Law 110-246; and (6) payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96. This also includes a portion of proceeds of repayments of loans authorized by Public Law 116-136.

Beginning in 1984, Federal law subjected up to 50 percent of an individual's or couple's OASDI benefits to Federal income taxation under certain circumstances. Effective for taxable years beginning after 1993, the law increased the maximum percentage from 50 percent to 85 percent. Treasury credits the proceeds from this taxation of up to 50 percent of benefits to the OASI and DI Trust Funds in advance, on an estimated basis, at the beginning of each calendar quarter, with no reimbursement to the General Fund for interest costs attributable to the advance transfers.[1] Treasury makes subsequent adjustments based on the actual amounts shown on annual income tax records. Each of the OASI and DI Trust Funds receives the income taxes paid on the benefits from that trust fund.[2]

Another source of income to the trust funds is interest received on investments held by the trust funds. On a daily basis, Treasury invests trust fund income in interest-bearing obligations of the U.S. Government. These investments include the special public-debt obligations described in the next paragraph. The Social Security Act also authorizes the trust funds to hold obligations guaranteed as to both principal and interest by the United States. The act therefore permits the trust funds to hold certain Federally sponsored agency obligations and marketable obligations.[3] The trust funds may acquire any of these obligations on original issue at the issue price or by purchase of outstanding obligations at their market price.

The Social Security Act authorizes the issuance of special public-debt obligations for purchase exclusively by the trust funds. The act provides that the interest rate for special obligations newly issued in any month is the average market yield, as of the last business day of the prior month, on all of the outstanding marketable U.S. obligations that are due or callable more than 4 years in the future. This rate is rounded to the nearest one-eighth of one percent. Beginning January 1999, in calculating the average market yield rate for this purpose, the Treasury incorporates the yield to the call date when a callable bond's market price is above par.

Although the Social Security Act does not authorize the purchase or sale of special issue securities in the open market, Treasury redeems special issue

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[1] The DI Trust Fund receives the additional tax revenue resulting from the increase to 85 percent.

[2] A special provision applies to benefits paid to nonresident aliens. Effective for taxable years beginning after 1994, Public Law 103-465 subjects benefits to a flat-rate tax, usually 25.5 percent, before they are paid. Therefore, this tax remains in the trust funds. From 1984 to 1994, the flat-rate tax was usually 15 percent.

[3] The Social Security Act requires the trust funds to acquire special-issue obligations unless the Managing Trustee determines that the purchase of marketable obligations is in the public interest. The purchase of marketable obligations has been quite limited and has not occurred since 1980.

securities prior to maturity at par value when needed to meet current operating expenses. As a result, changes in market yield rates after issuance of special issue securities do not cause fluctuations in the value of these securities. As is true for marketable Treasury securities held by the public, the full faith and credit of the U.S. Government backs all of the investments held by the trust funds.

Annual cost for the OASI and DI Trust Funds primarily consists of: (1) OASDI benefit payments[1], net of any reimbursements from the General Fund of the Treasury for unnegotiated benefit checks; and (2) expenses incurred by the Social Security Administration and the Department of the Treasury in administering the OASDI program and the provisions of the Internal Revenue Code relating to the collection of contributions. Such administrative expenses include, among other items, the cost of (1) payroll; (2) construction, rental, lease, or purchase of office buildings and related facilities for the Social Security Administration; and (3) information technology systems. The Social Security Act prohibits payments from the OASI and DI Trust Funds for any purpose not related to the payment of benefits or administrative costs for the OASDI program.

Annual cost also includes: (1) the costs of vocational rehabilitation services furnished to disabled persons receiving cash benefits because of their disabilities, where such services contributed to their successful rehabilitation; and (2) net costs of the provisions of the Railroad Retirement Act that provide for a system of coordination and financial interchange between the Railroad Retirement program and the Social Security program. Under the financial interchange provisions, the Railroad Retirement program's Social Security Equivalent Benefit Account and the trust funds interchange amounts on an annual basis so that each trust fund is in the same position it would have been had railroad employment always been covered under Social Security.

The statements of the operations of the trust funds in this report do not include the net worth of facilities and other fixed capital assets because the value of fixed capital assets is not available in the form of a financial asset redeemable for the payment of benefits or administrative costs. As a result of this unavailability, the actuarial status of the trust funds does not take these assets into account.

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[1] Periodically, benefit payments which were scheduled to be paid on January 3 were actually paid on December 31 of the preceding year as required by the statutory provision included in the 1977 Social Security Amendments for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. Such advance payments have occurred about every 7 years, first for benefits scheduled for January 3, 1982. The most recent such accelerated payment affected benefits scheduled to be paid on January 3, 2021. For comparability with the values for historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year without regard to the accelerated payments described above.

Table VI.A1.— Operations of the OASI Trust Fund, Calendar Years 1937-2022
[Dollar amounts in billions]

| Calendar year | Income | | | | | Cost | | | | Asset Reserves[a] | | Trust fund ratio at start of year[b] |
	Total	Net payroll tax contri- butions[c]	GF reim- burse- ments[d]	Taxa- tion of benefits[e]	Net interest[e]	Total[a]	Benefit pay- ments[a,f]	Admin- istra- tive costs	RRB inter- change	Net increase during year	Amount at end of year	
1937[g]..	$0.8	$0.8			h	h	h			$0.8	$0.8	
1938[g]..	.4	.4	—	—	h	h	h	—	—	.4	1.1	7,660
1939[g]..	.6	.6	—	—	h	h	h	—	—	.6	1.7	8,086
1940 ..	.4	.3			h	$0.1	h	h	—	.3	2.0	2,781
1941 ..	.8	.8			$0.1	.1	$0.1	h		.7	2.8	1,782
1942 ..	1.1	1.0	—	—	.1	.2	.1	h	—	.9	3.7	1,737
1943 ..	1.3	1.2	—	—	.1	.2	.2	h	—	1.1	4.8	1,891
1944 ..	1.4	1.3	—	—	.1	.2	.2	h	—	1.2	6.0	2,025
1945 ..	1.4	1.3	—	—	.1	.3	.3	h	—	1.1	7.1	1,975
1946 ..	1.4	1.3	—	—	.2	.4	.4	h	—	1.0	8.1	1,704
1947 ..	1.7	1.6	h	—	.2	.5	.5	h	—	1.2	9.4	1,592
1948 ..	2.0	1.7	h		.3	.6	.6	$0.1		1.4	10.7	1,542
1949 ..	1.8	1.7	h		.1	.7	.7	.1		1.1	11.8	1,487
1950 ..	2.9	2.7	h	—	.3	1.0	1.0	.1	—	1.9	13.7	1,156
1951 ..	3.8	3.4	h		.4	2.0	1.9	.1		1.8	15.5	698
1952 ..	4.2	3.8			.4	2.3	2.2	.1		1.9	17.4	681
1953 ..	4.4	3.9			.4	3.1	3.0	.1		1.3	18.7	564
1954 ..	5.6	5.2	—	—	.4	3.7	3.7	.1	h	1.9	20.6	500
1955 ..	6.2	5.7			.5	5.1	5.0	.1	h	1.1	21.7	405
1956 ..	6.7	6.2			.5	5.8	5.7	.1	h	.9	22.5	371
1957 ..	7.4	6.8	—	—	.6	7.5	7.3	.2	h	-.1	22.4	300
1958 ..	8.1	7.6	—	—	.6	8.6	8.3	.2	$0.1	-.5	21.9	259
1959 ..	8.6	8.1	—	—	.5	10.3	9.8	.2	.3	-1.7	20.1	212
1960 ..	11.4	10.9	—	—	.5	11.2	10.7	.2	.3	.2	20.3	180
1961 ..	11.8	11.3	—	—	.5	12.4	11.9	.2	.3	-.6	19.7	163
1962 ..	12.6	12.1	—	—	.5	14.0	13.4	.3	.4	-1.4	18.3	141
1963 ..	15.1	14.5			.5	14.9	14.2	.3	.4	.1	18.5	123
1964 ..	16.3	15.7			.6	15.6	14.9	.3	.4	.6	19.1	118
1965 ..	16.6	16.0	—	—	.6	17.5	16.7	.3	.4	-.9	18.2	109
1966 ..	21.3	20.6	$0.1		.6	19.0	18.3	.3	.4	2.3	20.6	96
1967 ..	24.0	23.1	.1		.8	20.4	19.5	.4	.5	3.7	24.2	101
1968 ..	25.0	23.7	.4		.9	23.6	22.6	.5	.4	1.5	25.7	103
1969 ..	29.6	27.9	.4	—	1.2	25.2	24.2	.5	.5	4.4	30.1	102
1970 ..	32.2	30.3	.4		1.5	29.8	28.8	.5	.6	2.4	32.5	101
1971 ..	35.9	33.7	.5		1.7	34.5	33.4	.5	.6	1.3	33.8	94
1972 ..	40.1	37.8	.5	—	1.8	38.5	37.1	.7	.7	1.5	35.3	88
1973 ..	48.3	46.0	.4	—	1.9	47.2	45.7	.6	.8	1.2	36.5	75
1974 ..	54.7	52.1	.4	—	2.2	53.4	51.6	.9	.9	1.3	37.8	68
1975 ..	59.6	56.8	.4	—	2.4	60.4	58.5	.9	1.0	-.8	37.0	63
1976 ..	66.3	63.4	.6	—	2.3	67.9	65.7	1.0	1.2	-1.6	35.4	54
1977 ..	72.4	69.6	.6	—	2.2	75.3	73.1	1.0	1.2	-2.9	32.5	47
1978 ..	78.1	75.5	.6		2.0	83.1	80.4	1.1	1.6	-5.0	27.5	39
1979 ..	90.3	87.9	.6		1.8	93.1	90.6	1.1	1.4	-2.9	24.7	30
1980 ..	105.8	103.5	.5	—	1.8	107.7	105.1	1.2	1.4	-1.8	22.8	23
1981 ..	125.4	122.6	.7		2.1	126.7	123.8	1.3	1.6	-1.3	21.5	18
1982 ..	125.2	123.7	.7		.8	142.1	138.8	1.5	1.8	[i].6	22.1	15
1983 ..	150.6	138.3	5.5		6.7	153.0	149.2	1.5	2.3	-2.4	19.7	14
1984 ..	169.3	159.5	4.7	$2.8	2.3	161.9	157.8	1.6	2.4	7.4	27.1	[j]20
1985 ..	184.2	175.1	4.0	3.2	1.9	171.2	167.2	1.6	2.3	[i]8.7	35.8	[j]24
1986 ..	197.4	189.1	1.8	3.4	3.1	181.0	176.8	1.6	2.6	[i]3.2	39.1	[j]28
1987 ..	210.7	201.1	1.7	3.3	4.7	187.7	183.6	1.5	2.6	23.1	62.1	[j]30
1988 ..	240.8	227.7	2.1	3.4	7.6	200.0	195.5	1.8	2.8	40.7	102.9	[j]41
1989 ..	264.7	248.1	2.1	2.4	12.0	212.5	208.0	1.7	2.8	52.2	155.1	[j]59

Table VI.A1.— Operations of the OASI Trust Fund, Calendar Years 1937-2022 (Cont.)
[Dollar amounts in billions]

Calendar year	Income					Cost				Asset Reserves[a]		Trust fund ratio at start of year[b]
	Total	Net payroll tax contributions[c]	GF reimbursements[d]	Taxation of benefits[e]	Net interest[e]	Total[a]	Benefit payments[a,f]	Administrative costs	RRB interchange	Net increase during year	Amount at end of year	
1990 ..	$286.7	$266.1	-$0.7	$4.8	$16.4	$227.5	$223.0	$1.6	$3.0	$59.1	$214.2	ʲ78
1991 ..	299.3	272.5	.1	5.9	20.8	245.6	240.5	1.8	3.4	53.7	267.8	87
1992 ..	311.2	281.1	-.1	5.9	24.3	259.9	254.9	1.8	3.1	51.3	319.1	103
1993 ..	323.3	290.9	h	5.3	27.0	273.1	267.8	2.0	3.4	50.2	369.3	117
1994 ..	328.3	293.3	h	5.0	29.9	284.1	279.1	1.6	3.4	44.1	413.5	130
1995 ..	342.8	304.7	-.2	5.5	32.8	297.8	291.6	2.1	4.1	45.0	458.5	139
1996 ..	363.7	321.6	h	6.5	35.7	308.2	302.9	1.8	3.6	55.5	514.0	149
1997 ..	397.2	349.9	h	7.4	39.8	322.1	316.3	2.1	3.7	75.1	589.1	160
1998 ..	424.8	371.2	h	9.1	44.5	332.3	326.8	1.9	3.7	92.5	681.6	177
1999 ..	457.0	396.4	h	10.9	49.8	339.9	334.4	1.8	3.7	117.2	798.8	201
2000 ..	490.5	421.4	h	11.6	57.5	358.3	352.7	2.1	3.5	132.2	931.0	223
2001 ..	518.1	441.5	h	11.9	64.7	377.5	372.3	2.0	3.3	140.6	1,071.5	247
2002 ..	539.7	455.2	.4	12.9	71.2	393.7	388.1	2.1	3.5	146.0	1,217.5	272
2003 ..	543.8	456.1	h	12.5	75.2	406.0	399.8	2.6	3.6	137.8	1,355.3	300
2004 ..	566.3	472.8	h	14.6	79.0	421.0	415.0	2.4	3.6	145.3	1,500.6	322
2005 ..	604.3	506.9	-.3	13.8	84.0	441.9	435.4	3.0	3.6	162.4	1,663.0	340
2006 ..	642.2	534.8	h	15.6	91.8	461.0	454.5	3.0	3.5	181.3	1,844.3	361
2007 ..	675.0	560.9	h	17.2	97.0	495.7	489.1	3.1	3.6	179.3	2,023.6	372
2008 ..	695.5	574.6	h	15.6	105.3	516.2	509.3	3.2	3.6	179.3	2,202.9	392
2009 ..	698.2	570.4	h	19.9	107.9	564.3	557.2	3.4	3.7	133.9	2,336.8	390
2010 ..	677.1	544.8	2.0	22.1	108.2	584.9	577.4	3.5	3.9	92.2	2,429.0	400
2011 ..	698.8	482.4	87.8	22.2	106.5	603.8	596.2	3.5	4.1	95.0	2,524.1	402
2012 ..	731.1	503.9	97.7	26.7	102.8	645.5	637.9	3.4	4.1	85.6	2,609.7	391
2013 ..	743.8	620.8	4.2	20.7	98.1	679.5	672.1	3.4	3.9	64.3	2,674.0	384
2014 ..	769.4	646.2	.4	28.0	94.8	714.2	706.8	3.1	4.3	55.2	2,729.2	374
2015 ..	801.6	679.5	.3	30.6	91.2	750.5	742.9	3.4	4.3	51.0	2,780.3	364
2016 ..	797.5	678.8	.1	31.6	87.0	776.4	768.6	3.5	4.3	21.1	2,801.3	358
2017 ..	825.6	706.5	h	35.9	83.2	806.7	798.7	3.7	4.3	19.0	2,820.3	347
2018 ..	831.0	715.9	h	34.5	80.7	853.5	844.9	3.8	4.8	-22.4	2,797.9	330
2019 ..	917.9	805.1	h	34.9	77.9	911.4	902.8	3.7	4.9	6.5	2,804.3	307

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Table VI.A1.— Operations of the OASI Trust Fund, Calendar Years 1937-2022 (Cont.)
[Dollar amounts in billions]

Calendar year	Income					Cost				Asset Reserves[g]		Trust fund ratio at start of year[b]
	Total	Net pay-roll tax contri-butions[c]	GF reim-burse-ments[d]	Taxa-tion of benefits[e]	Net interest[e]	Total[d]	Benefit pay-ments[d,f]	Admin-istra-tive costs	RRB inter-change	Net increase during year	Amount at end of year	
2020 ..	$968.3	$856.0	h	$39.0	$73.3	$961.0	$952.4	$3.7	$4.8	$7.4	$2,811.7	292
2021 ..	942.9	838.2	h	37.2	67.5	1,001.9	993.1	4.0	4.8	-59.1	2,752.6	281
2022 ..	1,056.7	945.9	0.2	47.1	63.5	1,097.5	1,088.1	4.0	5.3	-40.7	2,711.9	251

[a] Beginning in 1979, benefit payments scheduled to be paid on January 3 of a given year were paid on December 31 of the preceding year as required by the statutory provision included in the 1977 Social Security Amendments for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. Such advance payments have occurred about every 7 years, first for benefits scheduled for January 3, 1982. For comparability with other historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment in each year without regard to the accelerated payments described above.

[b] Represents asset reserves at the beginning of a year as a percentage of cost during the year. The table shows no ratio for 1937 because no reserves existed at the beginning of the year.

[c] Includes adjustments for prior calendar years.

[d] Includes net reimbursements from the General Fund of the Treasury to the OASI Trust Fund for: (1) the cost of noncontributory wage credits for military service before 1957; (2) the cost in 1971-82 of deemed wage credits for military service performed after 1956; (3) the cost of benefits to certain uninsured persons who attained age 72 before 1968; (4) the cost of payroll tax credits provided to employees in 1984 and self-employed persons in 1984-89 by Public Law 98-21; (5) the cost in 2009-17 of excluding certain self-employment earnings from SECA taxes under Public Law 110-246; and (6) payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96. Also includes transfers of a portion of proceeds from repayments of loans authorized under Public Law 116-136.

[e] Net interest includes net profits or losses on marketable investments. Beginning in 1967, the trust fund pays administrative expenses on an estimated basis, with a final adjustment including interest made in the following fiscal year. Net interest includes the amounts of these interest adjustments. The 1970 report describes the accounting for administrative expenses for years prior to 1967. Beginning in October 1973, figures include relatively small amounts of gifts to the fund. Net interest for 1983-86 reflects payments for interest on amounts owed under the interfund borrowing provisions. During 1983-90, net interest reflects interest reimbursements paid from the trust fund to the General Fund on advance tax transfers.

[f] Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, net benefit amounts include reimbursements paid from the General Fund to the trust fund for unnegotiated benefit checks. Excluding the portion attributable to vocational rehabilitation services and unnegotiated benefit checks, amounts are the same as benefits scheduled under law at that time for all historical years.

[g] Operations prior to 1940 are for the Old-Age Reserve Account established by the original Social Security Act. The 1939 Amendments transferred the asset reserves of the Account to the OASI Trust Fund effective January 1, 1940.

[h] Between -$50 million and $50 million.

[i] Reflects interfund borrowing of $17.5 billion by the OASI Trust Fund from the DI and HI Trust Funds in 1982 and the subsequent repayment of those loans in 1985 ($4.4 billion) and 1986 ($13.2 billion).

[j] Reserves used for the trust fund ratio calculation include January advance tax transfers.

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

Table VI.A2.— Operations of the DI Trust Fund, Calendar Years 1957-2022
[Dollar amounts in billions]

Calendar year	Income					Cost				Asset Reserves[a]		Trust fund ratio at start of year[b]
	Total	Net payroll tax contributions[c]	GF reimbursements[d]	Taxation of benefits[c]	Net interest[e]	Total[a]	Benefit payments[a,f]	Administrative costs	RRB interchange	Net increase during year	Amount at end of year	
1957 ..	$0.7	$0.7			[g]	$0.1	$0.1	[g]		$0.6	$0.6	
1958 ..	1.0	1.0			[g]	.3	.2	[g]		.7	1.4	249
1959 ..	.9	.9	—	—	[g]	.5	.5	[g]	[g]	.4	1.8	284
1960 ..	1.1	1.0			$0.1	.6	.6	[g]	[g]	.5	2.3	304
1961 ..	1.1	1.0			.1	1.0	.9	$0.1	[g]	.1	2.4	239
1962 ..	1.1	1.0			.1	1.2	1.1	.1	[g]	-.1	2.4	206
1963 ..	1.2	1.1	—	—	.1	1.3	1.2	.1	[g]	-.1	2.2	183
1964 ..	1.2	1.2	—	—	.1	1.4	1.3	.1	[g]	-.2	2.0	159
1965 ..	1.2	1.2			.1	1.7	1.6	.1	[g]	-.4	1.6	121
1966 ..	2.1	2.0	[g]	—	.1	1.9	1.8	.1	[g]	.1	1.7	82
1967 ..	2.4	2.3	[g]	—	.1	2.1	1.9	.1	[g]	.3	2.0	83
1968 ..	3.5	3.3	[g]	—	.1	2.5	2.3	.1	[g]	1.0	3.0	83
1969 ..	3.8	3.6	[g]		.2	2.7	2.6	.1	[g]	1.1	4.1	111
1970 ..	4.8	4.5	[g]	—	.3	3.3	3.1	.2	[g]	1.5	5.6	126
1971 ..	5.0	4.6	$0.1	—	.4	4.0	3.8	.2	[g]	1.0	6.6	140
1972 ..	5.6	5.1	.1		.4	4.8	4.5	.2	[g]	.8	7.5	140
1973 ..	6.4	5.9	.1		.5	6.0	5.8	.2	[g]	.5	7.9	125
1974 ..	7.4	6.8	.1		.5	7.2	7.0	.2	[g]	.2	8.1	110
1975 ..	8.0	7.4	.1		.5	8.8	8.5	.3	[g]	-.8	7.4	92
1976 ..	8.8	8.2	.1		.4	10.4	10.1	.3	[g]	-1.6	5.7	71
1977 ..	9.6	9.1	.1		.3	11.9	11.5	.4	[g]	-2.4	3.4	48
1978 ..	13.8	13.4	.1	—	.3	13.0	12.6	.3	[g]	.9	4.2	26
1979 ..	15.6	15.1	.1	—	.4	14.2	13.8	.4	[g]	1.4	5.6	30
1980 ..	13.9	13.3	.1		.5	15.9	15.5	.4	[g]	-2.0	3.6	35
1981 ..	17.1	16.7	.2	—	.2	17.7	17.2	.4	[g]	-.6	3.0	21
1982 ..	22.7	22.0	.2	—	.5	18.0	17.4	.6	[g]	[h]-.4	2.7	17
1983 ..	20.7	18.0	1.1	—	1.6	18.2	17.5	.6	[g]	2.5	5.2	15
1984 ..	17.3	15.5	.4	$0.2	1.2	18.5	17.9	.6	[g]	-1.2	4.0	[i]35
1985 ..	19.3	17.0	1.2	.2	.9	19.5	18.8	.6	[g]	[h]2.4	6.3	[i]27
1986 ..	19.4	18.2	.2	.2	.8	20.5	19.9	.6	$0.1	[h]1.5	7.8	[i]38
1987 ..	20.3	19.5	.2	[g]	.6	21.4	20.5	.8	.1	-1.1	6.7	[i]44
1988 ..	22.7	21.8	.2	.1	.6	22.5	21.7	.7	.1	.2	6.9	[i]38
1989 ..	24.8	23.8	.2	.1	.7	23.8	22.9	.8	.1	1.0	7.9	[i]38
1990 ..	28.8	28.4	-.6	.1	.9	25.6	24.8	.7	.1	3.2	11.1	[i]40
1991 ..	30.4	29.1	[g]	.2	1.1	28.6	27.7	.8	.1	1.8	12.9	39
1992 ..	31.4	30.1	[g]	.2	1.1	32.0	31.1	.8	.1	-.6	12.3	40
1993 ..	32.3	31.2	[g]	.3	.8	35.7	34.6	1.0	.1	-3.4	9.0	35
1994 ..	52.8	51.4	[g]	.3	1.2	38.9	37.7	1.0	.1	14.0	22.9	23
1995 ..	56.7	54.4	-.2	.3	2.2	42.1	40.9	1.1	.1	14.6	37.6	55
1996 ..	60.7	57.3	[g]	.4	3.0	45.4	44.2	1.2	[g]	15.4	52.9	83
1997 ..	60.5	56.0	[g]	.5	4.0	47.0	45.7	1.3	.1	13.5	66.4	113
1998 ..	64.4	59.0	[g]	.6	4.8	49.9	48.2	1.6	.2	14.4	80.8	133
1999 ..	69.5	63.2	[g]	.7	5.7	53.0	51.4	1.5	.1	16.5	97.3	152
2000 ..	77.9	71.1	-.8	.7	6.9	56.8	55.0	1.6	.2	21.1	118.5	171
2001 ..	83.9	74.9	[g]	.8	8.2	61.4	59.6	1.7	[g]	22.5	141.0	193
2002 ..	87.4	77.3	[g]	.9	9.2	67.9	65.7	2.0	.2	19.5	160.5	208
2003 ..	88.1	77.4	[g]	.9	9.7	73.1	70.9	2.0	.2	15.0	175.4	219
2004 ..	91.4	80.3	[g]	1.1	10.0	80.6	78.2	2.2	.2	10.8	186.2	218
2005 ..	97.4	86.1	[g]	1.1	10.3	88.0	85.4	2.3	.3	9.4	195.6	212
2006 ..	102.6	90.8	[g]	1.2	10.6	94.5	91.7	2.3	.4	8.2	203.8	207
2007 ..	109.9	95.2	[g]	1.4	13.2	98.8	95.9	2.5	.4	11.1	214.9	206
2008 ..	109.8	97.6	[g]	1.3	11.0	109.0	106.0	2.5	.4	.9	215.8	197
2009 ..	109.3	96.9	[g]	2.0	10.5	121.5	118.3	2.7	.4	-12.2	203.5	178

