based on increases in average wages.

7. Income From Taxation of Benefits

Under current law, the OASI and DI Trust Funds are credited with income tax revenue from the taxation of up to the first 50 percent of taxpayers' OASI and DI benefit payments. (The HI Trust Fund receives the remainder of the income tax revenue from the taxation of up to 85 percent of taxpayers' OASI and DI benefit payments.) Benefits are partially subject to federal income tax for beneficiaries with income (defined for this purpose as adjusted gross income excluding Social Security benefits, plus half of their Social Security benefits and all of their non-taxable interest income) in excess of specified threshold amounts. The threshold amounts are $25,000 for single filers, $32,000 for joint filers, and $0 for those married individuals filing separately.

For the short-range period, the Office of the Chief Actuary estimates the income to the OASI and DI Trust Funds from taxation of benefits by applying the following two factors (projected by the Office of Tax Analysis, Department of the Treasury) to total OASI and DI scheduled benefits: (1) the percentage of taxpayers' scheduled benefits (limited to 50 percent) that is taxable and (2) the average marginal tax rate applicable to those benefits. Up to 85 percent of benefits may be subject to federal income tax, with

any tax on more than 50 percent of a taxpayer's benefits credited to the Medicare Hospital Insurance Trust Fund.

For the long-range period, the office estimates the income to the trust funds from taxation of benefits by applying projected ratios of taxation of OASI and DI benefits to total OASI and DI scheduled benefits. These tax ratios rely on estimates from the Office of Tax Analysis in the Department of the Treasury. The Office of the Chief Actuary's estimates reflect the following assumptions: (1) The income thresholds used for benefit taxation are specified in the Internal Revenue Code to be constant in the future, and have never been changed, while income and benefit levels continue to rise. Accordingly, projected ratios of income from taxation of benefits to the amount of benefits increase gradually. (2) A permanent level shift upward in the ratios is projected for 2026 and beyond due to the expiration of the personal income tax provisions in Public Law 115-97, the Tax Cuts and Jobs Act of 2017. (3) Because indexation of income tax brackets is not specified in the Social Security Act, and because periodic changes have been made in the past to avoid indefinite compression of the income tax brackets relative to income levels (bracket creep), the Trustees assume that such periodic changes will occur in the future. As a result, after the tenth year of the projection period, income tax brackets are assumed to rise with average wages, rather than with the C-CPI-U as specified under current law. Thus, the income tax brackets are projected to roughly maintain their levels relative to the income distribution.

8. Average Benefits

Projections of average benefits for each benefit type reflect recent historical averages, projected average primary insurance amounts (PIAs), and projected ratios of average benefits to average PIAs. Calculations of average PIAs are based on projected distributions of beneficiaries by duration from year of initial entitlement, average PIAs at initial entitlement, and increases in PIAs after initial entitlement. Projected increases in average PIAs after initial entitlement depend on automatic benefit increases, recomputations to reflect additional covered earnings, and differences in mortality by level of lifetime earnings. Calculations of future average PIAs at initial entitlement are based on projected earnings histories, which in turn reflect a combination of the actual earnings histories associated with a sample of 2019 initial entitlements and more recent actual earnings levels by age and sex for covered workers.

For retired-worker, aged-spouse, and aged-widow(er) benefits, the percentage of the PIA that is payable depends on the age at initial entitlement to benefits. Projected ratios of average benefits to average PIAs for these types of benefits are based on projections of age distributions at initial entitlement.

9. Scheduled Benefits

For each type of benefit, scheduled benefits are the product of the number of beneficiaries and the corresponding average monthly benefit. The short-range model calculates scheduled benefits on a quarterly basis. The long-range model calculates all scheduled benefits on an annual basis, using the number of beneficiaries at the beginning and end of the year. Adjustments to these annual scheduled benefits include retroactive payments to newly awarded beneficiaries and other amounts not reflected in the regular monthly scheduled benefits.

Scheduled lump-sum death benefits are estimated as the product of: (1) the number of lump-sum death payments projected on the basis of the assumed death rates, the projected fully insured population, and the estimated percentage of the fully insured population that will qualify for lump-sum death payments; and (2) the amount of the lump-sum death payment, which is $255 (unindexed since 1973).