Table VI.A2.— Operations of the DI Trust Fund, Calendar Years 1957-2022 (Cont.)
[Dollar amounts in billions]

Calendar year	Income					Cost				Asset Reserves[h]		Trust fund ratio at start of year[b]
	Total	Net payroll tax contributions[c]	GF reimbursements[d]	Taxation of benefits[c]	Net interest[c]	Total[d]	Benefit payments[d,f]	Administrative costs	RRB interchange	Net increase during year	Amount at end of year	
2010 ..	$104.0	$92.5	$0.4	$1.9	$9.3	$127.7	$124.2	$3.0	$0.5	-$23.6	$179.9	159
2011 ..	106.3	81.9	14.9	1.6	7.9	132.3	128.9	2.9	.5	-26.1	153.9	136
2012 ..	109.1	85.6	16.5	.6	6.4	140.3	136.9	2.9	.5	-31.2	122.7	110
2013 ..	111.2	105.4	.7	.4	4.7	143.4	140.1	2.8	.6	-32.2	90.4	86
2014 ..	114.9	109.7	.1	1.7	3.4	145.1	141.7	2.9	.4	-30.2	60.2	62
2015 ..	118.6	115.4	g	1.1	2.1	146.6	143.4	2.8	.4	-28.0	32.3	41
2016 ..	160.0	157.4	g	1.2	1.4	145.9	142.8	2.8	.4	14.1	46.3	22
2017 ..	171.0	167.1	g	2.0	1.9	145.8	142.8	2.8	.2	25.1	71.5	32
2018 ..	172.3	169.2	g	.5	2.6	146.8	143.7	2.9	.2	25.6	97.1	49
2019 ..	143.9	139.4	g	1.6	2.9	147.9	145.1	2.7	.1	-4.0	93.1	66
2020 ..	149.7	145.3	g	1.7	2.8	146.3	143.6	2.6	.1	3.5	96.6	64
2021 ..	145.5	142.4	g	.5	2.6	142.6	140.1	2.5	.1	2.8	99.4	68
2022 ..	165.1	160.7	g	1.6	2.8	146.5	143.6	2.7	.2	18.6	118.0	68

[a] Beginning in 1979, benefit payments scheduled to be paid on January 3 of a given year were paid on December 31 of the preceding year as required by the statutory provision included in the 1977 Social Security Amendments for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. Such advance payments have occurred about every 7 years, first for benefits scheduled for January 3, 1982. For comparability with other historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment in each year without regard to the accelerated payments described above.

[b] Represents asset reserves at the beginning of a year as a percentage of cost during the year. The table shows no ratio for 1957 because no reserves existed at the beginning of the year.

[c] Includes adjustments for prior calendar years.

[d] Includes net reimbursements from the General Fund of the Treasury to the DI Trust Fund for: (1) the cost of noncontributory wage credits for military service before 1957; (2) the cost in 1971-82 of deemed wage credits for military service performed after 1956; (3) the cost of payroll tax credits provided to employees in 1984 and self-employed persons in 1984-89 by Public Law 98-21; (4) the cost in 2009-17 of excluding certain self-employment earnings from SECA taxes under Public Law 110-246; and (5) payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96.

[e] Net interest includes net profits or losses on marketable investments. Beginning in 1967, the trust fund pays administrative expenses on an estimated basis, with a final adjustment including interest made in the following fiscal year. Net interest includes the amounts of these interest adjustments. The 1970 report describes the accounting for administrative expenses for years prior to 1967. Beginning in July 1974, figures include relatively small amounts of gifts to the fund. Net interest for 1983-86 reflects payments for interest on amounts owed under the interfund borrowing provisions. During 1983-90, net interest reflects interest reimbursements paid from the trust fund to the General Fund on advance tax transfers.

[f] Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, net benefit amounts include reimbursements paid from the General Fund to the trust fund for unnegotiated benefit checks. Excluding the portion attributable to vocational rehabilitation services and unnegotiated benefit checks, amounts are the same as benefits scheduled under law at that time for all historical years.

[g] Between -$50 million and $50 million.

[h] Reflects interfund borrowing by the OASI Trust Fund from the DI Trust Fund in 1982 of $5.1 billion and the subsequent repayment of that loan in 1985 ($2.5 billion) and 1986 ($2.5 billion).

[i] Reserves used for the trust fund ratio calculation include January advance tax transfers.

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

Table VI.A3.— Operations of the Combined OASI and DI Trust Funds, Calendar Years 1957-2022
[Dollar amounts in billions]

Calendar year	Income					Cost				Asset Reserves[a]		Trust fund ratio at start of year[b]
	Total	Net payroll tax contri-butions[c]	GF reim-burse-ments[d]	Taxa-tion of benefits[c]	Net interest[c]	Total[d]	Benefit pay-ments[d,f]	Admin-istra-tive costs	RRB inter-change	Net increase during year	Amount at end of year	
1957...	$8.1	$7.5	—	—	$0.6	$7.6	$7.4	$0.2	g	$0.5	$23.0	298
1958...	9.1	8.5	—	—	.6	8.9	8.6	.2	$0.1	.2	23.2	259
1959...	9.5	8.9	—	—	.6	10.8	10.3	.2	.3	-1.3	22.0	215
1960...	12.4	11.9	—	—	.6	11.8	11.2	.2	.3	.6	22.6	186
1961...	12.9	12.3	—	—	.6	13.4	12.7	.3	.3	-.5	22.2	169
1962...	13.7	13.1	—	—	.6	15.2	14.5	.3	.4	-1.5	20.7	146
1963...	16.2	15.6			.6	16.2	15.4	.3	.4	g	20.7	128
1964...	17.5	16.8			.6	17.0	16.2	.4	.4	.5	21.2	122
1965...	17.9	17.2	—	—	.7	19.2	18.3	.4	.5	-1.3	19.8	110
1966...	23.4	22.6	$0.1		.7	20.9	20.1	.4	.5	2.5	22.3	95
1967...	26.4	25.4	.1		.9	22.5	21.4	.5	.5	3.9	26.3	99
1968...	28.5	27.0	.4		1.0	26.0	25.0	.6	.5	2.5	28.7	101
1969...	33.3	31.5	.5	—	1.3	27.9	26.8	.6	.5	5.5	34.2	103
1970...	37.0	34.7	.5		1.8	33.1	31.9	.6	.6	3.9	38.1	103
1971...	40.9	38.3	.5		2.0	38.5	37.2	.7	.6	2.4	40.4	99
1972...	45.6	42.9	.5	—	2.2	43.3	41.6	.9	.7	2.3	42.8	93
1973...	54.8	51.9	.5	—	2.4	53.1	51.5	.8	.8	1.6	44.4	80
1974...	62.1	58.9	.5	—	2.7	60.6	58.6	1.1	.9	1.5	45.9	73
1975...	67.6	64.3	.5	—	2.9	69.2	67.0	1.2	1.0	-1.5	44.3	66
1976...	75.0	71.6	.7	—	2.7	78.2	75.8	1.2	1.2	-3.2	41.1	57
1977...	82.0	78.7	.7	—	2.5	87.3	84.7	1.4	1.2	-5.3	35.9	47
1978...	91.9	88.9	.8		2.3	96.0	93.0	1.4	1.6	-4.1	31.7	37
1979...	105.9	103.0	.7		2.2	107.3	104.4	1.5	1.5	-1.5	30.3	30
1980...	119.7	116.7	.7	—	2.3	123.5	120.6	1.5	1.4	-3.8	26.5	25
1981...	142.4	139.4	.8		2.2	144.4	141.0	1.7	1.6	-1.9	24.5	18
1982...	147.9	145.7	.9		1.4	160.1	156.2	2.1	1.8	h .2	24.8	15
1983...	171.3	156.3	6.7		8.3	171.2	166.7	2.2	2.3	.1	24.9	14
1984...	186.6	175.0	5.2	$3.0	3.4	180.4	175.7	2.3	2.4	6.2	31.1	i21
1985...	203.5	192.1	5.2	3.4	2.7	190.6	186.1	2.2	2.4	h11.1	42.2	i24
1986...	216.8	207.4	1.9	3.7	3.9	201.5	196.7	2.2	2.7	h4.7	46.9	i29
1987...	231.0	220.6	1.9	3.2	5.3	209.1	204.1	2.4	2.6	21.9	68.8	i31
1988...	263.5	249.5	2.3	3.4	8.2	222.5	217.1	2.5	2.9	41.0	109.8	i41
1989...	289.4	271.9	2.3	2.5	12.7	236.2	230.9	2.4	2.9	53.2	163.0	i57
1990...	315.4	294.5	-1.3	5.0	17.2	253.1	247.8	2.3	3.0	62.3	225.3	i75
1991...	329.7	301.6	.1	6.1	21.9	274.2	268.2	2.6	3.5	55.5	280.7	82
1992...	342.6	311.3	-.1	6.1	25.4	291.9	286.0	2.7	3.2	50.7	331.5	96
1993...	355.6	322.0	.1	5.6	27.9	308.8	302.4	3.0	3.4	46.8	378.3	107
1994...	381.1	344.7	g	5.3	31.1	323.0	316.8	2.7	3.5	58.1	436.4	117
1995...	399.5	359.1	-.4	5.8	35.0	339.8	332.6	3.1	4.1	59.7	496.1	128
1996...	424.5	378.9	g	6.8	38.7	353.6	347.0	3.0	3.6	70.9	567.0	140
1997...	457.7	406.0	g	7.9	43.8	369.1	362.0	3.4	3.7	88.6	655.5	154
1998...	489.2	430.2	g	9.7	49.3	382.3	375.0	3.5	3.8	106.9	762.5	171
1999...	526.6	459.6	g	11.6	55.5	392.9	385.8	3.3	3.8	133.7	896.1	194
2000...	568.4	492.5	-.8	12.3	64.5	415.1	407.6	3.8	3.7	153.3	1,049.4	216
2001...	602.0	516.4	g	12.7	72.9	438.9	431.9	3.7	3.3	163.1	1,212.5	239
2002...	627.1	532.5	.4	13.8	80.4	461.7	453.8	4.2	3.6	165.4	1,378.0	263
2003...	631.9	533.5	g	13.4	84.9	479.1	470.8	4.6	3.7	152.8	1,530.8	288
2004...	657.7	553.0	g	15.7	89.0	501.6	493.3	4.5	3.8	156.1	1,686.8	305
2005...	701.8	592.9	-.3	14.9	94.3	529.9	520.7	5.3	3.9	171.8	1,858.7	318
2006...	744.9	625.6	g	16.9	102.4	555.4	546.2	5.3	3.8	189.5	2,048.1	335
2007...	784.9	656.1	g	18.6	110.2	594.5	584.9	5.5	4.0	190.4	2,238.5	345
2008...	805.3	672.1	g	16.9	116.3	625.1	615.3	5.7	4.0	180.2	2,418.7	358
2009...	807.5	667.3	g	21.9	118.3	685.8	675.5	6.2	4.1	121.7	2,540.3	353

Table VI.A3.— Operations of the Combined OASI and DI Trust Funds, Calendar Years 1957-2022 (Cont.)

[Dollar amounts in billions]

Calendar year	Income					Cost				Asset Reserves[a]		Trust fund ratio at start of year[b]
	Total	Net pay-roll tax contri-butions[c]	GI[i] reim-burse-ments[d]	Taxa-tion of benefits[c]	Net interest[e]	Total[a]	Benefit pay-ments[a,f]	Admin-istra-tive costs	RRB inter-change	Net increase during year	Amount at end of year	
2010 ..	$781.1	$637.3	$2.4	$23.9	$117.5	$712.5	$701.6	$6.5	$4.4	$68.6	$2,609.0	357
2011 ..	805.1	564.2	102.7	23.8	114.4	736.1	725.1	6.4	4.6	69.0	2,677.9	354
2012 ..	840.2	589.5	114.3	27.3	109.1	785.8	774.8	6.3	4.7	54.4	2,732.3	341
2013 ..	855.0	726.2	4.9	21.1	102.8	822.9	812.3	6.2	4.5	32.1	2,764.4	332
2014 ..	884.3	756.0	.5	29.6	98.2	859.2	848.5	6.1	4.7	25.0	2,789.5	322
2015 ..	920.2	794.9	.3	31.6	93.3	897.1	886.3	6.2	4.7	23.0	2,812.5	311
2016 ..	957.5	836.2	.1	32.8	88.4	922.3	911.4	6.2	4.7	35.2	2,847.7	305
2017 ..	996.6	873.6	g	37.9	85.1	952.5	941.5	6.5	4.5	44.1	2,891.8	299
2018 ..	1,003.4	885.1	g	35.0	83.3	1,000.2	988.6	6.7	4.9	3.1	2,894.9	289
2019 ..	1,061.8	944.5	g	36.5	80.8	1,059.3	1,047.9	6.4	4.9	2.5	2,897.4	273
2020 ..	1.118.1	1,001.3	g	40.7	76.1	1,107.2	1,095.9	6.3	5.0	10.9	2,908.3	262
2021 ..	1,088.3	980.6	g	37.6	70.1	1,144.6	1,133.2	6.5	4.9	-56.3	2,852.0	254
2022 ..	1,221.8	1,106.6	.2	48.6	66.4	1,243.9	1,231.7	6.7	5.5	-22.1	2,829.9	229

[a] Beginning in 1979, benefit payments scheduled to be paid on January 3 of a given year were paid on December 31 of the preceding year as required by the statutory provision included in the 1977 Social Security Amendments for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. Such advance payments have occurred about every 7 years. First for benefits scheduled for January 3, 1982. For comparability with other historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment in each year without regard to the accelerated payments described above.

[b] Represents asset reserves at the beginning of a year as a percentage of cost during the year.

[c] Includes adjustments for prior calendar years.

[d] Includes net reimbursements from the General Fund of the Treasury to the OASI and DI Trust Funds for: (1) the cost of noncontributory wage credits for military service before 1957; (2) the cost in 1971-82 of deemed wage credits for military service performed after 1956; (3) the cost of benefits to certain uninsured persons who attained age 72 before 1968; (4) the cost of payroll tax credits provided to employees in 1984 and self-employed persons in 1984-89 by Public Law 98-21; (5) the cost in 2009-17 of excluding certain self-employment earnings from SECA taxes under Public Law 110-246; and (6) payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96. Also includes transfers of a portion of proceeds from repayments of loans authorized under Public Law 116-136.

[e] Net interest includes net profits or losses on marketable investments. Beginning in 1967, the trust funds pay administrative expenses on an estimated basis, with a final adjustment including interest made in the following fiscal year. Net interest includes the amounts of these interest adjustments. The 1970 report describes the accounting for administrative expenses for years prior to 1967. Beginning in October 1973, figures include relatively small amounts of gifts to the funds. Net interest for 1983-86 reflects payments for interest on amounts owed under the interfund borrowing provisions. During 1983-90, net interest reflects interest reimbursements paid from the trust funds to the General Fund on advance tax transfers.

[f] Beginning in 1966, includes payments for vocational rehabilitation services furnished to disabled persons receiving benefits because of their disabilities. Beginning in 1983, net benefit amounts include reimbursements paid from the General Fund to the trust funds for unnegotiated benefit checks. Excluding the portion attributable to vocational rehabilitation services and unnegotiated benefit checks, amounts are the same as benefits scheduled under law at that time for all historical years.

[g] Between -$50 million and $50 million.

[h] Reflects interfund borrowing by the OASI Trust Fund from the HI Trust Fund in 1982 of $12.4 billion and the subsequent repayment of that loan in 1985 ($1.8 billion) and 1986 ($10.6 billion).

[i] Reserves used for the trust fund ratio calculation include January advance tax transfers.

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

Tables VI.A4 and VI.A5 show the total asset reserves of the OASI Trust Fund and the DI Trust Fund, respectively, at the end of calendar years 2021 and 2022. The tables show the invested asset reserves by interest rate and year of maturity. Bonds issued to the trust funds in 2022 had an interest rate of 3.000 percent, compared with an interest rate of 1.500 percent for bonds issued in 2021.

Table VI.A4.—OASI Trust Fund Asset Reserves, End of Calendar Years 2021 and 2022

[In thousands]

	December 31, 2021	December 31, 2022
Obligations sold only to the trust funds (special issue securities):		
Certificates of indebtedness:		
1.500 percent, 2022	$53,944,023	—
3.875 percent, 2023	—	$44,376,263
4.000 percent, 2023	—	72,467,687
4.250 percent, 2023	—	71,154,194
Bonds:		
0.750 percent, 2023	14,931,408	—
0.750 percent, 2024-25	29,862,816	29,862,816
0.750 percent, 2026-33	119,451,256	119,451,256
1.375 percent, 2023	6,693,020	—
1.375 percent, 2024-25	13,386,040	13,386,040
1.375 percent, 2026	6,693,019	6,693,019
1.375 percent, 2027	173,240,401	173,240,401
1.500 percent, 2023	12,696,179	—
1.500 percent, 2024-25	25,392,358	25,392,358
1.500 percent, 2026-32	88,873,260	88,873,260
1.500 percent, 2033	12,696,179	12,696,179
1.750 percent, 2023	4,908,185	—
1.750 percent, 2024-25	9,816,370	9,816,370
1.750 percent, 2026-27	9,816,372	9,816,372
1.750 percent, 2028	178,148,587	178,148,587
1.875 percent, 2023	2,320,956	—
1.875 percent, 2024-27	9,283,824	9,283,824
1.875 percent, 2028-30	6,962,865	6,962,865
1.875 percent, 2031	188,111,583	188,111,583
2.000 percent, 2023	3,655,628	—
2.000 percent, 2024-25	7,311,256	7,311,256
2.000 percent, 2026-29	14,622,516	14,622,516
2.000 percent, 2030	185,790,628	185,790,628
2.250 percent, 2023	5,582,927	—
2.250 percent, 2024-25	11,165,854	11,165,854
2.250 percent, 2026-27	11,165,852	11,165,852
2.250 percent, 2028	5,582,927	5,582,927
2.250 percent, 2029	183,731,514	183,731,514
2.250 percent, 2030-31	3,193,030	3,193,030
2.250 percent, 2032	189,708,097	189,708,097
2.250 percent, 2033	12,818,538	12,818,538
2.250 percent, 2034	177,899,339	177,899,339
2.500 percent, 2023	5,971,787	—
2.500 percent, 2024-25	11,943,574	11,943,574
2.500 percent, 2026	166,547,382	166,547,382
2.875 percent, 2023	7,264,432	—
2.875 percent, 2024	7,264,432	7,264,432
2.875 percent, 2025	160,575,595	160,575,595
2.875 percent, 2032	1	1
2.875 percent, 2033	176,889,560	176,889,560
3.000 percent, 2024-28	—	86,332,165
3.000 percent, 2029-32	—	69,065,728
3.000 percent, 2033	—	17,266,433
3.250 percent, 2023	10,628,270	—
3.250 percent, 2024	153,311,163	153,311,163
4.000 percent, 2023	142,682,893	—
5.000 percent, 2022	130,152,459	—
Total investments	2,752,688,355	2,711,918,658
Undisbursed balances[a]	-52,566	-19,502
Total asset reserves	2,752,635,789	2,711,899,156

[a] A negative amount for a given year represents a situation where actual program cost exceeded the amount of invested securities of the OASI Trust Fund that were redeemed to cover such cost. In this situation, future redemption of additional invested securities will be required to pay for this shortfall.

Note: Amounts of special issue securities are at par value. The trust fund purchases and redeems special issue securities at par value. The table groups equal amounts that mature in two or more years at a given interest rate.