10. Illustrative Scheduled Benefit Amounts

Table V.C7 shows, under the intermediate assumptions, future scheduled benefit amounts payable upon retirement at the normal retirement age and at age 65, for various hypothetical workers attaining age 65 in 2024 and subsequent years. The illustrative benefit amounts in table V.C7 are presented in CPI-indexed 2024 dollars—that is, adjusted to 2024 levels by the CPI indexing series shown in table VI.G6. Table V.C7 also shows each benefit amount as a percentage of the average of each hypothetical worker's highest 35 years of Social Security covered earnings, indexed by national average wage growth to the year prior to initial entitlement to retired worker benefits.[13]

The normal retirement age was 65 for individuals who reached age 62 before 2000. It increased to age 66 during the period 2000 through 2005, at a rate of 2 months per year as workers attained age 62. Under current law, the normal retirement age increases to age 67 during the period 2017 through 2022, also by 2 months per year as workers attain age 62. The illustrative benefit amounts shown in table V.C7 for retirees at age 65 are lower than the amounts shown for retirees at normal retirement age because monthly benefits taken before normal retirement age are reduced to reflect the expected additional years benefits will be collected. For example, those who start collecting benefits at age 65 in 2027 and survive to age 67 will receive benefits for two more years than if they had instead waited to start collecting benefits at normal retirement age in 2029.

Table V.C7 shows five different pre-retirement earnings patterns. Four of these patterns assume the earnings history of workers with scaled-earnings patterns[14] and reflect very low, low, medium, and high career-average levels of pre-retirement earnings starting at age 21. The fifth pattern assumes the earnings history of a steady maximum earner starting at age 22. The four scaled-earnings patterns derive from earnings experienced by insured workers during calendar years 2001 through 2020. These earnings levels differ by age. The career-average level of earnings for each scaled case targets a percent of the AWI.

For the scaled medium earner, the career-average earnings level is about equal to the AWI (estimated to be $68,793 for 2024). For the scaled very low, low, and high earners, the career-average earnings level, wage-indexed to the year before starting benefits, is about 25 percent, 45 percent, and 160 percent of the AWI, respectively (estimated to be $17,198, $30,957, and $110,069, respectively, for 2024). The steady maximum earner has earnings at or above the contribution and benefit base ($168,600 for 2024) for each year starting at age 22 through the year prior to retirement.

**Table V.C7.—Annual Scheduled Benefit Amounts [a] for Retired Workers
With Various Pre-Retirement Earnings Patterns
Based on Intermediate Assumptions, Calendar Years 2024-2100**

| Year attain age 65[b] | Retirement at normal retirement age | | | Retirement at age 65 | | |
	Age at retirement	CPI-indexed 2024 dollars[c]	Percent of 35-year average earnings	Age at retirement	CPI-indexed 2024 dollars[c]	Percent of 35-year average earnings
Scaled very low earnings:[d]						
2024	66:10	$13,756	79.5	65:0	$11,810	71.3
2025	67:0	13,124	76.0	65:0	11,362	67.6
2030	67:0	13,916	73.2	65:0	12,035	65.7
2035	67:0	15,268	74.7	65:0	13,210	66.3
2040	67:0	16,506	76.0	65:0	14,285	67.4
2045	67:0	17,548	76.4	65:0	15,190	67.6
2050	67:0	18,577	76.6	65:0	16,089	67.8
2055	67:0	19,619	76.5	65:0	16,984	67.7
2060	67:0	20,729	76.4	65:0	17,944	67.7
2065	67:0	21,927	76.4	65:0	18,982	67.6
2070	67:0	23,218	76.4	65:0	20,101	67.7
2075	67:0	24,573	76.4	65:0	21,275	67.7
2080	67:0	25,997	76.4	65:0	22,509	67.7
2085	67:0	27,506	76.4	65:0	23,812	67.7
2090	67:0	29,103	76.4	65:0	25,197	67.7
2095	67:0	30,798	76.5	65:0	26,665	67.7
2100	67:0	32,564	76.5	65:0	28,195	67.7
Scaled low earnings:[e]						
2024	66:10	18,030	57.9	65:0	15,477	51.9

2025	67:0	17,215	55.4	65:0	14,898	49.2
2030	67:0	18,236	53.3	65:0	15,761	47.8
2035	67:0	20,007	54.4	65:0	17,299	48.2
2040	67:0	21,618	55.3	65:0	18,700	49.0
2045	67:0	22,981	55.6	65:0	19,892	49.2
2050	67:0	24,332	55.7	65:0	21,058	49.3
2055	67:0	25,688	55.7	65:0	22,234	49.3
2060	67:0	27,145	55.6	65:0	23,494	49.2
2065	67:0	28,715	55.6	65:0	24,853	49.2
2070	67:0	30,407	55.6	65:0	26,314	49.2
2075	67:0	32,184	55.6	65:0	27,852	49.2
2080	67:0	34,046	55.6	65:0	29,466	49.2
2085	67:0	36,019	55.6	65:0	31,173	49.2
2090	67:0	38,113	55.6	65:0	32,985	49.2
2095	67:0	40,333	55.7	65:0	34,906	49.2
2100	67:0	42,647	55.6	65:0	36,910	49.3
Scaled medium earnings:[f]						
2024	66:10	29,784	43.0	65:0	25,544	38.6
2025	67:0	28,467	41.2	65:0	24,604	36.6
2030	67:0	30,112	39.6	65:0	26,011	35.5
2035	67:0	33,031	40.4	65:0	28,553	35.8
2040	67:0	35,674	41.1	65:0	30,853	36.4
2045	67:0	37,927	41.3	65:0	32,807	36.5
2050	67:0	40,153	41.4	65:0	34,737	36.6
2055	67:0	42,397	41.4	65:0	36,674	36.6
2060	67:0	44,796	41.3	65:0	38,753	36.5
2065	67:0	47,386	41.3	65:0	40,991	36.5
2070	67:0	50,175	41.3	65:0	43,404	36.5
2075	67:0	53,104	41.3	65:0	45,939	36.5
2080	67:0	56,182	41.3	65:0	48,599	36.5
2085	67:0	59,436	41.3	65:0	51,414	36.5
2090	67:0	62,892	41.3	65:0	54,403	36.5
2095	67:0	66,551	41.3	65:0	57,571	36.6
2100	67:0	70,370	41.3	65:0	60,875	36.6
Scaled high earnings:[g]						
2024	66:10	$39,325	35.5	65:0	$33,769	31.9
2025	67:0	37,512	33.9	65:0	32,488	30.2
2030	67:0	39,777	32.7	65:0	34,403	29.4
2035	67:0	43,639	33.4	65:0	37,759	29.6
2040	67:0	47,162	33.9	65:0	40,824	30.1
2045	67:0	50,146	34.1	65:0	43,412	30.2
2050	67:0	53,093	34.2	65:0	45,968	30.3
2055	67:0	56,059	34.2	65:0	48,530	30.2
2060	67:0	59,231	34.1	65:0	51,281	30.2
2065	67:0	62,651	34.1	65:0	54,239	30.2
2070	67:0	66,338	34.1	65:0	57,430	30.2
2075	67:0	70,212	34.1	65:0	60,788	30.2
2080	67:0	74,278	34.1	65:0	64,306	30.2
2085	67:0	78,586	34.1	65:0	68,036	30.2
2090	67:0	83,153	34.1	65:0	71,989	30.2
2095	67:0	87,993	34.1	65:0	76,180	30.2

2100	67:0	93,043	34.1	65:0	80,553	30.2
Steady maximum earnings:[h]						
2024	66:10	48,129	28.2	65:0	41,201	25.3
2025	67:0	46,152	27.1	65:0	39,679	24.0
2030	67:0	48,915	26.0	65:0	42,064	23.2
2035	67:0	53,692	26.5	65:0	46,186	23.4
2040	67:0	57,968	27.0	65:0	49,906	23.8
2045	67:0	61,689	27.1	65:0	53,116	23.9
2050	67:0	65,266	27.2	65:0	56,199	23.9
2055	67:0	68,812	27.2	65:0	59,254	24.0
2060	67:0	72,659	27.2	65:0	62,564	24.0
2065	67:0	76,830	27.2	65:0	66,162	23.9
2070	67:0	81,369	27.2	65:0	70,083	23.9
2075	67:0	86,133	27.2	65:0	74,186	24.0
2080	67:0	91,125	27.2	65:0	78,489	23.9
2085	67:0	96,412	27.2	65:0	83,043	23.9
2090	67:0	102,010	27.2	65:0	87,866	23.9
2095	67:0	107,943	27.2	65:0	92,978	24.0
2100	67:0	114,136	27.2	65:0	98,313	24.0

[a] Annual amounts are the total for the 12-month period starting with the month of retirement.