Table VI.A5.—DI Trust Fund Asset Reserves, End of Calendar Years 2021 and 2022

[In thousands]

	December 31, 2021	December 31, 2022
Obligations sold only to the trust funds (special issue securities):		
Certificates of indebtedness:		
1.500 percent, 2022	$7,651,929	
1.625 percent, 2022	352,540	
3.875 percent, 2023	—	$9,749,638
4.250 percent, 2023		10,542,313
Bonds:		
0.750 percent, 2024-26	1,438,419	1,438,419
0.750 percent, 2027-29	1,438,422	1,438,422
0.750 percent, 2030-34	2,397,365	2,397,365
0.750 percent, 2035	5,348,270	5,348,270
1.500 percent, 2024-29	845,268	845,268
1.500 percent, 2030-35	845,274	845,274
1.500 percent, 2036	5,489,148	5,489,148
2.250 percent, 2024-25	2,489,358	2,489,358
2.250 percent, 2026	1,244,680	1,244,680
2.250 percent, 2027-32	7,468,074	7,468,074
2.250 percent, 2033-34	9,737,594	9,737,594
2.875 percent, 2024-25	7,248,238	7,248,238
2.875 percent, 2026-32	25,368,826	25,368,826
3.000 percent, 2024-29		8,953,524
3.000 percent, 2030-35		8,953,518
3.000 percent, 2036	—	1,492,254
3.000 percent, 2037	—	6,981,402
4.000 percent, 2023	14,675,554	
5.000 percent, 2022	5,398,822	
Total investments	99,437,781	118,031,585
Undisbursed balances[a]	-43,640	-43,856
Total asset reserves	99,394,141	117,987,729

[a] A negative amount for a given year represents a situation where actual program cost exceeded the amount of invested securities of the DI Trust Fund that were redeemed to cover such cost. In this situation, future redemption of additional invested securities will be required to pay for this shortfall.

Note: Amounts of special issue securities are at par value. The trust fund purchases and redeems special issue securities at par value. The table groups equal amounts that mature in two or more years at a given interest rate.

B. HISTORY OF ACTUARIAL STATUS ESTIMATES

This appendix chronicles the history of the long-range OASDI actuarial balance and the year of combined OASI and DI Trust Fund reserve depletion since 1982 under the intermediate assumptions. The actuarial balance is the principal summary measure of actuarial status for the long-range period as a whole. The year of trust fund reserve depletion is also critical, as it indicates the year by which legislative action would be needed in order to maintain timely payment of scheduled benefits.

The 1983 report was the last report for which the actuarial balance was positive for the OASDI program. The two basic components of actuarial balance are the summarized income rate and the summarized cost rate, both of which are expressed as percentages of taxable payroll over the period. Section IV.B.4 defines the summarized income rate, summarized cost rate, and actuarial balance in detail. For any given period, the actuarial balance includes the difference between the present value of non-interest income for the period and the present value of the cost for the period, each divided by the present value of taxable payroll for all years in the period. The computation of the actuarial balance also includes:

- In the reports for 1988 and later, the amount of the trust fund asset reserves on hand at the beginning of the valuation period; and

- In the reports for 1991 and later, the present value of a target trust fund asset reserve equal to 100 percent of the annual cost to be reached and maintained at the end of the valuation period.

Reports of 1973-87 used the average-cost method, a simpler method which approximates the results of the present-value approach for computing the actuarial balance. Under the average-cost method, the sum of the annual cost rates over the 75-year projection period was divided by the total number of years, 75, to obtain the average cost rate per year. A similar computation produced the average income rate. The actuarial balance was the difference between the average income rate and the average cost rate.

When the 1973 report introduced the average-cost method, the financing of the program was more nearly on a pay-as-you-go basis over the long-range. Also, the long-range demographic and economic assumptions in that report produced an annual rate of growth in total taxable payroll which was about the same as the annual rate at which the trust funds earned interest. In either circumstance (i.e., pay-as-you-go financing, where the annual income rate is the same as the annual cost rate, or an annual rate of growth in total taxable payroll equal to the annual interest rate), the average-cost method produces

the same result as the present-value method. However, by 1988, neither of these circumstances still existed.

After the 1977 and 1983 Social Security Amendments, projections indicated substantial increases in the trust fund reserves continuing well into the 21st century. These laws changed the program's financing from essentially pay-as-you-go to partial advance funding through the 75-year period. Also, for the reports from 1973 through 1987, long-range fertility rates and average real wage growth assumptions were gradually reduced, resulting in an annual rate of growth in taxable payroll that was significantly lower than the assumed interest rate by 1987. As a result of the difference between this rate of growth and the assumed interest rate, the results of the average-cost method and the present-value method began to diverge in the reports for 1973 through 1987, and by 1988 they were quite different. While the average-cost method reflected most of the effects of assumed interest rates, it no longer reflected all interest effects. The present-value method, by contrast, accurately reflects the implications of assumed interest rates. As a result, the 1988 report reintroduced the present-value method of calculating the actuarial balance.

A positive actuarial balance indicates that estimated income (plus starting reserves, beginning with the 1988 report) is more than sufficient to meet estimated trust fund obligations (plus the ending target fund, beginning with the 1991 report) for the period as a whole. Even with a positive actuarial balance, it is possible for reserves to become temporarily depleted within the long-range period. An actuarial balance of zero indicates that the estimated income (plus starting reserves, beginning with the 1988 report) exactly matches estimated trust fund obligations (plus the ending target fund, beginning with the 1991 report) for the period as a whole. A negative actuarial balance indicates that estimated income (plus starting reserves, beginning with the 1988 report) is insufficient to meet estimated trust fund obligations (plus the ending target fund, beginning with the 1991 report) for the entire period.

Table VI.B1 contains the long-range OASDI actuarial balances, summarized income rates, and summarized cost rates for the 1982 report through the current report. The reports presented these values on the basis of the intermediate assumptions, which recent reports refer to as alternative II and reports from 1982 to 1990 referred to as alternative II-B.

**Table VI.B1.—Long-Range OASDI Actuarial Balances and Trust Fund Reserve
Depletion Dates as Shown in the Trustees Reports for 1982-2023
under Intermediate Assumptions[a]**

| As a percentage of taxable payroll |

Year of report	Summarized income rate	Summarized cost rate	Actuarial balance[b]	Change from previous year[c]	Year of combined trust fund reserve depletion
1982	12.27	14.09	-1.82	[d]	1983
1983	12.87	12.84	+.02	−1.84	[e]
1984	12.90	12.95	-.06	-.08	[e]
1985	12.94	13.35	-.41	-.35	2049
1986	12.96	13.40	-.44	-.03	2051
1987	12.89	13.51	-.62	-.18	2051
1988	12.94	13.52	-.58	+.04	2048
1989	13.02	13.72	-.70	-.13	2046
1990	13.04	13.95	-.91	-.21	2043
1991	13.11	14.19	-1.08	-.17	2041
1992	13.16	14.63	-1.46	-.38	2036
1993	13.21	14.67	-1.46	[d]	2036
1994	13.24	15.37	-2.13	-.66	2029
1995	13.27	15.44	-2.17	-.04	2030
1996	13.33	15.52	-2.19	-.02	2029
1997	13.37	15.60	-2.23	-.03	2029
1998	13.45	15.64	-2.19	+.04	2032
1999	13.49	15.56	-2.07	+.12	2034
2000	13.51	15.40	-1.89	+.17	2037
2001	13.58	15.44	-1.86	+.03	2038
2002	13.72	15.59	-1.87	-.01	2041
2003	13.78	15.70	-1.92	-.04	2042
2004	13.84	15.73	-1.89	+.03	2042
2005	13.87	15.79	-1.92	-.04	2041
2006	13.88	15.90	-2.02	-.09	2040
2007	13.92	15.87	-1.95	+.06	2041
2008	13.94	15.63	-1.70	+.26	2041
2009	14.02	16.02	-2.00	-.30	2037
2010	14.01	15.93	-1.92	+.08	2037
2011	14.02	16.25	-2.22	-.30	2036
2012	14.02	16.69	-2.67	-.44	2033
2013	13.88	16.60	-2.72	-.05	2033
2014	13.89	16.77	-2.88	-.16	2033
2015	13.86	16.55	-2.68	+.20	2034
2016	13.84	16.50	-2.66	+.02	2034
2017	13.84	16.67	-2.83	-.17	2034
2018	13.84	16.69	-2.84	-.02	2034
2019	13.81	16.60	-2.78	+.06	2035
2020	13.85	17.06	-3.21	-.43	2035
2021	13.78	17.31	-3.54	-.32	2034
2022	13.78	17.20	-3.42	+.12	2035
2023	13.78	17.38	-3.61	-.19	2034

[a] The 1982-90 reports referred to the intermediate assumptions as alternative II-B; the 1991 and later
reports refer to the intermediate assumptions as alternative II.
[b] The definition and method of calculating the actuarial balance were changed in 1988 and 1991. See text
for details.
[c] A detailed year-by-year breakdown of the reasons for the changes in the actuarial balance since the 1983
Trustees Report may be found in Actuarial Note 2023.8 at www.ssa.gov/OACT/NOTES/ran8/.
[d] Between -0.005 and 0.005 percent of taxable payroll.
[e] Not projected to become depleted during the 75-year projection period.

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

For several of the years included in the table, significant legislative changes or definitional changes affected the actuarial balance. The Social Security Amendments of 1983 account for the largest single change shown in the table: the actuarial balance of -1.82 for the 1982 report improved to +0.02 for the 1983 report. In 1985, the actuarial balance changed largely because of an adjustment made to the method for estimating the age distribution of immigrants.

Rebenchmarking of the National Income and Product Accounts and changes in demographic assumptions contributed to the change in the actuarial balance for 1987. Various changes in assumptions and methods for the 1988 report had roughly offsetting effects on the actuarial balance. In 1989 and 1990, changes in economic assumptions accounted for most of the changes in the actuarial balance.

In 1991, the effect of legislation, changes in economic assumptions, and the introduction of the cost of reaching and maintaining an ending target trust fund level combined to produce the change in the actuarial balance. In 1992, changes in disability assumptions and the method for projecting average benefit levels accounted for most of the change in the actuarial balance. In 1993, numerous small changes in assumptions and methods had offsetting effects on the actuarial balance. In 1994, changes in the real wage assumptions, disability rates, and the earnings sample used for projecting average benefit levels accounted for most of the change in the actuarial balance. In 1995, numerous small changes had largely offsetting effects on the actuarial balance, including a substantial reallocation of the payroll tax rate, which reduced the OASI actuarial balance, but increased the DI actuarial balance.

In 1996, a change in the method of projecting dually-entitled beneficiaries produced a large increase in the actuarial balance, which almost totally offset decreases produced by changes in the valuation period and in the demographic and economic assumptions. Various changes in assumptions and methods for the 1997 report had roughly offsetting effects on the actuarial balance. In 1998, increases caused by changes in the economic assumptions, although partially offset by decreases produced by changes in the valuation period and in the demographic assumptions, accounted for most of the changes in the actuarial balance. In 1999, increases caused by changes in the economic assumptions (related to improvements in the CPI by the Bureau of Labor Statistics) accounted for most of the changes in the actuarial balance. For the 2000 report, changes in economic assumptions and methodology caused increases in the actuarial balance, although reductions in the balance caused by the change in valuation period and changes in demographic assumptions partially offset these increases.

For the 2001 report, increases caused by changes in the demographic starting values, although partially offset by a decrease produced by the change in the valuation period, accounted for most of the changes in the actuarial balance. For the 2002 report, changes in the valuation period and the demographic assumptions—both decreases in the actuarial balance—were offset by changes in the economic assumptions, while an increase due to disability assumptions was slightly more than offset by a decrease due to changes in the projection methods and data. For the 2003 report, an increase due to the change in program assumptions was more than offset by decreases due to the change in valuation period and changes in demographic assumptions. In the 2004 report, increases due to changing the method of projecting benefit levels for higher earners more than offset decreases in the actuarial balance arising from the change in the valuation period and the net effect of other changes in programmatic data and methods. For the 2005 report, an increase due to changing the method of projecting future average benefit levels was more than offset by decreases due to changes in the valuation period, updated starting values for the economic assumptions, and other methodological changes.

In 2006, decreases in the actuarial balance due to the change in the valuation period, a reduction in the ultimate annual real interest rate, and improvements in calculating mortality for disabled workers, were greater in aggregate than increases in the actuarial balance due to changes in demographic starting values and the ultimate total fertility rate, as well as other programmatic data and method changes. For the 2007 report, increases in the actuarial balance arising from revised disability incidence rate assumptions, improvements in average benefit level projections, and changes in near-term economic projections, more than offset decreases in the balance due to the valuation period change and updated historical mortality data. For the 2008 report, the large increase in the actuarial balance was primarily due to changes in immigration projection methods and assumptions. These changes more than offset the decreases in the actuarial balance due to the change in the valuation period and the lower starting and ultimate mortality rates. In 2009, changes in starting values and near-term economic assumptions due to the economic recession, faster ultimate rates of decline in death rates for ages 65-84, and the change in the valuation period accounted for most of the large decrease in the actuarial balance. Legislative changes, in particular the estimated effects of the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act of 2010, were the main reason for the increase in the actuarial balance for the 2010 report. The change in the valuation period partially offset this increase; there were also changes in

several assumptions, methods, and recent data which had largely offsetting effects.

For the 2011 report, changes in mortality projections, due to new starting values and revised methods, were the most significant of several factors contributing to the increase in the deficit. In 2012, changes in economic assumptions and starting values accounted for about half of the decrease in actuarial balance. Other factors worsening the actuarial balance were the change in valuation period, changes to starting demographic values, changes to ultimate disability incidence assumptions, and methodology changes and data updates. For the 2013 report, the change in valuation period accounted for the entire net change in the actuarial balance. The effects of substantially lower death rates for 2009 than previously projected and the American Taxpayer Relief Act of 2012 (which lowered the Federal marginal income tax rates) were offset by updates of program-specific data and methodology improvements. In 2014, changes in economic data and assumptions accounted for the majority of the net change in the actuarial balance. Other factors worsening the actuarial balance were the change in the valuation period and various methodology improvements and data updates. For the 2015 report, methodological improvements and updates of programmatic data accounted for the majority of the net increase in the actuarial balance. Also increasing the actuarial balance were a lower assumed ultimate average wage differential and changes in near-term economic assumptions. These increases were offset somewhat by the change in the valuation period and updates to historical and near-term projected birth rates.

For the 2016 report, the actuarial balance increased primarily due to the effects of the Bipartisan Budget Act of 2015 and improvements made to immigration methods. The most notable immigration change was a revision to the method for projecting emigration of the never-authorized population to reflect lower rates of emigration for those who have resided here longer. These increases in the actuarial balance were largely offset by the effects of changes in ultimate economic assumptions, including a lower real interest rate and a lower annual increase in the rate of price inflation. In 2017, the change in the valuation period and various methodology improvements accounted for most of the net reduction in the actuarial balance. Other economic factors also contributed to worsening the actuarial balance, including a lower real wage differential assumption and an assumed weaker recovery from the recent recession. These reductions were offset somewhat by lower estimated disability incidence rates over the short-range period. For the 2018 report, incorporating the effects of lower-than-expected birth rates, lower near-term fertility assumptions, and the change in the valuation period

decreased the actuarial balance. Offsetting these factors to a large degree were the effects of higher-than-expected death rates and several methods improvements, most notably an update to the sample used to project average benefit levels for newly-entitled worker beneficiaries. For the 2019 report, the actuarial balance increased primarily due to higher-than-expected death rates and lower near-term and ultimate disability incidence rate assumptions. Partially offsetting these factors were the effects of a lower ultimate real interest rate assumption and the change in the valuation period. For the 2020 report, the actuarial balance decreased primarily due to the following factors. First, the repeal of the Affordable Care Act's excise tax on employer-sponsored group health insurance premiums reduced projected earnings as a share of employee compensation, having a significant negative financial effect on the trust funds. In addition, lower assumed values for the ultimate total fertility rate, the ultimate rate of price inflation, and the ultimate real interest rate, as compared to the rates assumed for the 2019 report, decreased the actuarial balance.

In 2021, the actuarial balance decreased due to the change in the valuation period and three main additional factors. First, economic assumptions were updated to reflect experience during and following the COVID-19 pandemic. In particular, the levels of productivity and potential GDP were assumed to be roughly 1 percent lower beginning with the second quarter of 2020. Second, the data and methodology used for projecting average benefit levels were updated and improved. Third, data and estimates provided by the Office of Tax Analysis at the Department of the Treasury indicated lower near-term and ultimate levels of taxation of benefits.

For the 2022 report, the actuarial balance increased primarily due to a decrease in the assumed ultimate disability incidence rate, incorporating recent economic data, and changes in near-term economic assumptions. In particular, employment, earnings, and GDP following the 2020 recession recovered much faster than had been assumed in the 2021 report. These disability and economic factors were partially offset by the change in the valuation period and updates for recent demographic data.

Section IV.B.6 describes changes affecting the actuarial balance shown for the 2023 report.

C. FISCAL YEAR HISTORICAL AND PROJECTED TRUST FUND OPERATIONS THROUGH 2032

Tables VI.C1, VI.C2, and VI.C3 contain details of the fiscal year 2022 operations of the OASI, DI, and the combined OASI and DI Trust Funds, respectively. The fiscal year for the U.S. Government is the 12-month period ending September 30. Fiscal year 2022 is the most recent fiscal year for which complete information is available. The descriptions of the values in these tables are similar to the corresponding descriptions and values in the calendar year operations tables in section III.A. Please see that section for a description of the various items of income and cost.

Table VI.C1.—Operations of the OASI Trust Fund, Fiscal Year 2022
[In millions]

Total asset reserves, September 30, 2021		$2,755,799
Income:		
Net payroll tax contributions:		
Payroll tax contributions[a]	$933,445	
Payments from the General Fund of the Treasury for payroll tax contributions subject to refund	-4,403	
Net payroll tax contributions[a]		929,042
Reimbursements from the General Fund:		
Reduction in payroll tax contributions due to P.L.s 111-312, 112-78, and 112-96[a]	b	
Payroll tax credits due to P.L. 98-21[a]	b	
Net General Fund reimbursements[a]		b
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	259	
All other, not subject to withholding	46,711	
Total income from taxation of benefits		46,970
Investment income and interest adjustments:		
Interest on investments	65,081	
Interest adjustments[c]	b	
Total investment income and interest adjustments		65,081
Gifts		b
Total income		1,041,093
Cost:		
Benefit payments:		
Monthly benefits and lump-sum death payments[d]	1,063,929	
Reimbursement from the General Fund for unnegotiated checks	-52	
Payment for costs of vocational rehabilitation services for disabled beneficiaries	19	
Net benefit payments[d]		1,063,896
Financial interchange with the Railroad Retirement "Social Security Equivalent Benefit Account"		5,316
Administrative expenses:		
Costs incurred by:		
Social Security Administration	3,452	
Department of the Treasury	603	
Offsetting miscellaneous receipts	-1	
Miscellaneous reimbursements from the General Fund[e]	-5	
Net administrative expenses		4,050
Total cost		1,073,262
Net increase in asset reserves		-32,169
Total invested assets	2,723,601	
Undisbursed balances[f]	29	
Total asset reserves, September 30, 2022		2,723,629

[a] Includes adjustments for prior years.

[b] Between -$0.5 and $0.5 million.

[c] Includes: (1) interest on adjustments in the allocation of administrative expenses between the trust fund and the General Fund account for the Supplemental Security Income program, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust fund.

[d] Includes net reductions for the recovery of overpayments.

[e] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the OASI program.

[f] A positive balance represents a situation where the invested securities of the OASI Trust Fund that were redeemed to make cash payments exceeded actual program cash payments. In this situation, this excess amount will be used to partially offset future redemption of additional invested securities.

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

Table VI.C2.—Operations of the DI Trust Fund, Fiscal Year 2022
[In millions]

Total asset reserves, September 30. 2021		$98,063
Income:		
Net payroll tax contributions:		
Payroll tax contributions[a]	$158,563	
Payments from the General Fund of the Treasury for payroll tax contributions subject to refund	-746	
Net payroll tax contributions[a]		157,816
Reimbursements from the General Fund:		
Reduction in payroll tax contributions due to P.L.s 111-312, 112-78, and 112-96[a]	b	
Payroll tax credits due to P.L. 98-21[a]	b	
Net General Fund reimbursements[a]		b
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	4	
All other, not subject to withholding[a]	1,529	
Total income from taxation of benefits[b]		1,533
Investment income and interest adjustments:		
Interest on investments	2,657	
Interest adjustments[c]	2	
Total investment income and interest adjustments		2,658
Gifts		b
Total income		162,007
Cost:		
Benefit payments:		
Monthly benefits[d]	142,386	
Reimbursement from the General Fund for unnegotiated checks	-28	
Payment for costs of vocational rehabilitation services for disabled beneficiaries	101	
Net benefit payments[d]		142,459
Financial interchange with the Railroad Retirement "Social Security Equivalent Benefit Account"		156
Administrative expenses:		
Costs incurred by:		
Social Security Administration	2,655	
Department of the Treasury	105	
Demonstration projects	7	
Miscellaneous reimbursements from the General Fund[e]	-2	
Net administrative expenses		2,764
Total cost		145,379
Net increase in asset reserves		16,628
Total invested assets	114,679	
Undisbursed balances[f]	12	
Total asset reserves, September 30, 2022		114,691

[a] Includes adjustments for prior years.

[b] Between -$0.5 and $0.5 million.

[c] Includes: (1) interest on adjustments in the allocation of administrative expenses between the trust fund and the General Fund account for the Supplemental Security Income program, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust fund.

[d] Includes net reductions for the recovery of overpayments.

[e] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the DI program.

[f] A positive balance represents a situation where the invested securities of the DI Trust Fund that were redeemed to make cash payments exceeded actual program cash payments. In this situation, this excess amount will be used to partially offset future redemption of additional invested securities.

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

Table VI.C3.—Operations of the Combined OASI and DI Trust Funds, Fiscal Year 2022
[In millions]

Total asset reserves, September 30. 2021.		$2,853.862
Income:		
Net payroll tax contributions:		
	$1,092,007	
Payroll tax contributions[a]		
Payments from the General Fund of the Treasury for payroll tax contributions subject to refund	-5,149	
Net payroll tax contributions[a]		1,086,858
Reimbursements from the General Fund:		
Reduction in payroll tax contributions due to P.L.s 111-312, 112-78. and 112-96[a].	b	
Payroll tax credits due to P.L. 98-21[a]	b	
Net General Fund reimbursements[a]		b
Income based on taxation of benefit payments:		
Withheld from benefit payments to nonresident aliens	262	
All other, not subject to withholding[a]	48,240	
Total income from taxation of benefits[a]		48,502
Investment income and interest adjustments:		
Interest on investments	67,738	
Interest adjustments[c]	2	
Total investment income and interest adjustments		67,740
Gifts		b
Total income		1,203,100
Cost:		
Benefit payments:		
Monthly benefits and lump-sum death payments[d]	1,206,315	
Reimbursement from the General Fund for unnegotiated checks	-80	
Payment for costs of vocational rehabilitation services for disabled beneficiaries	120	
Net benefit payments[d]		1,206,355
Financial interchange with the Railroad Retirement "Social Security Equivalent Benefit Account".		5.471
Administrative expenses:		
Costs incurred by:		
Social Security Administration.	6,108	
Department of the Treasury	708	
Offsetting miscellaneous receipts.	-1	
Demonstration projects.	7	
Miscellaneous reimbursements from the General Fund[e]	-7	
Net administrative expenses		6,814
Total cost		1,218,641
Net increase in asset reserves		-15,541
Total invested assets	2,838,279	
Undisbursed balances[f]	41	
Total asset reserves, September 30, 2022.		2,838,320

[a] Includes adjustments for prior years.