[b] Attains age 65 on January 1 of the year.

[c] CPI-indexed dollar adjustment uses the adjusted CPI indexing series shown in table VI.G6.

[d] Career average earnings at about 25 percent of the national Average Wage Index (AWI).

[e] Career average earnings at about 45 percent of the AWI.

[f] Career average earnings at about 100 percent of the AWI.

[g] Career average earnings at about 160 percent of the AWI.

[h] Earnings for each year at or above the contribution and benefit base.

11. Administrative Expenses

The projection of administrative expenses through the short-range period is based on historical experience and the projected growth in average wages. The Office of Budget of the Social Security Administration provides estimates for the first several years of the projection. For years after the short-range period, projected administrative expenses reflect increases in the number of beneficiaries in current-payment status, and increases in the average wage. However, the increases in average wage are partially offset by assumed administrative productivity gains.

12. Railroad Retirement Financial Interchange

Railroad workers are covered under a separate multi-tiered benefit plan, with a first tier of coverage similar to OASDI coverage. An annual financial interchange between the Railroad Retirement fund and the OASI and DI Trust Funds is made to resolve the difference between: (1) the amount of OASDI benefits that would be paid to railroad workers and their families if railroad employment had been covered under the OASDI program, plus administrative expenses associated with these benefits; and (2) the amount of OASDI payroll tax and income tax that would be received with allowances for interest from railroad workers.

The Office of the Chief Actuary's projection of future amounts for the financial interchange with the Railroad Retirement fund reflects trends similar to those used in estimating the cost of OASDI benefits. The annual short-range net cost for the OASI and DI Trust Funds is about $6 to $7 billion and the long-range summarized net cost for the OASI and DI Trust Funds is 0.05 percent of taxable payroll.

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1 The *Federal Register* publishes details of these indexation procedures annually. Also see www.ssa.gov/OACT/COLA/.

2 For those under age 16, projected covered employment is the sum of age-sex components, each of which is projected as a ratio to the Social Security area population.

3 Age-adjusted covered-worker rates are adjusted to the 2020 age distribution of the Social Security area population.

4 Those granted legal work authorization through the 2012 Deferred Action for Childhood Arrivals program are included in the simulations.

5 The exposed population is the fully insured population age 62 and over, excluding persons entitled to or converted from disabled-worker benefits and fully insured persons entitled only to widow(er) benefits.

6 The employment rate is the ratio of U.S. civilian employment to the civilian noninstitutional population.

7 Deemed filing does not apply if the spouse is caring for an entitled child or is receiving a disabled-worker benefit.

8 The disability-exposed population excludes those receiving benefits, while the disability insured population includes them. Section V.C.3 of this report describes the projection of the disability insured population.

9 Projected incidence rates are adjusted upward to account for additional workers who are expected to file for disability benefits (rather than retirement benefits) in response to reductions in retirement benefits as the normal retirement age rises.

10 The taxable ratio drifts down slightly after 2033, to 84.0, 82.3, and 80.7 percent for 2098 for the low-cost, intermediate, and high-cost assumptions, respectively, as self-employment income (which has a lower percent taxable than wages) becomes an increasing share of total earnings.

11 Generally, the higher the amount of liability, the sooner the taxes must be paid. For smaller employers, payment is due by the middle of the month following when the liability was incurred. Medium-size employers have three banking days in which to make their deposits. Larger employers must make payment on the next business day after paying their employees.

12 Table VI.G1 shows the payroll tax contribution rates for the Hospital Insurance (HI) program.

13 Actuarial Note 2024.9 has additional detail on illustrative benefits for hypothetical workers. See www.ssa.gov/OACT/NOTES/ran9/.

14 Actuarial Note 2024.3 has more details on scaled-earnings patterns. See www.ssa.gov/OACT/NOTES/ran3/.