[b] Between -$0.5 and $0.5 million.

[c] Includes: (1) interest on adjustments in the allocation of administrative expenses between the trust funds and the General Fund account for the Supplemental Security Income program, (2) interest arising from the revised allocation of administrative expenses among the trust funds, and (3) interest on certain reimbursements to the trust funds.

[d] Includes net reductions for the recovery of overpayments.

[e] Reimbursements for costs incurred in performing certain legislatively mandated activities not directly related to administering the OASI and DI programs.

[f] A positive balance represents a situation where the invested securities of the combined OASI and DI Trust Funds that were redeemed to make cash payments exceeded actual program cash payments. In this situation, this excess amount will be used to partially offset future redemption of additional invested securities.

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

Appendices

Tables VI.C4, VI.C5, and VI.C6 show estimates of the operations and status of the OASI, DI, and the hypothetical combined OASI and DI Trust Funds, respectively, during fiscal years 2018 through 2032.

Table VI.C4.—Operations of the OASI Trust Fund, Fiscal Years 2018-2032[a]
[Dollar amounts in billions]

Fiscal year	Income					Cost				Asset Reserves		Trust fund ratio at start of year[b]
	Total	Net payroll tax contributions[c]	GF reimbursements[d]	Taxation of benefits[c,e]	Net interest	Total	Scheduled benefits	Administrative costs	RRB interchange	Net increase during year	Amount at end of year	
Historical data:												
2018	$822.4	$706.1	[f]	$34.7	$81.6	$841.5	$833.0	$3.7	$4.8	-$19.0	$2,801.1	335
2019	900.1	785.6	[f]	34.9	79.6	896.8	888.1	3.9	4.9	3.2	2,804.3	312
2020	955.6	841.7	[f]	37.9	76.0	948.7	940.2	3.7	4.8	6.9	2,811.2	296
2021	936.0	831.1	[f]	34.3	70.5	991.4	982.7	3.9	4.8	-55.4	2,755.8	284
2022	1,041.1	929.0	[f]	47.0	65.1	1,073.3	1,063.9	4.0	5.3	-32.2	2,723.6	257
Intermediate:												
2023	1,149.1	1,035.3	$0.2	50.4	63.2	1,200.4	1,190.9	4.1	5.4	-51.3	2,672.3	227
2024	1,153.0	1,037.1	[f]	55.6	60.3	1,301.7	1,291.4	4.3	6.1	-148.7	2,523.6	205
2025	1,211.1	1,093.7	[f]	59.2	58.2	1,383.1	1,372.6	4.3	6.1	-171.9	2,351.7	182
2026	1,272.9	1,147.6	[f]	70.9	54.4	1,465.2	1,454.4	4.5	6.3	-192.3	2,159.4	161
2027	1,327.3	1,195.5	.2	79.1	52.5	1,549.6	1,538.5	4.6	6.4	-222.3	1,937.1	139
2028	1,390.0	1,255.5	[f]	85.4	49.2	1,638.9	1,627.6	4.8	6.5	-248.9	1,688.3	118
2029	1,440.3	1,304.4	[f]	92.1	43.9	1,731.2	1,719.7	5.0	6.6	-290.9	1,397.4	98
2030	1,495.3	1,358.4	[f]	99.6	37.3	1,825.7	1,813.9	5.1	6.7	-330.4	1,067.0	77
2031	1,549.2	1,412.6	[f]	107.6	29.0	1,921.2	1,909.2	5.3	6.8	-372.0	695.0	56
2032	1,599.3	1,464.8	[f]	116.2	18.3	2,017.6	2,005.2	5.4	6.9	-418.2	276.7	34
Low-cost:												
2023	1,152.1	1,038.1	.2	50.4	63.4	1,199.9	1,190.4	4.1	5.4	-47.8	2,675.8	227
2024	1,191.2	1,072.0	[f]	55.4	63.8	1,298.0	1,287.7	4.3	6.0	-106.8	2,569.0	206
2025	1,276.5	1,153.7	[f]	59.2	63.6	1,382.8	1,372.4	4.3	6.1	-106.3	2,462.7	186
2026	1,370.2	1,234.0	[f]	71.2	65.0	1,471.3	1,460.5	4.6	6.2	-101.1	2,361.6	167
2027	1,454.3	1,305.5	.2	79.8	68.8	1,562.8	1,551.7	4.8	6.3	-108.6	2,253.1	151
2028	1,551.9	1,393.6	[f]	86.5	71.9	1,660.2	1,648.7	5.1	6.4	-108.3	2,144.8	136
2029	1,639.0	1,471.7	[f]	93.7	73.6	1,761.8	1,749.9	5.3	6.6	-122.8	2,022.0	122
2030	1,733.8	1,556.9	[f]	101.8	75.1	1,866.8	1,854.5	5.5	6.7	-133.0	1,889.0	108
2031	1,831.6	1,644.7	[f]	110.6	76.4	1,974.5	1,961.9	5.8	6.8	-142.9	1,746.1	96
2032	1,928.3	1,732.0	[f]	120.1	76.2	2,084.8	2,071.8	6.0	7.0	-156.5	1,589.6	84
High-cost:												
2023	1,140.3	1,027.0	.2	50.5	62.6	1,200.9	1,191.3	4.1	5.4	-60.6	2,663.1	227
2024	1,107.0	990.9	[f]	55.9	60.2	1,310.3	1,299.9	4.3	6.1	-203.3	2,459.8	203
2025	1,159.6	1,046.1	[f]	59.9	53.6	1,398.4	1,387.8	4.3	6.3	-238.7	2,221.1	176
2026	1,207.3	1,088.0	[f]	71.5	47.7	1,477.7	1,466.8	4.4	6.5	-270.5	1,950.6	150
2027	1,246.5	1,124.0	.2	79.4	42.9	1,556.2	1,545.1	4.6	6.5	-309.6	1,641.0	125
2028	1,286.9	1,165.5	[f]	85.4	36.1	1,639.2	1,627.9	4.7	6.6	-352.2	1,288.7	100
2029	1,312.1	1,193.0	[f]	91.7	27.4	1,724.2	1,712.8	4.7	6.7	-412.1	876.6	75
2030	1,341.0	1,223.7	[f]	98.8	18.6	1,810.4	1,798.8	4.8	6.8	-469.4	407.3	48
2031	[g]	1,252.9	[f]	106.2	[g]	1,896.6	1,884.9	4.9	6.8	[g]	[g]	21
2032	[g]	1,278.7	[f]	114.2	[g]	1,982.8	1,970.9	5.0	6.9	[g]	[g]	[g]

[a] The OASI Trust Fund reserves become depleted in fiscal year 2031 under the high-cost assumptions. For any period during which reserves would be depleted, scheduled benefits could not be paid in full on a timely basis, income from taxing benefits would be less than would apply to scheduled benefits, and interest on trust fund reserves would be negligible.

[b] Represents asset reserves at the beginning of a year (which are identical to reserves at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

[c] Includes adjustments for prior years.

[d] Includes reimbursements from the General Fund of the Treasury to the OASI Trust Fund for: (1) the cost of payroll tax credits provided to employees in 1984 and self-employed persons in 1984-89 by Public Law 98-21; (and 2) payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96. Also includes transfers of a portion of proceeds from repayments of loans authorized under Public Law 116-136.

[e] Revenue from taxation of benefits is the amount that would be assessed on benefit amounts scheduled in law.

[f] Between -$50 million and $50 million.

[g] When the fund reserves are depleted, values under current law would reflect permissible expenditures only, which would be less than the full cost of paying scheduled benefits shown in this table.

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

Table VI.C5.—Operations of the DI Trust Fund, Fiscal Years 2018-2032
[Dollar amounts in billions]

	Income					Cost				Asset Reserves		Trust
Fiscal year	Total	Net payroll tax contri-butions[b]	GF reim-burse-ments[c]	Taxa-tion of bene-fits[b,d]	Net interest	Total	Sched-uled benefits	Admin-istra-tive costs	RRB inter-change	Net increase during year	Amount at end of year	fund ratio at start of year[a]
Historical data:												
2018..	$170.3	$167.0	[c]	$1.0	$2.2	$146.6	$143.6	$2.8	$0.2	$23.7	$93.1	47
2019..	151.0	146.8	[e]	1.2	2.9	147.7	144.9	2.8	.1	3.3	96.4	63
2020..	147.4	142.9	[e]	1.7	2.8	146.7	144.1	2.5	.1	.7	97.1	66
2021..	144.4	141.2	[c]	.5	2.7	143.4	140.7	2.5	.1	1.0	98.1	68
2022..	162.0	157.8	[c]	1.5	2.7	145.4	142.5	2.8	.2	16.6	114.7	67
Intermediate:												
2023..	180.1	175.8	[c]	1.1	3.2	151.0	148.0	2.9	[e]	29.1	143.8	76
2024..	182.0	176.1	[c]	1.7	4.2	158.5	155.5	3.0	[e]	23.5	167.3	91
2025..	192.7	185.7	[e]	1.8	5.1	168.4	165.3	3.1	[e]	24.3	191.5	99
2026..	203.1	194.9	[e]	2.2	6.0	178.5	175.3	3.2	[e]	24.6	216.1	107
2027..	212.5	203.0	[e]	2.4	7.1	187.1	183.7	3.4	[e]	25.4	241.5	115
2028..	224.1	213.2	[e]	2.6	8.3	193.5	189.9	3.6	[e]	30.6	272.1	125
2029..	234.0	221.5	[e]	2.7	9.8	199.2	195.5	3.7	[e]	34.8	306.9	137
2030..	245.2	230.7	[e]	2.9	11.6	205.2	201.2	3.9	[e]	40.0	346.9	150
2031..	256.7	239.9	[c]	3.1	13.7	212.2	208.1	4.1	.1	44.5	391.3	163
2032..	268.1	248.7	[c]	3.3	16.0	220.3	216.0	4.3	.1	47.8	439.1	178
Low-cost:												
2023..	180.6	176.3	[c]	1.1	3.3	150.1	147.2	2.9	[e]	30.5	145.2	76
2024..	188.5	182.0	[e]	1.7	4.8	155.5	152.4	3.0	[e]	33.0	178.2	93
2025..	204.2	195.9	[e]	1.8	6.5	163.0	160.0	3.1	[e]	41.1	219.3	109
2026..	220.5	209.6	[e]	2.1	8.8	170.9	167.7	3.3	[e]	49.6	268.9	128
2027..	235.8	221.7	[c]	2.3	11.8	177.0	173.6	3.5	[e]	58.7	327.7	152
2028..	254.6	236.6	[e]	2.4	15.6	180.7	177.0	3.7	[e]	74.0	401.6	181
2029..	272.5	249.9	[e]	2.5	20.1	184.1	180.2	3.9	[e]	88.4	490.1	218
2030..	292.5	264.4	[c]	2.7	25.5	188.1	184.0	4.1	[e]	104.4	594.5	261
2031..	313.9	279.3	[c]	2.8	31.8	193.3	188.9	4.3	[e]	120.6	715.0	308
2032..	336.4	294.1	[c]	3.0	39.3	199.8	195.2	4.5	[e]	136.6	851.7	358
High-cost:												
2023..	178.7	174.4	[e]	1.1	3.2	151.8	148.9	2.9	[e]	26.8	141.5	76
2024..	174.0	168.3	[e]	1.7	4.0	162.3	159.3	3.0	[e]	11.6	153.2	87
2025..	183.8	177.6	[e]	1.9	4.2	176.0	172.9	3.1	[e]	7.8	161.0	87
2026..	191.5	184.8	[c]	2.3	4.4	188.5	185.2	3.2	[e]	3.0	164.0	85
2027..	198.0	190.9	[c]	2.6	4.5	199.2	195.8	3.4	[e]	-1.2	162.8	82
2028..	205.2	197.9	[e]	2.8	4.5	207.6	204.1	3.5	[e]	-2.4	160.4	78
2029..	210.0	202.6	[c]	3.0	4.4	214.7	211.1	3.6	[e]	-4.8	155.6	75
2030..	215.3	207.8	[c]	3.2	4.3	222.1	218.3	3.8	.1	-6.8	148.8	70
2031..	220.3	212.7	[c]	3.4	4.2	230.7	226.7	3.9	.1	-10.4	138.4	64
2032..	224.6	217.1	[e]	3.6	3.9	240.2	236.1	4.0	.1	-15.6	122.8	58

[a] Represents asset reserves at the beginning of a year (which are identical to reserves at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.
[b] Includes adjustments for prior years.
[c] Includes reimbursements from the General Fund of the Treasury to the DI Trust Fund for: (1) the cost of payroll tax credits provided to employees in 1984 and self-employed persons in 1984-89 by Public Law 98-21; and (2) payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96.
[d] Revenue from taxation of benefits is the amount that would be assessed on benefit amounts scheduled in law.
[e] Between -$50 million and $50 million.

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

Table VI.C6.—Operations of the Combined OASI and DI Trust Funds, Fiscal Years 2018-2032[a]
[Dollar amounts in billions]

Fiscal year	Income Total	Net payroll tax contributions[c]	GF reimburse-ments[d]	Taxation of benefits[e,c]	Net interest	Cost Total	Scheduled benefits	Admin-istrative costs	RRB interchange	Net increase during year	Amount at end of year	Trust fund ratio at start of year[b]
Historical data:												
2018 .	$992.7	$873.2	[f]	$35.7	$83.8	$988.0	$976.7	$6.4	$4.9	$4.7	$2,894.2	292
2019 .	1,051.1	932.4	[f]	36.1	82.5	1,044.5	1,033.0	6.6	4.9	6.5	2,900.7	277
2020 .	1,103.0	984.6	[f]	39.6	78.8	1,095.4	1,084.3	6.2	5.0	7.5	2,908.2	265
2021 .	1,080.4	972.3	[f]	34.8	73.3	1,134.8	1,123.4	6.4	4.9	-54.4	2,853.9	256
2022 .	1,203.1	1,086.9	[f]	48.5	67.7	1,218.6	1,206.4	6.8	5.5	-15.5	2,838.3	234
Intermediate:												
2023 .	1,329.2	1,211.1	$0.2	51.5	66.4	1,351.4	1,338.9	7.0	5.4	-22.2	2,816.2	210
2024 .	1,335.0	1,213.3	[f]	57.3	64.4	1,460.2	1,446.9	7.3	6.1	-125.3	2,690.9	193
2025 .	1,403.8	1,279.5	[f]	61.1	63.3	1,551.5	1,537.9	7.4	6.2	-147.7	2,543.2	173
2026 .	1,476.1	1,342.5	[f]	73.1	60.4	1,643.8	1,629.7	7.7	6.3	-167.7	2,375.5	155
2027 .	1,539.8	1,398.5	.2	81.6	59.6	1,736.7	1,722.3	8.0	6.4	-196.9	2,178.7	137
2028 .	1,614.1	1,468.7	[f]	88.0	57.5	1,832.4	1,817.5	8.4	6.5	-218.3	1,960.4	119
2029 .	1,674.4	1,525.9	[f]	94.8	53.7	1,930.5	1,915.1	8.7	6.6	-256.1	1,704.3	102
2030 .	1,740.5	1,589.1	[f]	102.5	48.9	2,030.9	2,015.1	9.0	6.8	-290.4	1,413.9	84
2031 .	1,805.9	1,652.5	[f]	110.7	42.7	2,133.4	2,117.2	9.4	6.9	-327.6	1,086.3	66
2032 .	1,867.4	1,713.6	[f]	119.6	34.3	2,237.9	2,221.2	9.7	7.0	-370.5	715.8	49
Low-cost:												
2023 .	1,332.8	1,214.4	.2	51.5	66.7	1,350.1	1,337.6	7.0	5.4	-17.3	2,821.0	210
2024 .	1,379.7	1,254.1	[f]	57.1	68.6	1,453.5	1,440.1	7.3	6.1	-73.8	2,747.2	194
2025 .	1,480.7	1,349.6	[f]	61.0	70.1	1,545.8	1,532.4	7.4	6.1	-65.2	2,682.1	178
2026 .	1,590.7	1,443.6	[f]	73.3	73.8	1,642.3	1,628.2	7.8	6.2	-51.5	2,630.5	163
2027 .	1,690.1	1,527.2	.2	82.1	80.6	1,739.9	1,725.3	8.3	6.3	-49.8	2,580.7	151
2028 .	1,806.6	1,630.2	[f]	88.9	87.5	1,840.9	1,825.8	8.7	6.4	-34.3	2,546.4	140
2029 .	1,911.5	1,721.6	[f]	96.2	93.7	1,945.8	1,930.1	9.2	6.6	-34.3	2,512.0	131
2030 .	2,026.3	1,821.3	[f]	104.5	100.6	2,054.9	2,038.5	9.6	6.7	-28.6	2,483.5	122
2031 .	2,145.5	1,924.0	[f]	113.4	108.1	2,167.8	2,150.8	10.1	6.8	-22.3	2,461.2	115
2032 .	2,264.7	2,026.1	[f]	123.1	115.5	2,284.6	2,267.0	10.6	7.0	-19.9	2,441.3	108
High-cost:												
2023 .	1,319.0	1,201.4	.2	51.5	65.8	1,352.7	1,340.2	7.0	5.4	-33.7	2,804.6	210
2024 .	1,281.0	1,159.2	[f]	57.7	64.2	1,472.6	1,459.2	7.3	6.1	-191.6	2,613.0	190
2025 .	1,343.4	1,223.7	[f]	61.8	57.9	1,574.4	1,560.7	7.4	6.3	-230.9	2,382.0	166
2026 .	1,398.8	1,272.8	[f]	73.8	52.1	1,666.2	1,652.1	7.7	6.5	-267.4	2,114.6	143
2027 .	1,444.5	1,314.8	.2	82.1	47.4	1,755.3	1,740.9	7.9	6.5	-310.8	1,803.8	120
2028 .	1,492.1	1,363.4	[f]	88.2	40.6	1,846.8	1,832.0	8.2	6.6	-354.7	1,449.1	98
2029 .	1,522.1	1,395.6	[f]	94.7	31.8	1,939.0	1,923.9	8.4	6.7	-416.9	1,032.2	75
2030 .	1,556.3	1,431.5	[f]	101.9	22.9	2,032.5	2,017.1	8.6	6.8	-476.2	556.0	51
2031 .	1,585.9	1,465.6	[f]	109.6	10.7	2,127.3	2,111.6	8.8	6.9	-541.4	14.6	26
2032 .	[g]	1,495.8	[f]	117.9	[g]	2,223.0	2,207.0	9.0	7.0	[g]	[g]	1

[a] The OASDI Trust Fund reserves become depleted in fiscal year 2032 under the high-cost assumptions. For any period during which reserves would be depleted, scheduled benefits could not be paid in full on a timely basis, income from taxing benefits would be less than would apply to scheduled benefits, and interest on trust fund reserves would be negligible.

[b] Represents asset reserves at the beginning of a year (which are identical to reserves at the end of the prior year shown in the "Amount at end of year" column) as a percentage of cost for the year.

[c] Includes adjustments for prior years.

[d] Includes reimbursements from the General Fund of the Treasury to the OASI and DI Trust Funds for: (1) the cost of payroll tax credits provided to employees in 1984 and self-employed persons in 1984-89 by Public Law 98-21; and (2) payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96. Also includes transfers of a portion of proceeds from repayments of loans authorized under Public Law 116-136.

[e] Revenue from taxation of benefits is the amount that would be assessed on benefit amounts scheduled in law.

[f] Between -$50 million and $50 million.

[g] When the fund reserves are depleted, values under current law would reflect permissible expenditures only, which would be less than the full cost of paying scheduled benefits shown in this table.

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

D. LONG-RANGE SENSITIVITY ANALYSIS

This appendix presents estimates that illustrate the sensitivity of the long-range actuarial status of the OASDI program to changes in selected individual assumptions. The estimates based on the three alternative sets of assumptions, which were presented earlier in this report, illustrate the effects of varying all of the principal assumptions simultaneously, in order to portray a significantly more optimistic or pessimistic future. For each sensitivity analysis presented in this appendix, the intermediate alternative II projection is the reference point, and one assumption is varied within that alternative. The variation used for each individual assumption is the same as the level used for that assumption in the low-cost alternative I and high-cost alternative III projections.

Each table in this section shows the effects of changing a particular assumption on the OASDI summarized income rates, summarized cost rates, and actuarial balances for 25-year, 50-year, and 75-year valuation periods. Each table also shows the effects on the annual balance for 2097 and on the year of combined trust fund reserve depletion. Following each table is a discussion of the estimated changes in cost rates. The change in each of the actuarial balances is approximately equal to the change in the corresponding cost rate, but in the opposite direction. This appendix does not discuss income rates following each table because income rates vary only slightly with changes in assumptions that affect revenue from taxation of benefits.

1. Total Fertility Rate

Table VI.D1 shows selected measures of OASDI actuarial status on the basis of alternative II with three different assumptions for the future paths of total fertility rates. Under the Trustees' assumptions, the average annual total fertility rate for the period 2033 through 2097 is 1.69, 1.99, and 2.19 children per woman under alternatives III, II, and I, respectively. The ultimate total fertility rate (1.70 under the alternative III assumptions, 2.00 under the alternative II assumptions, and 2.20 under the alternative I assumptions) is reached on a cohort basis over the lifetime of girls attaining age 14 in 2021 and later, so that the ultimate fertility rate on an annual (or period) basis is reached in 2056.

Table VI.D1.—Sensitivity of OASDI Measures to Fertility Assumptions
[As a percentage of taxable payroll]

Valuation period	Average total fertility rate[a][b]		
	1.69	1.99	2.19
Summarized income rate:			
25-year: 2023-47	14.34	14.34	14.34
50-year: 2023-72	13.93	13.90	13.88
75-year: 2023-97	13.85	13.78	13.73
Summarized cost rate:			
25-year: 2023-47	16.83	16.85	16.85
50-year: 2023-72	17.47	17.14	16.92
75-year: 2023-97	18.17	17.38	16.87
Actuarial balance:			
25-year: 2023-47	-2.49	-2.50	-2.51
50-year: 2023-72	-3.54	-3.24	-3.04
75-year: 2023-97	-4.32	-3.61	-3.14
Annual balance for 2097	-6.69	-4.35	-3.07
Year of combined trust fund reserve depletion	2034	2034	2034

[a] The total fertility rate for any year is the average number of children that would be born to a woman if she were to experience, at each age of her life, the birth rate observed in, or assumed for, the selected year, and if she were to survive the entire childbearing period. The average total fertility rate shown is for the period 2033 through 2097.

[b] The total fertility rates used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

For the 25-year period, the cost rate for the three fertility assumptions varies by only about 0.02 percent of taxable payroll. In contrast, the 75-year cost rate varies over a wide range, decreasing from 18.17 percent to 16.87 percent, as the average total fertility rate for the period 2033 through 2097 increases from 1.69 for alternative III to 2.19 for alternative I. Similarly, while the 25-year actuarial balance varies by only 0.02 percent of taxable payroll, the 75-year actuarial balance varies over a much wider range, from -4.32 percent to -3.14 percent.

During the 25-year period, the very slight increases in the working-age population and tax income resulting from higher fertility (than that experienced in an alternative scenario) are more than offset by the effects of decreases in female labor force participation and increases in the number of child beneficiaries. Therefore, program cost as a percent of taxable payroll increases slightly with higher fertility. For the 75-year long-range period, however, changes in fertility have a relatively greater effect on the working-age population than on the beneficiary population. As a result, an increase in fertility significantly reduces the cost rate. Each increase of 0.1 in the average total fertility rate increases (improves) the long-range actuarial balance by about 0.24 percent of taxable payroll.

2. Death Rates

Table VI.D2 shows selected measures of OASDI actuarial status on the basis of alternative II with three different assumptions about future reductions in death rates for the period from 2032 to 2097. These assumptions are described in section V.A.2. Under the Trustees' assumptions, the age-sex-adjusted death rates[1] decline at average annual rates of 0.28 percent, 0.74 percent, and 1.24 percent for alternatives I, II, and III, respectively.

Table VI.D2.—Sensitivity of OASDI Measures to Death-Rate Assumptions
[As a percentage of taxable payroll]

Valuation period	Average annual death-rate reduction[a] [b]		
	0.28 percent	0.74 percent	1.24 percent
Summarized income rate:			
25-year: 2023-47	14.34	14.34	14.34
50-year: 2023-72	13.88	13.90	13.92
75-year: 2023-97	13.74	13.78	13.82
Summarized cost rate:			
25-year: 2023-47	16.65	16.85	17.10
50-year: 2023-72	16.66	17.14	17.72
75-year: 2023-97	16.65	17.38	18.21
Actuarial balance:			
25-year: 2023-47	-2.31	-2.50	-2.75
50-year: 2023-72	-2.78	-3.24	-3.79
75-year: 2023-97	-2.91	-3.61	-4.39
Annual balance for 2097	-2.88	-4.35	-5.82
Year of combined trust fund reserve depletion	2034	2034	2034

[a] The average annual death-rate reduction is the average annual geometric rate of decline in the age-sex-adjusted death rate for the period from 2032 to 2097.
[b] The death-rate reductions used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

The variation in cost for the 25-year period is less pronounced than the variation for the 75-year period because decreases in death rates have cumulative effects. The 25-year cost rate increases from 16.65 percent (for an average annual death-rate reduction of 0.28 percent from 2032 to 2097) to 17.10 percent (for an average annual death-rate reduction of 1.24 percent from 2032 to 2097). The 75-year cost rate increases from 16.65 percent to 18.21 percent. The actuarial balance decreases from -2.31 percent to -2.75 percent for the 25-year period, and from -2.91 percent to -4.39 percent for the 75-year period.

Lower death rates raise both the income (through increased taxable payroll) and the cost of the OASDI program. The relative increase in cost, however,

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[1] Based on the enumerated total population as of April 1, 2010, if that population were to experience the death rates by age and sex for the selected year.

exceeds the relative increase in taxable payroll. For any given year, reductions in the death rates for people who are age 62 and over (ages at which death rates are the highest) increase the number of retired-worker beneficiaries (and, therefore, the amount of retirement benefits paid) without adding significantly to the number of covered workers (and, therefore, to the taxable payroll). Reductions in death rates for people at age 50 to retirement eligibility age result in significant increases to the taxable payroll. However, those increases are not large enough to offset the sum of the additional retirement benefits mentioned above and the disability benefits paid to additional beneficiaries at these pre-retirement ages, which are ages of high disability incidence. At ages under 50, death rates are so low that even substantial reductions in death rates do not result in significant increases in the numbers of covered workers or beneficiaries. Consequently, if death rates decline by about the same relative amount for all ages, the cost increases faster than the rate of growth in payroll, which results in higher cost rates and lower actuarial balances. Each additional 0.1-percentage-point increase in the average annual rate of decline in the death rate decreases (worsens) the long-range actuarial balance by about 0.15 percent of taxable payroll.

3. Immigration

Table VI.D3 shows selected measures of OASDI actuarial status under alternative II with three different assumptions about the magnitude of total net immigration (sum of net lawful permanent resident (LPR) immigration and net other-than-LPR immigration). See section V.A.3 for more information on immigration assumptions and methods. Under the Trustees' assumptions, total net annual immigration averages 829,000 persons, 1,245,000 persons, and 1,683,000 persons for the period 2033 through 2097 under alternatives III, II, and I, respectively.

Table VI.D3.—Sensitivity of OASDI Measures to Total Net Immigration Assumptions
[As a percentage of taxable payroll]

Valuation period	Average annual total net immigration[a] [b]		
	829,000	1,245,000	1,683,000
Summarized income rate:			
25-year: 2023-47	14.37	14.34	14.31
50-year: 2023-72	13.94	13.90	13.86
75-year: 2023-97	13.82	13.78	13.73
Summarized cost rate:			
25-year: 2023-47	17.09	16.85	16.61
50-year: 2023-72	17.50	17.14	16.79
75-year: 2023-97	17.85	17.38	16.94
Actuarial balance:			
25-year: 2023-47	-2.71	-2.50	-2.30
50-year: 2023-72	-3.56	-3.24	-2.92
75-year: 2023-97	-4.02	-3.61	-3.21
Annual balance for 2097	-5.17	-4.35	-3.66
Year of combined trust fund reserve depletion	2034	2034	2034

[a] Average annual total net immigration is the annual total net immigration to the Social Security area, including both LPR and other-than-LPR immigration, averaged for 2033 through 2097.
[b] The total net immigration assumptions used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

For all three periods, when total net immigration increases, the cost rate decreases. For the 25-year period, the cost rate decreases from 17.09 percent of taxable payroll (for average annual total net immigration of 829,000 persons for 2033 through 2097) to 16.61 percent (for an average annual total net immigration of 1,683,000 persons for 2033 through 2097). For the 50-year period, it decreases from 17.50 percent to 16.79 percent, and for the 75-year period, it decreases from 17.85 percent to 16.94 percent. The actuarial balance increases from -2.71 percent to -2.30 percent for the 25-year period, from -3.56 percent to -2.92 percent for the 50-year period, and from -4.02 percent to -3.21 percent for the 75-year period.

The cost rate decreases with an increase in total net immigration because immigration occurs at relatively young ages, thereby increasing the numbers of covered workers earlier than the numbers of beneficiaries. Increasing average annual total net immigration by 100,000 persons increases (improves) the long-range actuarial balance by about 0.09 percent of taxable payroll.

4. Real Wage Growth

Table VI.D4 shows selected measures of OASDI actuarial status on the basis of alternative II with three different assumptions about the real growth rate in the average annual wage in OASDI covered employment. Under the Trust-

ces' assumptions, the average annual real growth rate in the average wage in covered employment from 2032 to 2097 is 0.54 percent, 1.14 percent, and 1.74 percent under alternatives III, II, and I, respectively.

Table VI.D4.—Sensitivity of OASDI Measures to Real Wage Growth Assumptions
[As a percentage of taxable payroll]

Valuation period	Average annual real wage growth [a,b]		
	0.54	1.14	1.74
Summarized income rate:			
25-year: 2023-47	14.46	14.34	14.22
50-year: 2023-72	14.05	13.90	13.76
75-year: 2023-97	13.94	13.78	13.62
Summarized cost rate:			
25-year: 2023-47	17.68	16.85	16.03
50-year: 2023-72	18.36	17.14	15.97
75-year: 2023-97	18.75	17.38	16.05
Actuarial balance:			
25-year: 2023-47	-3.22	-2.50	-1.81
50-year: 2023-72	-4.30	-3.24	-2.21
75-year: 2023-97	-4.81	-3.61	-2.44
Annual balance for 2097	-6.36	-4.35	-2.60
Year of combined trust fund reserve depletion	2033	2034	2035

[a] The average annual real wage growth is the average annual real growth rate in the average wage in OASDI covered employment from 2032 to 2097.

[b] The real wage growth assumptions used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

For the 25-year period, the cost rate decreases from 17.68 percent (for a real growth rate in the average wage in OASDI covered employment of 0.54 percent) to 16.03 percent (for a real growth rate of 1.74 percent). For the 50-year period, it decreases from 18.36 percent to 15.97 percent, and for the 75-year period it decreases from 18.75 percent to 16.05 percent. The actuarial balance increases from -3.22 percent to -1.81 percent for the 25-year period, from -4.30 percent to -2.21 percent for the 50-year period, and from -4.81 percent to -2.44 percent for the 75-year period.

The cost rate decreases with increasing real wage growth. Higher wages increase taxable payroll immediately, but they increase benefit levels only gradually as new beneficiaries become entitled. In addition, cost-of-living adjustments (COLA) to benefits depend not on changes in wages, but on changes in prices. Each 0.1-percentage-point increase in real wage growth increases (improves) the long-range actuarial balance by about 0.20 percent of taxable payroll.

5. Consumer Price Index

Table VI.D5 shows selected measures of OASDI actuarial status on the basis of alternative II with three different assumptions about the rate of increase for the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI). Under the Trustees' assumptions, the annual increase in the CPI is 3.00 percent, 2.40 percent, and 1.80 percent under alternatives I, II, and III, respectively. These ultimate rates of increase are reached by 2026 under all three alternatives.

Table VI.D5.—Sensitivity of OASDI Measures to CPI-Increase Assumptions
[As a percentage of taxable payroll]

Valuation period	Ultimate annual increase in CPI [a]		
	3.00	2.40	1.80
Summarized income rate:			
25-year: 2023-47	14.32	14.34	14.36
50-year: 2023-72	13.89	13.90	13.92
75-year: 2023-97	13.76	13.78	13.79
Summarized cost rate:			
25-year: 2023-47	16.74	16.85	16.94
50-year: 2023-72	17.00	17.14	17.28
75-year: 2023-97	17.23	17.38	17.53
Actuarial balance:			
25-year: 2023-47	-2.42	-2.50	-2.59
50-year: 2023-72	-3.12	-3.24	-3.36
75-year: 2023-97	-3.47	-3.61	-3.74
Annual balance for 2097	-4.17	-4.35	-4.51
Year of combined trust fund reserve depletion	2034	2034	2034

[a] The CPI assumptions used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

For all three periods, the cost rate increases when the assumed rates of increase in the CPI are smaller. For the 25-year period, the cost rate increases from 16.74 percent (for a CPI increase of 3.00 percent) to 16.94 percent (for a CPI increase of 1.80 percent). For the 50-year period, it increases from 17.00 percent to 17.28 percent, and for the 75-year period, it increases from 17.23 percent to 17.53 percent. The actuarial balance decreases from -2.42 percent to -2.59 percent for the 25-year period, from -3.12 percent to -3.36 percent for the 50-year period, and from -3.47 percent to -3.74 percent for the 75-year period.

The time lag between the effects of the CPI changes on taxable payroll and on scheduled benefits explains these patterns. When the rate of increase in the CPI is greater and real wage growth is constant, then: (1) the effect on taxable payroll due to a greater rate of increase in average wages occurs immediately and (2) the effect on benefits due to a larger COLA occurs with

a lag of about 1 year. As a result of these effects, the higher taxable payrolls have a stronger effect than the higher benefits, which results in lower cost rates. Each 0.1-percentage-point decrease in the rate of the change in the CPI decreases (worsens) the long-range actuarial balance by about 0.02 percent of taxable payroll.

6. Real Interest Rate

Table VI.D6 shows selected measures of OASDI actuarial status under alternative II with three different assumptions about the annual real interest rate (compounded semiannually) for special public-debt obligations issuable to the trust funds. Under the Trustees' assumptions, the ultimate annual real interest rate is 1.8 percent, 2.3 percent, and 2.8 percent under alternatives III, II, and I, respectively. These ultimate rates are reached by 2033 under all three alternatives. In each case, the ultimate annual increase in the CPI is 2.40 percent, which is consistent with alternative II. Therefore, the ultimate annual yields are 4.2, 4.8, and 5.3 percent, respectively.

Table VI.D6.—Sensitivity of OASDI Measures to Real Interest Rate Assumptions
[As a percentage of taxable payroll]

Valuation period	Ultimate annual real interest rate[a] [b]		
	1.8 percent	2.3 percent	2.8 percent
Summarized income rate:			
25-year: 2023-47	14.30	14.34	14.38
50-year: 2023-72	13.85	13.90	13.95
75-year: 2023-97	13.72	13.78	13.83
Summarized cost rate:			
25-year: 2023-47	16.90	16.85	16.79
50-year: 2023-72	17.24	17.14	17.05
75-year: 2023-97	17.51	17.38	17.26
Actuarial balance:			
25-year: 2023-47	-2.60	-2.50	-2.41
50-year: 2023-72	-3.39	-3.24	-3.09
75-year: 2023-97	-3.79	-3.61	-3.43
Annual balance for 2097	-4.35	-4.35	-4.35
Year of combined trust fund reserve depletion	2034	2034	2034

[a] The annual real interest rate is the effective annual yield on asset reserves held by the trust funds divided by the annual rate of growth in the CPI.

[b] The real interest rate assumptions used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

For the 25-year period, the cost rate decreases with increasing real interest rates from 16.90 percent (for an ultimate real interest rate of 1.8 percent) to 16.79 percent (for an ultimate real interest rate of 2.8 percent). For the 50-year period, it decreases from 17.24 percent to 17.05 percent and, for the 75-year period, it decreases from 17.51 percent to 17.26 percent. The actuar-

ial balance increases from -2.60 percent to -2.41 percent for the 25-year period, from -3.39 percent to -3.09 percent for the 50-year period, and from -3.79 percent to -3.43 percent for the 75-year period. A relatively higher real interest rate has the effect of discounting more distant future years relatively more. To the extent that annual cost rates and annual deficits are larger in later years, a higher interest rate decreases the summarized rates, and a lower interest rate increases the summarized rates. Each 0.1-percentage-point increase in the real interest rate increases (improves) the long-range actuarial balance by about 0.04 percent of taxable payroll.

7. Taxable Ratio

Table VI.D7 shows selected measures of OASDI actuarial status under alternative II with three different assumptions about the ratio of taxable payroll to OASDI covered earnings (the taxable ratio). Note that covered earnings are the sum of wages and net self-employment earnings covered by Social Security, and taxable payroll is essentially the amount of covered earnings subject to the Social Security payroll tax up to the contribution and benefit base ($160,200 for 2023). Under the Trustees' assumptions, the taxable ratio at the end of the short-range period (2032) is 81.0 percent, 82.5 percent, and 84.0 percent under alternatives III, II, and I, respectively.

Table VI.D7.—Sensitivity of OASDI Measures to Taxable Ratio Assumptions
[As a percentage of taxable payroll]

Valuation period	Taxable ratio in 2032[a] [b]		
	81.0 percent	82.5 percent	84.0 percent
Summarized income rate:			
25-year: 2023-47	14.37	14.34	14.31
50-year: 2023-72	13.92	13.90	13.88
75-year: 2023-97	13.80	13.78	13.76
Summarized cost rate:			
25-year: 2023-47	17.08	16.85	16.61
50-year: 2023-72	17.37	17.14	16.93
75-year: 2023-97	17.58	17.38	17.19
Actuarial balance:			
25-year: 2023-47	-2.71	-2.50	-2.30
50-year: 2023-72	-3.44	-3.24	-3.05
75-year: 2023-97	-3.79	-3.61	-3.43
Annual balance for 2097	-4.46	-4.35	-4.23
Year of combined trust fund reserve depletion	2033	2034	2034

[a] The taxable ratio is the ratio of taxable payroll to OASDI covered earnings. These concepts are described in further detail in section V.C.6 of this report.
[b] The taxable ratio assumptions used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

Because the combined employee-employer tax rate of 12.4 percent is unchanged across all alternatives, the income rate changes a relatively small amount as the taxable ratio increases, due to changes in taxation of benefits and the initial fund as a percentage of taxable payroll.

For the 25-year period, the cost rate decreases with increasing taxable ratios, from 17.08 percent (for a taxable ratio in 2032 of 81.0 percent) to 16.61 percent (for a taxable ratio in 2032 of 84.0 percent). For the 50-year period, it decreases from 17.37 percent to 16.93 percent and, for the 75-year period, it decreases from 17.58 percent to 17.19 percent. The actuarial balance increases from -2.71 percent to -2.30 percent for the 25-year period, from -3.44 percent to -3.05 percent for the 50-year period, and from -3.79 percent to -3.43 percent for the 75-year period.

The cost rate decreases with an increase in taxable payroll because the increase in taxable payroll occurs immediately. The increase in benefit amounts occurs much more gradually as new beneficiaries become entitled. In addition, the change in the taxable ratio does not affect COLAs or the national average wage index. Each 1.0 percentage-point increase in the taxable ratio in 2032 increases (improves) the long-range actuarial balance by about 0.12 percent of taxable payroll.

8. Disability Incidence Rates

Table VI.D8 shows selected measures of OASDI actuarial status on the basis of alternative II with three different assumptions about future disability incidence rates. Under the Trustees' assumptions, the ultimate age-sex-adjusted[1] incidence rate is 3.8, 4.8, and 5.8 awards per thousand exposed for alternatives I, II, and III, respectively. These ultimate rates are reached by 2032 under all three alternatives. Under the Trustees' assumptions, incidence rates by age and sex for all three alternatives vary during the early years of the projection period before reaching their long-term average values.

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[1] Age-sex-adjusted to the disability-exposed population as of the year 2000.

Table VI.D8.—Sensitivity of OASDI Measures to Disability Incidence Assumptions
[As a percentage of taxable payroll]

Valuation period	Ultimate disability incidence rate[a]		
	3.8	4.8	5.8
Summarized income rate:			
25-year: 2023-47	14.33	14.34	14.35
50-year: 2023-72	13.89	13.90	13.92
75-year: 2023-97	13.76	13.78	13.79
Summarized cost rate:			
25-year: 2023-47	16.53	16.85	17.15
50-year: 2023-72	16.78	17.14	17.50
75-year: 2023-97	17.01	17.38	17.77
Actuarial balance:			
25-year: 2023-47	-2.20	-2.50	-2.79
50-year: 2023-72	-2.89	-3.24	-3.58
75-year: 2023-97	-3.25	-3.61	-3.98
Annual balance for 2097	-3.92	-4.35	-4.89
Year of combined trust fund reserve depletion	2034	2034	2033

[a] The disability incidence rates used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

For the 25-year period, the cost rate increases with increasing disability incidence rates, from 16.53 percent (for the relatively low rates assumed for alternative I) to 17.15 percent (for the relatively high rates assumed for alternative III). For the 50-year period, it increases from 16.78 percent to 17.50 percent, and for the 75-year period, it increases from 17.01 percent to 17.77 percent. The actuarial balance decreases from -2.20 percent to -2.79 percent for the 25-year period, from -2.89 percent to -3.58 percent for the 50-year period, and from -3.25 percent to -3.98 percent for the 75-year period.

9. Disability Termination Rates

Table VI.D9 shows selected measures of OASDI actuarial status on the basis of alternative II with three different assumptions about future disability termination rates, including deaths and recoveries.

Under the Trustees' assumptions, death rates for disabled-worker beneficiaries for all three alternatives decline throughout the long-range period. The age-sex-adjusted death rate[1] of 28.6 deaths per thousand disabled-worker beneficiaries in 2022 declines to 21.5, 12.4, and 6.1 deaths per thousand in 2097 for alternatives I, II, and III, respectively. These levels are about 25 percent, 57 percent, and 79 percent lower, respectively, than the level in

[1] Age-sex-adjusted to the disabled-worker population as of the year 2000.

2022. For this sensitivity analysis, total population death rates by age and sex are assumed to be the same as those used for the alternative II assumptions.

The ultimate age-sex-adjusted recovery rate[1] used for this analysis is 12.5 recoveries per thousand disabled-worker beneficiaries for the alternative I assumptions, 10.4 recoveries per thousand disabled-worker beneficiaries for the alternative II assumptions, and 8.3 recoveries per thousand disabled-worker beneficiaries for the alternative III assumptions.

Table VI.D9.—Sensitivity of OASDI Measures to Disability Termination Assumptions
[As a percentage of taxable payroll]

Valuation period	Disability termination rates (death; recovery)[a]		
	21.5; 12.5	12.4; 10.4	6.1; 8.3
Summarized income rate:			
25-year: 2023-47	14.34	14.34	14.34
50-year: 2023-72	13.90	13.90	13.90
75-year: 2023-97	13.77	13.78	13.78
Summarized cost rate:			
25-year: 2023-47	16.79	16.85	16.89
50-year: 2023-72	17.07	17.14	17.20
75-year: 2023-97	17.31	17.38	17.45
Actuarial balance:			
25-year: 2023-47	-2.45	-2.50	-2.55
50-year: 2023-72	-3.18	-3.24	-3.29
75-year: 2023-97	-3.53	-3.61	-3.67
Annual balance for 2097	-4.23	-4.35	-4.50
Year of combined trust fund reserve depletion	2034	2034	2034

[a] The disability termination rates used for this analysis are consistent with those assumed for the three alternative scenarios. All other assumptions used for this analysis are from alternative II.

For the 25-year period, the cost rate increases with decreasing disability termination rates, from 16.79 percent (for the relatively high termination rates assumed for alternative I) to 16.89 percent (for the relatively low termination rates assumed for alternative III). For the 50-year period, it increases from 17.07 percent to 17.20 percent, and for the 75-year period, it increases from 17.31 percent to 17.45 percent. The actuarial balance decreases from -2.45 percent to -2.55 percent for the 25-year period, from -3.18 percent to -3.29 percent for the 50-year period, and from -3.53 percent to -3.67 percent for the 75-year period.

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[1] Age-sex-adjusted to the disabled-worker population as of the year 2000. The disability recovery rates for each alternative vary slightly over the last 65 years of the 75-year projection period, so the ultimate rates are presented as averages for years 2033 through 2097.

E. STOCHASTIC PROJECTIONS AND UNCERTAINTY

Significant uncertainty surrounds the estimates under the intermediate assumptions, especially for a period as long as 75 years. This appendix presents stochastic projections, a way to illustrate the uncertainty of these estimates. The stochastic projections supplement the traditional methods of examining such uncertainty.

1. Background

The Trustees have traditionally shown estimates using the low-cost and high-cost sets of specified assumptions to illustrate the potential implications of uncertainty. These low-cost and high-cost estimates provide a range of possible outcomes for the projections. However, they do not provide an indication of the probability that actual future experience will be inside or outside this range. This appendix presents the results of a stochastic model that estimates a probability distribution of future outcomes of the financial status of the combined OASI and DI Trust Funds. This model was introduced in the 2003 report and enhanced in the 2021 report to include parameter uncertainty for the expected mean for the key variables described in the next section.

2. Stochastic Methodology

Other sections of this report provide estimates of the financial status of the combined OASI and DI Trust Funds using a scenario-based model. For the scenario-based model, the Trustees use three alternative scenarios (low-cost, intermediate, and high-cost) that use specific assumptions for key variables. In general, the Trustees assume that each of these variables will reach an ultimate value at a specific point during the long-range period, and will maintain that value throughout the remainder of the period. The three alternative scenarios assume separate, specified values for each of these variables. Chapter V contains more details about each of these assumptions.

This appendix presents estimates of the probability that key measures of OASDI solvency will fall in certain ranges, based on 5,000 independent stochastic simulations. Each simulation allows key variables to vary throughout the long-range period. These key variables include total fertility rates, changes in mortality rates, new arrival lawful permanent resident (LPR) and other-than-LPR immigration levels, rates of adjustment of status (from other-than-LPR to LPR), rates of legal emigration (from the population of citizens and LPRs), changes in the Consumer Price Index, changes in average real wages, unemployment rates, trust fund real yield rates, and disability incidence and recovery rates. The fluctuation of each variable over time is simu-

lated using historical data and standard time-series techniques. Generally, each variable is modeled using an equation that: (1) captures a relationship between current and prior years' values of the variable, and (2) introduces random variation based on variation observed in the historical period. For some variables, the equations also reflect relationships with other variables. The equations contain parameters that are estimated using historical data for periods from about 20 years to over 100 years, depending on the nature and quality of the available data. Each time-series equation is designed so that, in the absence of random variation over time, the value of the variable for each year equals its value for the intermediate scenario.[1]

For each equation in a given simulation, the stochastic model assigns random variation to (1) year-by-year error term values and (2) simulation-specific mean term levels that provide variation in the central tendency across simulations. Each simulation produces estimates for all key variables and for the overall financial status of the combined OASI and DI Trust Funds. This appendix shows the distribution of results from 5,000 simulations of the model.

Readers should interpret the results from this model with an understanding of the model's limitations. Results are sensitive to equation specifications, degrees of interdependence among variables, and the historical periods used for estimating model coefficients. For some variables, recent historical variation may not provide a realistic representation of the potential variation for the future. Also, results would differ if additional variables (such as labor force participation rates, retirement rates, marriage rates, and divorce rates) were also allowed to vary randomly. Time-series modeling reflects only what occurred in the historical period. Future uncertainty exists not only for the underlying central tendency but also for the frequency and size of occasional longer-term shifts in the central tendency. Many experts predict, and history suggests, that the future will likely bring substantial shifts that are not fully reflected in the historical period used for the current model. As a result, readers should understand that the true range of uncertainty might be larger than indicated in this appendix.

3. Stochastic Results

This section illustrates the results for the stochastic simulations of two fundamental measures of actuarial status: annual cost rates and trust fund ratios.

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[1] More detail on this model, and stochastic modeling in general, is available at www.ssa.gov/OACT/stochastic/index.html.

The latter measure is highlighted in section II.D of this report. Section 4 of this appendix follows with a comparison of stochastic results to results from the alternative scenarios for these and other measures, and an analysis of the differences.

Figure VI.E1 displays the probability distribution of the year-by-year OASDI cost rates (that is, cost as a percentage of taxable payroll). The range of the annual cost rates widens as the projections move further into the future, which reflects increasing uncertainty. Because there is relatively little variation in income rates across the 5,000 stochastic simulations, the figure includes only the income rate for the intermediate scenario. The two outermost cost rate lines in this figure indicate the range within which future annual cost rates are projected to occur 95 percent of the time (i.e., a 95-percent confidence interval). In other words, the current model estimates that there is a 2.5 percent probability that the cost rate for a given year will exceed the upper end of this range and a 2.5 percent probability that it will fall below the lower end of this range. Other lines in the figure delineate the 80-percent confidence interval and the median cost rate. The median (50th percentile) cost rate for each year is the rate for which half of the simulated outcomes are higher and half are lower for that year. These lines do not represent the results of individual stochastic simulations. Instead, for each given year, they represent the percentile distribution of annual cost rates based on all stochastic simulations for that year.

Figure VI.E1.—Long-Range OASDI Cost Rates From Stochastic Modeling
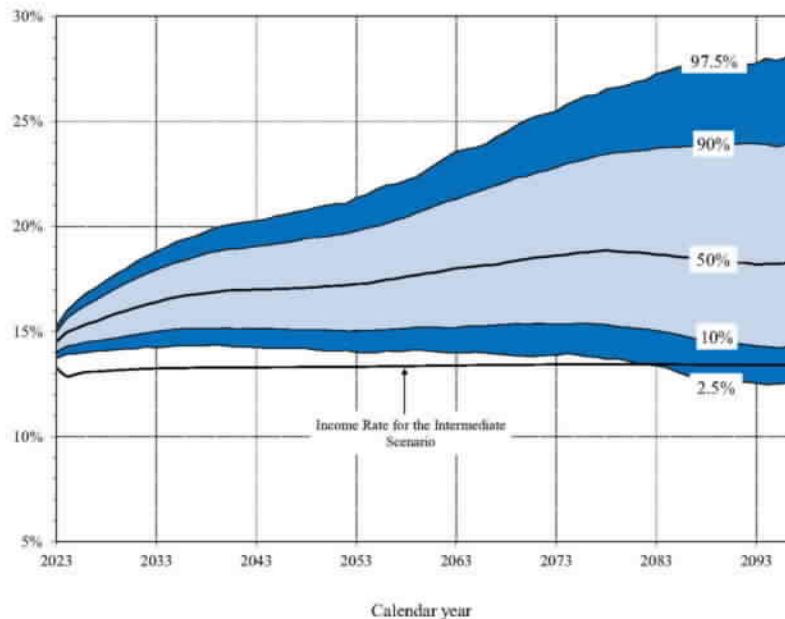
Figure VI.E2 presents the simulated probability distribution of the annual trust fund ratios for the combined OASI and DI Trust Funds. The lines in this figure display the median set (50th percentile) of estimated annual trust fund ratios and delineate the 95-percent and 80-percent confidence intervals esti-mated for future annual trust fund ratios. Again, none of these lines represent the path of a single simulation. For each given year, they represent the per-centile distribution of trust fund ratios based on all stochastic simulations for that year.

Figure VI.E2 shows that the 95-percent confidence interval for the trust fund reserve depletion year ranges from 2031 to 2040, relatively early in the 75-year projection period. The figure also shows that there is a 50-percent prob-ability of trust fund reserve depletion by the end of 2033 (the median reserve depletion year). The median reserve depletion date is late in 2033; the reserve depletion date for the intermediate scenario is in mid-2034.

Figure VI.E2.—Long-Range OASDI Trust Fund Ratios From Stochastic Modeling
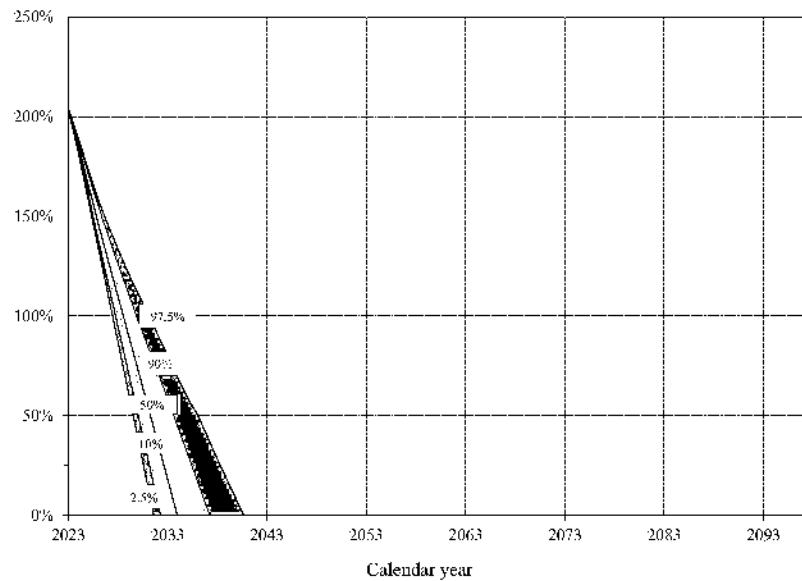
4. Comparison of Results: Stochastic to Low-Cost, Intermediate, and High-Cost Alternative Scenarios

This section compares results from two different approaches for illustrating ranges of uncertainty in measures of trust fund actuarial status. One approach uses results from the low-cost, intermediate, and high-cost alternative scenarios. The other approach uses distributions of results from the stochastic simulations. Each of these approaches provides insights into uncertainty. Comparing the results requires an understanding of fundamental differences in the approaches.

One fundamental difference relates to the presentation of distributional results. Figure VI.E3 shows projected OASDI annual cost rates for the low-cost, intermediate, and high-cost alternative scenarios along with the annual cost rates at the 2.5th percentile, 50th percentile, and 97.5th percentile for the stochastic simulations. While all values on each line for the alternative scenarios are results from a single specified scenario, the values on each stochastic line may be results from different simulations for different years. The one stochastic simulation (from the 5,000 simulations) that yields results closest to a particular percentile for one projected year may yield results that

arc distant from that percentile in another projected year. Because each stochastic simulation shows substantial variability from year to year, the range shown between the 2.5th and 97.5th percentiles is broader than would be seen if simulations followed a smooth trend like in the alternative scenarios.

Both the alternative scenarios and the stochastic results suggest that the range of potential cost rates above the central levels (those for the intermediate scenario and for the stochastic median, respectively) is larger than the range below these central results. The difference between the central results and the higher cost levels (the high-cost alternative scenario and the upper end of the 95-percent confidence range, respectively) is about 1.6 to 1.8 times as large as the difference between the central and lower cost levels for both models by the end of the projection period.

Figure VI.E3.—OASDI Cost Rates: Comparison of Stochastic to Low-Cost, Intermediate, and High-Cost Alternative Scenarios
[As a percentage of taxable payroll]
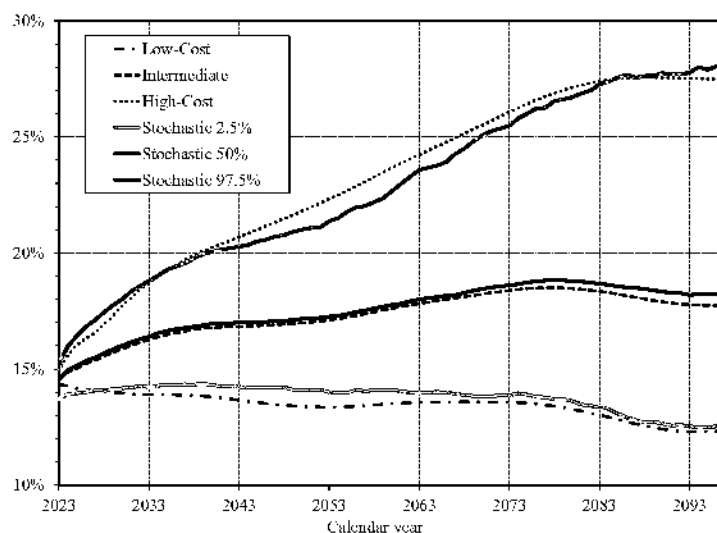
Another fundamental difference between the alternative scenarios and the stochastic simulations is the method of assigning values for assumptions. For the alternative scenarios, specific values are assigned for each of the key demographic, economic, and program-specific variables. The high-cost alternative scenario uses parameter values that increase estimated annual cost as a percent of payroll, while the low-cost alternative scenario uses parameter

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values that decrease annual cost as a percent of payroll. (One parameter, the interest rate, has no effect on annual cost as a percent of payroll for either the alternative scenarios or the stochastic simulations.) In contrast, the stochastic method independently assigns random variation to each of the key demographic and economic variables for each year in each of the 5,000 stochastic simulations. For each of the stochastic simulations, the assigned values for different variables result in varying and often offsetting effects on projected cost as a percent of payroll, with some tending toward higher cost and some tending toward lower cost. This difference tends to narrow the range of cost as a percent of payroll across the 95-percent confidence interval.

It is important to understand that the stochastic model's 95-percent confidence intervals for any summary measure of trust fund finances would tend to be narrower than the range produced for the low-cost and high-cost alternative scenarios, even if the stochastic model's 95-percent confidence interval for annual cost rates were identical to the range defined by the low-cost and high-cost scenarios. This is true because summary measures of trust fund finances depend on cost rates for many years, and the probability that annual cost rates, on average for individual stochastic simulations, will be at least as low (high) as the 2.5 (97.5) percentile line is significantly lower than 2.5 percent. As a result, the relationship between the ranges presented for annual cost rates and summary measures of trust fund finances is fundamentally different for the stochastic model than it is for the low-cost and high-cost alternative scenarios.

Figure VI.E4 compares the ranges of trust fund (unfunded obligation) ratios for the alternative scenarios to the 95-percent confidence interval of the stochastic simulations. This figure extends figure VI.E2 to show unfunded obligation ratios, expressed as negative values below the zero percent line. An unfunded obligation ratio is the ratio of the unfunded obligation accumulated through the beginning of the year to the cost for that year.

Figure VI.E4.—OASDI Trust Fund (Unfunded Obligation) Ratios: Comparison of Stochastic to Low-Cost, Intermediate, and High-Cost Alternative Scenarios[a]

[Trust fund reserves (unfunded obligation) as a percentage of annual cost]
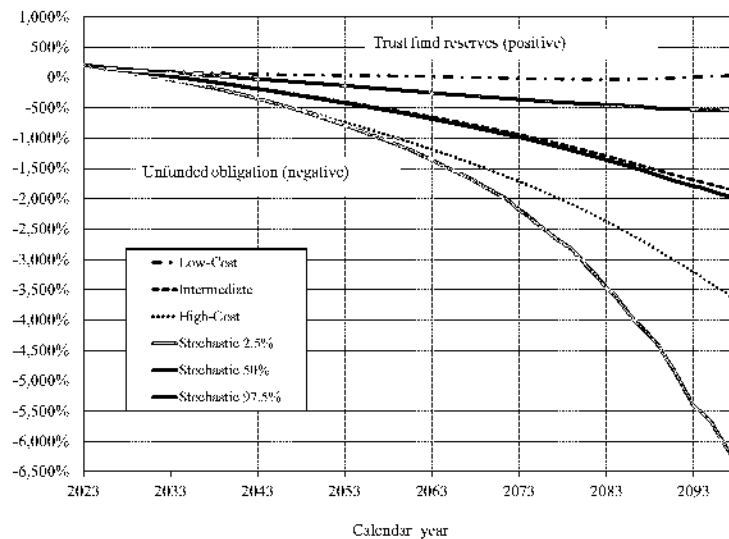
[a] An unfunded obligation, shown as a negative value in this figure, is equivalent to the amount the trust funds would need to have borrowed to date in order to pay all scheduled benefits (on a timely basis) after trust fund reserves are depleted. Note that current law does not permit the trust funds to borrow.

As mentioned above, a summary measure that accumulates annual values tends to smooth the kind of annual fluctuations that occur in stochastic simulations. Therefore, one might expect the range across the stochastic confidence interval for trust fund (unfunded obligation) ratios to be narrower and fall within the range seen across the high-cost and low-cost alternative scenarios, as it does for the actuarial balance measure. But this is not the case, largely due to the way interest rates are assigned.

For the stochastic model, real interest rates for each simulation are assigned to be essentially independent of other variables, so the rate for compounding of trust fund reserves (unfunded obligations) is essentially uncorrelated with the level of cost as a percent of payroll. On the other hand, real interest rates are assigned to be higher for the low-cost alternative scenario and lower for the high-cost alternative scenario. High interest rates raise the level of the positive trust fund ratio in the low-cost alternative scenario somewhat, but this effect is limited because the magnitude of reserves is small. However, low interest rates substantially reduce the magnitude of the unfunded obligation ratio for the high-cost alternative scenario because the magnitude of

unfunded obligations is relatively large. As a result, the trust fund (unfunded obligation) ratios are shifted, albeit unevenly, higher (or less negative) for both the high-cost and low-cost alternative scenarios relative to those of the stochastic simulations.

This interest rate effect on the alternative scenarios is not as evident for some other summary measures of actuarial status, such as the actuarial balance. Because the actuarial balance reflects the cumulative effects of interest in both its numerator and denominator, the interest rate effect is much less pronounced. In contrast, cumulative interest affects only the numerator of the trust fund (unfunded obligation) ratio. There is also no significant interest rate effect on the trust fund depletion date.

Other factors also contribute, to varying degrees, to the difference in ranges between the results of the alternative scenarios and the stochastic simulations. The contrasts in results and methods do not mean that either approach to illustrating ranges of uncertainty is superior to the other. The ranges are different and explainable.

Table VI.E1 displays long-range actuarial estimates for the combined OASDI program using the two methods of illustrating uncertainty: alternative scenarios and stochastic simulations. The table shows scenario-based estimates for the intermediate, low-cost, and high-cost assumptions. It also shows stochastic estimates for the median (50th percentile) and for the 80-percent and 95-percent confidence intervals. Each individual stochastic estimate in the table is the level at that percentile from the distribution of the 5,000 simulations. For each given percentile, the values in the table for each long-range actuarial measure are generally from different stochastic simulations.

The median stochastic estimates displayed in table VI.E1 are similar to the intermediate scenario-based estimates. The median estimate of the long-range actuarial balance is -3.69 percent of taxable payroll, about 0.08 percentage point lower (more negative) than projected in the intermediate scenario. The median estimate for the open-group unfunded obligation is $22.8 trillion, about $0.4 trillion larger than the $22.4 trillion estimate in the intermediate scenario. The median first projected year for which cost exceeds non-interest income (as it did in 2010 through 2022), and remains in excess of non-interest income throughout the remainder of the long-range period, is 2023. This is the same year as projected in the intermediate scenario. The median projected date at which trust fund reserves first become depleted is late in 2033; the reserve depletion date for the intermediate scenario is mid-2034. The median estimates of the annual cost rate for the 75th year of the projection period are 18.25 percent of taxable payroll and

6.14 percent of gross domestic product (GDP). The comparable estimates in the intermediate scenario are 17.75 percent of payroll and 5.98 percent of GDP.

For three measures in table VI.E1 (the actuarial balance, the first projected year cost exceeds non-interest income and remains in excess through 2097, and the first year trust fund reserves become depleted), the 95-percent stochastic confidence interval falls within the range defined by the low-cost and high-cost scenarios. For the remaining three measures (the open-group unfunded obligation, the annual cost in the 75th year as a percent of taxable payroll, and the annual cost in the 75th year as a percent of GDP), one or both of the bounds of the 95-percent stochastic confidence interval fall outside the range defined by the low-cost and high-cost scenarios.

Table VI.E1.—Long-Range Estimates Relating to the Actuarial Status of the Combined OASDI Program

|Comparison of scenario-based and stochastic results|

	Traditional scenario-based model			Stochastic model					
				Median	80-percent confidence interval		95-percent confidence interval	
	Interme-diate	Low-cost	High-cost	50th percentile	10th percentile	90th percentile	2.5th percentile	97.5th percentile
Actuarial balance	-3.61	-0.10	-8.37	-3.69	-5.75	-2.03	-7.17	-1.18
Open-group unfunded obligation (in trillions)	$22.4	-$.4	$42.9	$22.8	$10.5	$44.3	$5.8	$60.9
First projected year cost exceeds non-interest income and remains in excess through 2097.	2023	a	2023	2023	2023	2023	2023	a
First year trust fund reserves become depleted [b]	2034	2067	2031	2033	2032	2037	2031	2040
Annual cost in 75th year (percent of taxable payroll)	17.75	12.34	27.48	18.25	14.29	23.89	12.52	27.93
Annual cost in 75th year (percent of GDP).	5.98	4.52	8.54	6.14	4.84	7.97	4.25	9.21

[a] Cost is projected to exceed non-interest income for a temporary period, before falling below non-interest income by the end of the projection period.

[b] For the low-cost scenario and for some stochastic simulations, the first year in which trust fund reserves become depleted does not indicate a permanent depletion of reserves.

F. INFINITE HORIZON PROJECTIONS

Another measure of trust fund financial status is the infinite horizon unfunded obligation, which takes account of all past and future annual balances, even those after the next 75 years. The extension of the time period past 75 years assumes that the current law for the OASDI program and the demographic and economic trends used for the 75-year projection continue indefinitely.

Table VI.F1 shows that the OASDI open-group unfunded obligation over the infinite horizon is $65.9 trillion in present value, which is $43.4 trillion larger than for the 75-year period. The $43.4 trillion increment reflects a significant financing gap projected for OASDI for years after 2097 into perpetuity. Of course, the degree of uncertainty associated with estimates increases substantially for years further in the future.

The $65.9 trillion infinite horizon open-group unfunded obligation is equal to 4.6 percent of taxable payroll or 1.4 percent of GDP over the same period. These relative measures of the unfunded obligation over the infinite horizon express its magnitude in relation to the resources potentially available to finance the shortfall.

The summarized shortfalls for the 75-year period and through the infinite horizon both reflect annual cash-flow shortfalls for all years after trust fund reserve depletion. The annual shortfalls after trust fund reserve depletion rise slowly and reflect increases in life expectancy. The summarized shortfalls over the infinite horizon, as percentages of taxable payroll and GDP, are larger than the shortfalls for the 75-year period.

To illustrate the magnitude of the projected infinite horizon shortfall, consider that it could be eliminated with additional revenue equivalent to an immediate increase in the combined payroll tax rate from 12.4 percent to about 17.0 percent,[1] or with cost reductions equivalent to an immediate and permanent reduction in benefits for all current and future beneficiaries by about 26.9 percent.

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[1] While an increase in the payroll tax rate would cause some behavioral changes in earnings and ensuing changes in benefit levels, such changes are not included in the calculations because they are assumed to have roughly offsetting effects on OASDI actuarial status over the infinite horizon.

Table VI.F1.—Unfunded OASDI Obligations Through the Infinite Horizon and the 75-Year Projection Period, Based on Intermediate Assumptions
[Present values as of January 1, 2023; dollar amounts in trillions]

		Expressed as a percentage of future payroll and GDP	
	Present value	Taxable payroll	GDP
Unfunded obligation through the infinite horizon[a]	$65.9	4.6	1.4
Unfunded obligation through 2097[b]	22.4	3.4	1.2

[a] Present value of future cost less future non-interest income, reduced by the amount of trust fund asset reserves at the beginning of 2023. Expressed as a percentage of payroll and GDP for the period 2023 through the infinite horizon.

[b] Present value of future cost less future non-interest income through 2097, reduced by the amount of trust fund reserves at the beginning of 2023. Expressed as a percentage of payroll and GDP for the period 2023 through 2097.

Notes:
1. The present values of future taxable payroll for 2023-97 and for 2023 through the infinite horizon are $655.0 trillion and $1,439.1 trillion, respectively.
2. The present values of GDP for 2023-97 and for 2023 through the infinite horizon are $1,865.3 trillion and $4,612.7 trillion, respectively. Present values of GDP shown in the Medicare Trustees Report differ slightly due to the use of discount rates that are specific to each program's trust fund holdings.

Last year, the Trustees projected that the infinite horizon unfunded obligation was $61.8 trillion in present value discounted to January 1, 2022. If the assumptions, methods, and starting values had not changed, moving the valuation date forward by 1 year to January 1, 2023 would have discounted future values by 1 year less, thus increasing the measured unfunded obligation by about $1.4 trillion, to $63.2 trillion. The net effects of changes in assumptions, methods, law, and starting values increased the infinite horizon unfunded obligation by an additional $2.7 trillion. This net increase occurred for a variety of reasons, particularly changes in recent economic data and near-term assumptions, and changes in programmatic data and methods. See section IV.B.6 for details regarding changes in law, data, methods, and assumptions.

Compared to last year's report, the unfunded obligation over the infinite horizon in this year's report increased by 0.1 percentage point as both a share of taxable payroll and a share of GDP. The unfunded obligation over the 75-year projection period increased by 0.2 percentage point as a share of taxable payroll and increased by 0.1 percentage point as a share of GDP.

a. Unfunded Obligations for Past, Current, and Future Participants

Table VI.F2 separates the components of the infinite horizon unfunded obligation (with the exception of General Fund reimbursements) among past, current, and future participants. The table does not separate past General Fund reimbursements among participants because there is no clear basis for attributing the reimbursements across generations.

Past participants are defined as those no longer alive as of the valuation date. Current participants are those age 15 and older as of 2023. Future participants are those under age 15 or not yet born.

The excess of the present value of cost for past and current participants over the present value of dedicated tax income for past and current participants produces an unfunded obligation for past and current participants of $49.1 trillion. Table VI.F2 also shows an unfunded obligation of $48.4 trillion for past and current participants, including past and future General Fund reimbursements. Future participants are scheduled to pay dedicated taxes of $17.5 trillion less into the system than the cost of their scheduled benefits ($148.8 trillion of dedicated tax income as compared to $166.3 trillion of cost). The unfunded obligation for all participants through the infinite horizon thus equals $65.9 trillion.

Making Social Security solvent over the infinite horizon requires some combination of increased revenue or reduced benefits for current and future participants amounting to $65.9 trillion in present value, 4.6 percent of future taxable payroll, or 1.4 percent of future GDP.

Table VI.F2.—Present Values Through the Infinite Horizon
for Various Categories of Program Participants, Based on Intermediate Assumptions
[Present values as of January 1, 2023; dollar amounts in trillions]

	Present value	Expressed as a percentage of future payroll and GDP	
		Taxable payroll	GDP
Present value of past cost	$76.4	5.3	1.7
Less present value of past dedicated tax income	78.5	5.5	1.7
Plus present value of future cost for current participants	95.7	6.6	2.1
Less present value of future dedicated tax income for current participants	44.4	3.1	1.0
Equals unfunded obligation for past and current participants excluding General Fund reimbursements	49.1	3.4	1.1
Less present value of past General Fund reimbursements[a]	.7	b	c
Less present value of future General Fund reimbursements through the infinite horizon[a]	d	b	c
Equals unfunded obligation for past and current participants including General Fund reimbursements	48.4	3.4	1.0
Plus present value of cost for future participants through the infinite horizon	166.3	11.6	3.6
Less present value of dedicated tax income for future participants through the infinite horizon	148.8	10.3	3.2
Equals unfunded obligation for all participants through the infinite horizon	65.9	4.6	1.4

[a] Distribution of General Fund reimbursements among past, current, and future participants cannot be determined.

[b] Less than 0.05 percent of taxable payroll.

[c] Less than 0.05 percent of GDP.

[d] Less than $50 billion.

Notes:

1. The present value of future taxable payroll for 2023 through the infinite horizon is $1,439.1 trillion.

2. The present value of GDP for 2023 through the infinite horizon is $4,612.7 trillion.

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

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G. ESTIMATES FOR OASDI AND HI, SEPARATE AND COMBINED

In this appendix, the Trustees present long-range actuarial estimates for the OASDI and Hospital Insurance (HI) programs both separately and on a combined basis. These estimates facilitate analysis of the adequacy of the income and asset reserves of these programs relative to their cost under current law. This appendix does not include estimates for the Supplementary Medical Insurance (SMI) program because adequate financing is guaranteed in the law and because the SMI program is not financed through a payroll tax. For more information on Medicare estimates, please see the 2023 Medicare Trustees Report.

The information in this appendix on combined operations, while significant, should not obscure the analysis of the financial status of the individual trust funds, which are legally separate and cannot be commingled. In addition, the factors which determine the costs of the OASI, DI, and HI programs differ substantially.

1. Estimates as a Percentage of Taxable Payroll

Comparing cost and income rates for the OASDI and HI programs as percentages of taxable payroll requires a note of caution. The taxable payrolls for the HI program are larger than those for the OASDI program because: (1) a larger maximum taxable amount was established for the HI program in 1991, with the maximum eliminated altogether for the HI program in 1994; (2) larger proportions of Federal, State, and local government employees are covered under the HI program; and (3) the earnings of railroad workers are included directly in the HI taxable payroll but are not included in the OASDI taxable payroll. (Railroad worker contributions for the equivalent of OASDI benefits are accounted for in a net interchange that occurs annually between the OASDI and Railroad Retirement programs.) As a result, the HI taxable payroll is 25 percent larger than the OASDI taxable payroll on average over the long-range period.

As with the OASI and DI Trust Funds, income to the HI Trust Fund comes primarily from contributions paid by employees, employers, and self-employed persons. Table VI.G1 shows the OASDI and HI contribution rates that are authorized in the Federal Insurance Contributions Act.

Table VI.G1.—Payroll Tax Contribution Rates for the OASDI and HI Programs
[In percent]

Calendar years	Employees and employers, combined[a]		Employees only	Self employed[b]		
	OASDI up to base[c]	HI all earnings[d]	HI over limit[e]	OASDI up to base[c]	HI all earnings[d]	HI over limit[e]
1966	7.70	0.70		5.80	0.35	
1967	7.80	1.00	—	5.90	.50	—
1968	7.60	1.20	—	5.80	.60	—
1969-70	8.40	1.20		6.30	.60	
1971-72	9.20	1.20		6.90	.60	
1973	9.70	2.00		7.00	1.00	
1974-77	9.90	1.80	—	7.00	.90	—
1978	10.10	2.00	—	7.10	1.00	—
1979-80	10.16	2.10		7.05	1.05	
1981	10.70	2.60	—	8.00	1.30	—
1982-83	10.80	2.60	—	8.05	1.30	—
1984[f]	11.40	2.60	—	11.40	2.60	—
1985[f]	11.40	2.70		11.40	2.70	
1986-87[f]	11.40	2.90		11.40	2.90	
1988-89[f]	12.12	2.90	—	12.12	2.90	—
1990-2010[g]	12.40	2.90	—	12.40	2.90	—
2011-2012[h]	10.40	2.90		10.40	2.90	
2013 and later......	12.40	2.90	0.90	12.40	2.90	0.90

[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] The payroll tax on earnings for the OASDI program applies to annual earnings up to a contribution and benefit base indexed to the average wage level. The base is $160,200 for 2023.

[d] Prior to 1994, the payroll tax on earnings for the HI program applied to annual earnings up to a contribution base. The HI contribution base was eliminated beginning in 1994.

[e] Starting with Federal personal income tax returns for tax year 2013, earned income exceeding $200,000 for individual filers and $250,000 for married couples filing jointly is subject to an additional HI tax of 0.9 percent. These income limits are not indexed after 2013.

[f] 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.

[g] 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. The General Fund of the Treasury reimbursed the trust funds for the payroll tax revenue forgone under this law.

[h] Public Law 111-312, Public Law 112-78, and Public Law 112-96 reduced the OASDI payroll tax rate for 2011 and 2012 by 2 percentage points for employees and for self-employed workers. The General Fund of the Treasury reimbursed the trust funds for the payroll tax revenue forgone under these laws.

Table VI.G2 shows the Trustees' estimates of annual income rates and cost rates for the OASDI program and the HI program under the intermediate, low-cost, and high-cost sets of assumptions described earlier in this report. The income rates reflect the payroll tax rates shown in table VI.G1, revenue from taxation of scheduled OASDI benefits for both the OASDI and HI

Trust Funds, and any reimbursements from the General Fund of the Treasury. For the HI program, the income rates also reflect: (1) the additional 0.9-percent tax on employees for relatively high earnings and the portion of total payroll to which the 0.9-percent rate applies, (2) premium revenues, and (3) monies from fraud and abuse control activities. Annual income and cost rates indicate the cash-flow operation of the programs. Therefore, income rates exclude interest earned on trust fund asset reserves. Table VI.G2 also shows annual balances, which are the differences between annual income rates and cost rates.

The Trustees project that the OASDI and HI cost rates will rise generally above current levels under the intermediate and high-cost sets of assumptions. The greatest increase occurs from 2023 to about 2040 under the intermediate and high-cost assumptions for OASDI and the intermediate assumptions for HI, and from 2023 to 2060 under the high-cost assumptions for HI. Under the intermediate assumptions, the OASDI cost rate increases by 22 percent from its current level by 2097, while under the high-cost assumptions, the cost rate increases by 84 percent by 2097. For HI, cost rates increase by 37 percent and 177 percent from 2023 to 2097 under the intermediate and high-cost assumptions, respectively. Under the low-cost assumptions, the OASDI and HI cost rates decrease from 2023 to 2097 by 14 percent and 36 percent, respectively.

The Trustees project annual deficits for every year of the projection period for both the OASDI and HI programs under the high-cost assumptions and for OASDI under the intermediate assumptions. Under the intermediate assumptions, HI annual balances are projected to be positive in 2023 and 2024 and negative and decreasing from 2025 through 2044. Thereafter, HI annual balances slowly increase (become less negative). Under the low-cost assumptions, OASDI annual balances are negative through 2081, and are positive and mostly increasing thereafter, reaching 0.74 percent of payroll for 2097. HI annual balances as a percent of payroll are positive and mostly increasing throughout the projection period under the low-cost assumptions, reaching 2.24 percent of HI taxable payroll by 2097.

**Table VI.G2.—OASDI and HI Annual Income Rates, Cost Rates, and Balances,
Calendar Years 2023-2100**
[As a percentage of taxable payroll[a]]

	OASDI			HI		
Calendar year	Income rate	Cost rate[b]	Balance[b]	Income rate	Cost rate	Balance
Intermediate:						
2023	13.29	14.53	-1.24	3.43	3.40	0.03
2024	12.89	14.87	-1.98	3.44	3.41	.02
2025	12.97	15.04	-2.07	3.45	3.50	-.05
2026	13.08	15.23	-2.15	3.52	3.59	-.07
2027	13.09	15.38	-2.29	3.55	3.70	-.15
2028	13.13	15.55	-2.42	3.57	3.81	-.24
2029	13.16	15.72	-2.56	3.60	3.93	-.33
2030	13.18	15.87	-2.69	3.62	4.02	-.40
2031	13.21	16.00	-2.79	3.65	4.11	-.46
2032	13.24	16.14	-2.91	3.68	4.22	-.54
2035	13.27	16.48	-3.21	3.75	4.50	-.75
2040	13.30	16.78	-3.48	3.83	4.71	-.89
2045	13.31	16.86	-3.55	3.89	4.81	-.92
2050	13.32	16.99	-3.67	3.96	4.83	-.87
2055	13.34	17.23	-3.89	4.03	4.81	-.78
2060	13.37	17.62	-4.24	4.11	4.81	-.70
2065	13.40	17.95	-4.54	4.18	4.85	-.66
2070	13.42	18.23	-4.81	4.26	4.89	-.64
2075	13.44	18.46	-5.02	4.32	4.92	-.60
2080	13.45	18.47	-5.02	4.37	4.90	-.54
2085	13.43	18.23	-4.79	4.40	4.85	-.45
2090	13.41	17.89	-4.48	4.43	4.77	-.35
2095	13.40	17.74	-4.34	4.45	4.69	-.24
2100	13.41	17.83	-4.42	4.49	4.60	-.12
Low-cost:						
2023	13.22	14.34	-1.12	3.42	3.30	.12
2024	12.90	14.27	-1.38	3.42	3.19	.23
2025	12.93	14.15	-1.22	3.43	3.21	.23
2026	13.02	14.11	-1.08	3.50	3.22	.27
2027	13.03	14.05	-1.03	3.52	3.25	.26
2028	13.05	14.02	-.97	3.54	3.28	.25
2029	13.07	14.00	-.93	3.56	3.32	.24
2030	13.09	13.97	-.88	3.58	3.33	.25
2031	13.10	13.93	-.82	3.60	3.33	.27
2032	13.11	13.90	-.78	3.63	3.35	.28
2035	13.13	13.90	-.77	3.69	3.36	.34
2040	13.14	13.80	-.66	3.78	3.18	.60
2045	13.13	13.56	-.43	3.85	2.94	.91
2050	13.13	13.39	-.27	3.92	2.68	1.25
2055	13.13	13.38	-.25	4.00	2.46	1.54
2060	13.15	13.51	-.36	4.08	2.32	1.75
2065	13.16	13.58	-.42	4.14	2.25	1.89
2070	13.16	13.58	-.42	4.20	2.23	1.97
2075	13.16	13.53	-.37	4.25	2.24	2.01
2080	13.14	13.27	-.12	4.28	2.24	2.05
2085	13.12	12.83	.29	4.30	2.21	2.09
2090	13.09	12.41	.68	4.32	2.18	2.14
2095	13.08	12.30	.78	4.35	2.14	2.21
2100	13.09	12.45	.64	4.39	2.01	2.38

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Appendices

**Table VI.G2.—OASDI and HI Annual Income Rates, Cost Rates, and Balances,
Calendar Years 2023-2100 (Cont.)**

[As a percentage of taxable payroll[a]]

Calendar year	OASDI			HI		
	Income rate	Cost rate[b]	Balance[b]	Income rate	Cost rate	Balance
High-cost:						
2023	13.41	14.91	-1.49	3.43	3.55	-0.12
2024	12.82	15.61	-2.79	3.45	3.67	-.22
2025	13.02	16.04	-3.02	3.47	3.83	-.35
2026	13.13	16.30	-3.17	3.55	3.99	-.44
2027	13.15	16.58	-3.42	3.58	4.18	-.60
2028	13.20	16.94	-3.74	3.61	4.39	-.78
2029	13.24	17.31	-4.07	3.64	4.61	-.97
2030	13.28	17.69	-4.41	3.67	4.80	-1.13
2031	13.32	18.05	-4.73	3.71	5.00	-1.29
2032	13.36	18.43	-5.07	3.75	5.22	-1.48
2035	13.41	19.24	-5.83	3.82	5.88	-2.06
2040	13.48	20.24	-6.76	3.91	6.75	-2.84
2045	13.52	21.00	-7.48	3.98	7.58	-3.60
2050	13.58	21.81	-8.23	4.06	8.40	-4.34
2055	13.63	22.69	-9.06	4.14	9.06	-4.92
2060	13.70	23.68	-9.98	4.23	9.62	-5.39
2065	13.77	24.60	-10.83	4.31	10.06	-5.74
2070	13.83	25.52	-11.69	4.40	10.33	-5.93
2075	13.89	26.43	-12.53	4.48	10.39	-5.92
2080	13.94	27.12	-13.18	4.55	10.36	-5.81
2085	13.97	27.51	-13.53	4.61	10.24	-5.63
2090	13.98	27.56	-13.58	4.65	10.08	-5.43
2095	13.98	27.50	-13.52	4.68	9.92	-5.23
2100	13.98	27.51	-13.53	4.72	10.22	-5.50

[a] The taxable payroll for HI is significantly larger than the taxable payroll for OASDI because the HI taxable maximum amount was eliminated beginning in 1994, and because HI covers all Federal civilian employees, all State and local government employees hired after April 1, 1986, and railroad employees.

[b] OASDI benefit payments which were scheduled to be paid on January 3 for some past and future years were actually paid on December 31 as required by the statutory provision for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. For comparability with the values for historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year.

Notes:

1. The income rate excludes interest income.

2. The Trustees show income and cost estimates generally on a cash basis for the OASDI program and on an incurred basis for the HI program.

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

Table VI.G3 shows summarized values over the 25-year, 50-year, and 75-year valuation periods. For each of those periods, the summarized income rates include beginning trust fund asset reserves, and the summarized cost rates include the cost of accumulating an ending fund reserve equal to 100 percent of annual cost at the end of the period.

Table VI.G3.—Summarized OASDI and HI Income Rates and Cost Rates for Valuation Periods,[a] Calendar Years 2023-2097

[As a percentage of taxable payroll[b]]

Valuation period	OASDI			HI		
	Income rate	Cost rate[c]	Actuarial balance	Income rate	Cost rate	Actuarial balance
Intermediate:						
25-year:						
2023-47......	14.34	16.85	-2.50	3.77	4.48	-0.70
50-year:						
2023-72......	13.90	17.14	-3.24	3.92	4.63	-.70
75-year:						
2023-97......	13.78	17.38	-3.61	4.05	4.67	-.62
Low-cost:						
25-year:						
2023-47......	14.10	14.42	-.31	3.73	3.32	.42
50-year:						
2023-72......	13.65	13.94	-.29	3.89	2.86	1.04
75-year:						
2023-97......	13.49	13.59	-.10	4.02	2.65	1.37
High-cost:						
25-year:						
2023-47......	14.60	19.49	-4.89	3.84	5.98	-2.15
50-year:						
2023-72......	14.22	21.18	-6.97	4.00	7.46	-3.46
75-year:						
2023-97......	14.16	22.52	-8.37	4.14	8.08	-3.94

[a] Income rates include beginning trust fund asset reserves and cost rates include the cost of reaching an ending target trust fund equal to 100 percent of annual cost at the end of the period.

[b] The taxable payroll for HI is significantly larger than the taxable payroll for OASDI because the HI taxable maximum amount was eliminated beginning 1994, and because HI covers all Federal civilian employees, all State and local government employees hired after April 1, 1986, and railroad employees.

[c] OASDI benefit payments which were scheduled to be paid on January 3 for some past and future years were actually paid on December 31 as required by the statutory provision for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. For comparability with the values for historical years and the projections in this report. all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year.

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

The Trustees project that the OASDI and HI programs will each experience large actuarial deficits for the 25-year, 50-year, and 75-year valuation periods under the high-cost assumptions. Actuarial deficits under the intermediate assumptions are smaller than those for the high-cost assumptions for all three valuation periods. Under the low-cost assumptions, the OASDI program has relatively small actuarial deficits for all three valuation periods, while the HI program has positive actuarial balances for all three valuation periods.

2. Estimates as a Percentage of Gross Domestic Product

This section presents long-range projections of the operations of the combined Old-Age and Survivors Insurance and Disability Insurance (OASI and DI) Trust Funds and of the Hospital Insurance (HI) Trust Fund, expressed as a percentage of gross domestic product (GDP). While expressing fund operations as a percentage of taxable payroll is a very useful approach for assessing the financial status of the programs (see section IV.B.1), expressing them as a percentage of the total value of goods and services produced in the United States provides an additional perspective.

Table VI.G4 shows non-interest income, total cost, and the resulting balance of the combined OASI and DI Trust Funds, of the HI Trust Fund, and of the combined OASI, DI, and HI Trust Funds, expressed as percentages of GDP on the basis of each of the three alternative sets of assumptions. Table VI.G4 also contains estimates of GDP. For OASDI, non-interest income consists of payroll tax contributions, proceeds from taxation of scheduled OASDI benefits, and any reimbursements from the General Fund of the Treasury. Cost consists of scheduled benefits, administrative expenses, financial interchange with the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries. For HI, non-interest income consists of payroll tax contributions (including contributions from railroad employment), up to an additional 0.9 percent tax on earned income for relatively high earners, proceeds from taxation of scheduled OASDI benefits, premium revenues, monies from fraud and abuse control activities, and any reimbursements from the General Fund of the Treasury. Cost consists of outlays (benefits and administrative expenses) for beneficiaries. The Trustees show income and cost estimates generally on a cash basis for the OASDI program[1] and on an incurred basis for the HI program.

The Trustees project the OASDI annual balance (non-interest income less cost) as a percentage of GDP to be negative throughout the projection period under the intermediate and high-cost assumptions. Under the low-cost assumptions, the OASDI annual deficit as a percentage of GDP increases from 2023 to 2024, and then generally decreases through 2053. After 2053, the annual deficits slightly increase through 2067 and then decrease through 2081 before becoming positive for 2082 and later. Under the intermediate assumptions, the OASDI annual deficits as a percentage of GDP increase

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[1] OASDI benefits paid for entitlement for a particular month are generally paid in the succeeding month. There are two primary exceptions to this general rule. First, payments can occur with a greater delay when a benefit award is made after the month of initial benefit entitlement. At the time of benefit award, benefits owed for months of prior entitlement are then also paid to the beneficiary. For the projections in this report, such retroactive payments are included in the period where they are paid (at time of award). Second, when benefit payments scheduled for January 3 are paid on the prior December 31, because January 3 falls on a Sunday, such payments are shown in this report for the period they were scheduled to be paid.

from 2023 through 2077, and generally decrease thereafter. Under the high-cost assumptions, annual deficits increase relatively rapidly through 2086, and then slightly decrease through the end of the projection period.

The Trustees project that the HI annual balance as a percentage of GDP will be positive and mostly increasing throughout the projection period, under the low-cost assumptions. Under the intermediate assumptions, the HI annual balance is positive in 2023 and 2024 and negative in 2025. After 2025, annual deficits increase through 2044, and then decline thereafter. Under the high-cost assumptions, the HI annual balance is negative for all years, with annual deficits reaching a peak in 2070 and declining thereafter.

The combined OASDI and HI annual balance as a percentage of GDP is negative throughout the projection period under both the intermediate and high-cost assumptions. Under the low-cost assumptions, the combined OASDI and HI annual balance is negative through 2039, and then positive and mostly rising thereafter. Under the intermediate assumptions, the combined OASDI and HI annual deficits generally increase through 2076 and then decline thereafter, reaching 1.55 percent of GDP by 2097. Under the high-cost assumptions, combined annual deficits rise to a peak of 6.63 percent in 2081 and decrease thereafter.

By 2097, the combined OASDI and HI annual balances as percentages of GDP range from a positive annual balance of 1.28 percent for the low-cost assumptions to an annual deficit of 6.24 percent for the high-cost assumptions. Annual balances differ by a much smaller amount for the tenth projection year, 2032, ranging from an annual deficit of 0.16 percent for the low-cost assumptions to an annual deficit of 2.48 percent for the high-cost assumptions.

The summarized long-range (75-year) actuarial balance as a percentage of GDP for the combined OASDI and HI programs varies among the three alternatives by a relatively large amount, from a positive actuarial balance of 0.58 percent under the low-cost assumptions to an actuarial deficit of 4.54 percent under the high-cost assumptions. The 25-year summarized actuarial balance varies by a smaller amount, from a positive actuarial balance of 0.07 percent of GDP to an actuarial deficit of 2.70 percent. Summarized rates are calculated on a present-value basis. They include the trust fund reserve balances on January 1, 2023 and the cost of reaching a target trust fund level equal to 100 percent of the following year's annual cost at the end of the period. (See section IV.B.4 for further explanation.)

Table VI.G4.—OASDI and HI Annual and Summarized Income, Cost, and Balance as a Percentage of GDP, Calendar Years 2023-2100

| | Percentage of GDP | | | | | | | | | GDP in dollars (billions) |
| | OASDI | | | HI | | | Combined | | | |
Calendar year	Income[a]	Cost[b]	Balance[b]	Income[a]	Cost	Balance	Income[a]	Cost[b]	Balance[b]	
Intermediate:										
2023	4.77	5.22	-0.45	1.53	1.52	0.01	6.30	6.74	-0.44	$26,592
2024	4.65	5.37	-.72	1.54	1.53	.01	6.19	6.90	-.71	27,655
2025	4.70	5.45	-.75	1.55	1.58	-.02	6.25	7.02	-.77	28,902
2026	4.74	5.52	-.78	1.59	1.62	-.03	6.34	7.15	-.81	30,177
2027	4.76	5.59	-.83	1.61	1.68	-.07	6.37	7.27	-.90	31,478
2028	4.78	5.66	-.88	1.62	1.73	-.11	6.40	7.39	-.99	32,778
2029	4.80	5.73	-.93	1.64	1.79	-.15	6.43	7.52	-1.08	34,125
2030	4.81	5.79	-.98	1.65	1.83	-.18	6.46	7.62	-1.16	35,521
2031	4.82	5.84	-1.02	1.67	1.88	-.21	6.49	7.72	-1.23	36,976
2032	4.82	5.88	-1.06	1.68	1.93	-.25	6.50	7.81	-1.31	38,487
2035	4.81	5.97	-1.16	1.70	2.04	-.34	6.51	8.01	-1.50	43,392
2040	4.78	6.03	-1.25	1.72	2.12	-.40	6.50	8.15	-1.65	52,850
2045	4.74	6.01	-1.27	1.74	2.15	-.41	6.48	8.15	-1.68	64,333
2050	4.71	6.01	-1.30	1.75	2.14	-.39	6.46	8.14	-1.68	78,438
2055	4.68	6.05	-1.37	1.77	2.11	-.34	6.46	8.16	-1.71	95,785
2060	4.66	6.14	-1.48	1.80	2.10	-.31	6.46	8.25	-1.79	116,988
2065	4.64	6.22	-1.58	1.82	2.10	-.29	6.46	8.32	-1.86	142,731
2070	4.63	6.28	-1.66	1.84	2.11	-.28	6.47	8.40	-1.93	173,850
2075	4.61	6.33	-1.72	1.86	2.12	-.26	6.47	8.45	-1.98	211,710
2080	4.59	6.30	-1.71	1.87	2.10	-.23	6.46	8.40	-1.94	258,358
2085	4.57	6.20	-1.63	1.88	2.07	-.19	6.44	8.26	-1.82	316,227
2090	4.54	6.06	-1.52	1.88	2.03	-.15	6.42	8.09	-1.66	387,813
2095	4.52	5.99	-1.46	1.88	1.99	-.10	6.41	7.97	-1.57	475,384
2100	4.51	5.99	-1.48	1.89	1.94	-.05	6.40	7.93	-1.53	581,611
Summarized rates: [c]										
25-year:										
2023-47 ..	5.18	6.08	-.90	1.70	2.02	-.32	6.88	8.10	-1.22	
50-year:										
2023-72 ..	4.94	6.09	-1.15	1.75	2.06	-.31	6.69	8.15	-1.46	
75-year:										
2023-97 ..	4.84	6.10	-1.27	1.78	2.05	-.27	6.62	8.16	-1.54	
Low-cost:										
2023	4.72	5.13	-.40	1.52	1.47	.05	6.24	6.59	-.35	27,042
2024	4.63	5.13	-.49	1.53	1.43	.10	6.16	6.56	-.39	28,782
2025	4.67	5.11	-.44	1.54	1.44	.10	6.21	6.55	-.34	30,730
2026	4.73	5.12	-.39	1.58	1.46	.12	6.31	6.58	-.27	32,533
2027	4.76	5.14	-.38	1.59	1.47	.12	6.35	6.61	-.26	34,356
2028	4.79	5.15	-.36	1.61	1.49	.11	6.40	6.64	-.24	36,241
2029	4.82	5.16	-.34	1.62	1.51	.11	6.44	6.67	-.23	38,217
2030	4.84	5.17	-.33	1.63	1.52	.12	6.48	6.69	-.21	40,290
2031	4.86	5.17	-.31	1.65	1.52	.12	6.51	6.69	-.18	42,475
2032	4.88	5.17	-.29	1.66	1.53	.13	6.54	6.70	-.16	44,755
2035	4.87	5.15	-.29	1.68	1.53	.15	6.55	6.68	-.13	52,381
2040	4.84	5.09	-.24	1.71	1.44	.27	6.55	6.53	.03	67,898
2045	4.81	4.97	-.16	1.74	1.32	.41	6.55	6.29	.26	88,210
2050	4.79	4.89	-.10	1.76	1.20	.56	6.56	6.09	.46	115,112
2055	4.78	4.87	-.09	1.79	1.10	.69	6.57	5.97	.60	150,549
2060	4.78	4.91	-.13	1.82	1.04	.78	6.60	5.95	.65	196,798
2065	4.78	4.93	-.15	1.85	1.00	.84	6.62	5.93	.69	256,786
2070	4.78	4.93	-.15	1.87	1.00	.88	6.65	5.93	.72	334,496
2075	4.78	4.91	-.13	1.90	1.00	.89	6.67	5.91	.76	436,091
2080	4.78	4.82	-.05	1.91	1.00	.91	6.69	5.82	.87	570,560

Table VI.G4.—OASDI and HI Annual and Summarized Income, Cost, and Balance as a Percentage of GDP, Calendar Years 2023-2100 (Cont.)

Calendar year	Percentage of GDP									GDP in dollars (billions)
	OASDI			HI			Combined			
	Income[a]	Cost[b]	Balance[b]	Income[a]	Cost	Balance	Income[a]	Cost[b]	Balance[b]	
Low-cost (Cont.):										
2085	4.78	4.67	0.10	1.93	0.99	0.94	6.70	5.66	1.04	$749,476
2090	4.78	4.53	.25	1.94	.98	.96	6.71	5.51	1.21	985,569
2095	4.78	4.50	.28	1.95	.96	.99	6.74	5.46	1.28	1,292,776
2100	4.80	4.56	.23	1.98	.91	1.07	6.77	5.47	1.31	1,690,135
Summarized rates: [c]										
25-year:										
2023-47 . .	5.19	5.30	-.12	1.69	1.50	.19	6.88	6.80	.07	
50-year:										
2023-72 . .	4.99	5.10	-.11	1.75	1.29	.47	6.75	6.39	.36	
75-year:										
2023-97 . .	4.93	4.97	-.04	1.81	1.19	.61	6.74	6.16	.58	
High-cost:										
2023	4.83	5.37	-.54	1.53	1.58	-.05	6.36	6.95	-.59	25,892
2024	4.61	5.62	-1.01	1.54	1.64	-.10	6.15	7.26	-1.10	26,696
2025	4.68	5.77	-1.09	1.56	1.72	-.16	6.24	7.48	-1.24	27,746
2026	4.73	5.87	-1.14	1.60	1.80	-.20	6.33	7.67	-1.34	28,771
2027	4.74	5.97	-1.23	1.62	1.89	-.27	6.36	7.87	-1.51	29,762
2028	4.76	6.11	-1.35	1.64	1.99	-.35	6.40	8.10	-1.70	30,614
2029	4.77	6.24	-1.47	1.66	2.10	-.44	6.43	8.33	-1.91	31,452
2030	4.78	6.36	-1.59	1.67	2.19	-.51	6.45	8.55	-2.10	32,320
2031	4.78	6.47	-1.70	1.69	2.28	-.59	6.47	8.75	-2.29	33,222
2032	4.77	6.58	-1.81	1.71	2.38	-.67	6.48	8.96	-2.48	34,138
2035	4.76	6.82	-2.07	1.73	2.66	-.93	6.48	9.48	-3.00	37,070
2040	4.73	7.10	-2.37	1.75	3.02	-1.27	6.47	10.12	-3.64	42,423
2045	4.69	7.28	-2.59	1.76	3.36	-1.59	6.45	10.64	-4.19	48,300
2050	4.66	7.48	-2.82	1.78	3.68	-1.90	6.43	11.15	-4.72	54,825
2055	4.62	7.69	-3.07	1.79	3.92	-2.13	6.41	11.62	-5.20	62,192
2060	4.60	7.94	-3.35	1.81	4.12	-2.31	6.41	12.06	-5.65	70,544
2065	4.57	8.16	-3.59	1.83	4.26	-2.44	6.40	12.43	-6.03	79,912
2070	4.54	8.38	-3.84	1.84	4.33	-2.49	6.38	12.71	-6.33	90,302
2075	4.51	8.59	-4.07	1.86	4.32	-2.46	6.37	12.90	-6.53	101,834
2080	4.48	8.72	-4.24	1.87	4.26	-2.39	6.35	12.98	-6.63	114,766
2085	4.45	8.75	-4.31	1.88	4.17	-2.29	6.32	12.92	-6.60	129,504
2090	4.40	8.68	-4.28	1.88	4.07	-2.19	6.28	12.75	-6.47	146,448
2095	4.36	8.58	-4.22	1.87	3.96	-2.09	6.23	12.54	-6.31	165,801
2100	4.32	8.50	-4.18	1.87	4.04	-2.18	6.19	12.54	-6.36	187,740
Summarized rates: [c]										
25-year:										
2023-47 . .	5.18	6.91	-1.74	1.73	2.69	-.97	6.90	9.60	-2.70	
50-year:										
2023-72 . .	4.92	7.33	-2.41	1.76	3.28	-1.52	6.68	10.62	-3.93	
75-year:										
2023-97 . .	4.80	7.64	-2.84	1.79	3.49	-1.70	6.59	11.14	-4.54	

[a] Income for individual years excludes interest on the trust funds. Interest is implicit in all summarized values.

[b] OASDI benefit payments which were scheduled to be paid on January 3 for some past and future years were actually paid on December 31 as required by the statutory provision for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. For comparability with the values for historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year.

[c] Summarized rates are calculated on a present-value basis. They include the value of the trust funds on January 1, 2023 and the cost of reaching a target trust fund level equal to 100 percent of annual cost at the end of the period.

Notes:
1. The Trustees show income and cost estimates generally on a cash basis for the OASDI program and on an incurred basis for the HI program.

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

Table VI.G5 displays annual ratios of OASDI taxable payroll to GDP. These ratios facilitate comparisons of trust fund operations expressed as percentages of taxable payroll and those expressed as percentages of GDP. HI taxable payroll is 25 percent larger than the OASDI taxable payroll on average over the long-range period; see section 1 of this appendix for a detailed description of the difference. For each year, the cost as a percentage of GDP is equal to the cost as a percentage of taxable payroll multiplied by the ratio of taxable payroll to GDP.

Table VI.G5.—Ratio of OASDI Taxable Payroll to GDP, Calendar Years 2023-2100

Calendar year	Intermediate	Low-cost	High-cost
2023	0.359	0.357	0.360
2024	.361	.359	.360
2025	.362	.361	.359
2026	.363	.363	.360
2027	.364	.365	.360
2028	.364	.367	.361
2029	.364	.369	.360
2030	.365	.370	.360
2031	.365	.371	.359
2032	.364	.372	.357
2035	.363	.371	.355
2040	.359	.369	.351
2045	.356	.367	.347
2050	.354	.365	.343
2055	.351	.364	.339
2060	.349	.363	.335
2065	.347	.363	.332
2070	.345	.363	.328
2075	.343	.363	.325
2080	.341	.363	.321
2085	.340	.364	.318
2090	.339	.365	.315
2095	.337	.366	.312
2100	.336	.366	.309

Projections of GDP reflect projected increases in U.S. employment, labor productivity, average hours worked, and the GDP price index (GDP deflator). Projections of taxable payroll reflect the components of growth in GDP along with assumed changes in the ratio of total labor compensation to GDP, the ratio of earnings to total labor compensation, the ratio of OASDI covered earnings to total earnings, and the ratio of taxable to total covered earnings.

Over the long-range period, the ratio of OASDI taxable payroll to GDP is projected to decline mostly due to a projected decline in the ratio of wages and salaries to employee compensation. Over the last six complete economic cycles, the ratio of wages and salaries to employee compensation declined at an average annual rate of 0.17 percent. Over the 65-year period ending in 2097, the ratio of wages and salaries to employee compensation is projected to remain the same for the low-cost assumptions and decline at an average annual rate of 0.10, and 0.20 percent for the intermediate and high-cost assumptions, respectively.

3. Estimates in Dollars

This section presents long-range projections, in dollars, of the operations of the combined OASI and DI Trust Funds and in some cases the HI Trust Fund. Comparing current dollar values over long periods of time is difficult because of the effect of inflation. In order to compare dollar values in a meaningful way, table VI.G6 provides several economic series or indices which can be used to adjust current dollars for changes in prices, wages, or other aspects of economic growth during the projection period. Any series of values can be adjusted by dividing the value for each year by the corresponding index value for the year.

One of the most common forms of standardization is price indexing, which uses some measure of change in the prices of consumer goods. The Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W, hereafter referred to as CPI), published by the Bureau of Labor Statistics, Department of Labor, is one such price index. Consistent with the law, the Social Security Administration (SSA) uses this index to determine the annual cost-of-living increases for OASDI monthly benefits. The ultimate annual rate of increase in the CPI is assumed to be 3.0, 2.4, and 1.8 percent for the low-cost, intermediate, and high-cost sets of assumptions, respectively. Table VI.G7 provides CPI-indexed dollar values (those adjusted using the CPI in table VI.G6), which indicate the relative purchasing power of the values over time.

Wage indexing is another type of standardization. It combines the effects of price inflation and real wage growth. The wage index presented here is the national average wage index, as defined in section 209(k)(1) of the Social Security Act. SSA uses this index to annually adjust the contribution and benefit base and other earnings-related program amounts. The average wage is assumed to grow by an average rate of 4.8, 3.6, and 2.4 percent under the low-cost, intermediate, and high-cost assumptions, respectively, between 2032 and 2097. Wage-indexed values indicate the level of a series of values relative to the changing standard of living of workers over time.

The taxable payroll series is used as an index to adjust for the effects of changes in the number of workers and changes in the proportion of earnings that are taxable, as well as for the effects of price inflation and real wage growth. The OASDI taxable payroll consists of all earnings subject to OASDI taxation, with an adjustment for the lower effective tax rate on multiple-employer excess wages. A series of values, divided by the taxable payroll, indicates the percentage of payroll that each value represents, and thus

the extent to which the series of values increases or decreases as a percent of payroll over time.

The GDP series is used as an index to adjust for the growth in the aggregate amount of goods and services produced in the United States. Values adjusted by GDP (see section 2 of this appendix) indicate their relative share of the total output of the economy. No direct assumption is made about growth in taxable payroll or GDP. These series reflect the basic demographic and economic assumptions, as discussed in sections V.A and V.B, respectively.

Discounting at the rate of interest is another way of standardizing current dollars. The compound new-issue interest factor shown in table VI.G6 increases each year by the assumed effective annual nominal yield for special public-debt obligations issuable to the trust funds in the 12 months of the prior year. The compound effective trust-fund interest factor shown in table VI.G6 uses the effective annual yield on all currently-held securities in the combined OASI and DI Trust Funds. The reciprocal of the compound effective trust-fund interest factor approximates the cumulative discount factor used to convert nominal dollar values to present values as of the start of the valuation period in order to create summarized values for this report.

Table VI.G6.—Selected Economic Variables, Calendar Years 2022-2100
[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI[a]	Average wage index	Taxable payroll[b]	Gross domestic product	Compound new-issue interest factor[c]	Compound effective trust-fund interest factor[d]
Intermediate:						
2022........	96.15	$63,467.98	$9,069	$25,422	0.9711	0.9884
2023........	100.00	66,147.17	9,552	26,592	1.0000	1.0117
2024........	102.53	68,627.58	9,986	27,655	1.0357	1.0356
2025........	104.99	71,411.99	10,465	28,902	1.0727	1.0602
2026........	107.51	74,348.48	10,944	30,177	1.1112	1.0862
2027........	110.09	77,393.67	11,443	31,478	1.1530	1.1140
2028........	112.73	80,510.73	11,934	32,778	1.1985	1.1442
2029........	115.44	83,757.03	12,438	34,125	1.2492	1.1768
2030........	118.21	87,106.49	12,954	35,521	1.3051	1.2123
2031........	121.04	90,574.48	13,492	36,976	1.3656	1.2512
2032........	123.95	93,995.33	14,023	38,487	1.4295	1.2946
2035........	133.09	104,726.27	15,730	43,392	1.6429	1.4693
2040........	149.85	125,312.66	18,992	52,850	2.0725	1.8502
2045........	168.71	149,423.47	22,925	64,333	2.6144	2.3337
2050........	189.95	177,750.26	27,736	78,438	3.2980	2.9438
2055........	213.87	211,432.09	33,623	95,785	4.1603	3.7136
2060........	240.79	251,610.19	40,795	116,988	5.2481	4.6846
2065........	271.11	299,758.28	49,472	142,731	6.6204	5.9095
2070........	305.24	357,187.25	59,924	173,850	8.3514	7.4546
2075........	343.67	425,523.96	72,602	211,710	10.5351	9.4038
2080........	386.94	506,962.67	88,194	258,358	13.2897	11.8627
2085........	435.65	603,863.51	107,502	316,227	16.7646	14.9644
2090........	490.50	719,124.11	131,330	387,813	21.1481	18.8772
2095........	552.26	856,091.73	160,374	475,384	26.6778	23.8131
2100........	621.79	1,019,162.94	195,457	581,611	33.6533	30.0396
Low-cost:						
2022........	96.24	63,432.25	9,065	25,463	.9711	.9884
2023........	100.00	66,442.68	9,665	27,042	1.0000	1.0120
2024........	103.02	70,258.88	10,343	28,782	1.0425	1.0369
2025........	106.12	74,575.71	11,089	30,730	1.0886	1.0639
2026........	109.30	78,782.82	11,816	32,533	1.1411	1.0937
2027........	112.58	83,005.63	12,555	34,356	1.2005	1.1276
2028........	115.96	87,405.28	13,307	36,241	1.2672	1.1661
2029........	119.43	92,010.68	14,090	38,217	1.3379	1.2096
2030........	123.02	96,841.91	14,910	40,290	1.4125	1.2586
2031........	126.71	101,915.61	15,771	42,475	1.4915	1.3140
2032........	130.51	107,046.81	16,650	44,755	1.5776	1.3764
2035........	142.61	123,656.58	19,420	52,381	1.8728	1.6083
2040........	165.32	157,054.51	25,023	67,898	2.4925	2.1267
2045........	191.66	198,412.60	32,341	88,210	3.3174	2.8275
2050........	222.18	250,115.49	42,038	115,112	4.4152	3.7630
2055........	257.57	315,518.44	54,815	150,549	5.8762	5.0083
2060........	298.59	398,402.81	71,511	196,798	7.8208	6.6656
2065........	346.15	503,681.03	93,206	256,786	10.4088	8.8714
2070........	401.29	636,729.90	121,376	334,496	13.8533	11.8071
2075........	465.20	804,422.07	158,315	436,091	18.4376	15.7143
2080........	539.29	1,016,051.44	207,395	570,560	24.5389	20.9144
2085........	625.19	1,283,116.99	272,944	749,476	32.6594	27.8354
2090........	724.77	1,619,988.11	359,689	985,569	43.4670	37.0466
2095........	840.20	2,044,788.30	472,758	1,292,776	57.8510	49.3061
2100........	974.03	2,581,302.68	619,206	1,690,135	76.9950	65.6224

Table VI.G6.—Selected Economic Variables, Calendar Years 2022-2100 (Cont.)
[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI[a]	Average wage index	Taxable payroll[b]	Gross domestic product	Compound new-issue interest factor[c]	Compound effective trust-fund interest factor[d]
High-cost:						
2022........	95.64	$63,460.05	$9,067	$25,417	0.9711	0.9884
2023........	100.00	64,726.55	9,322	25,892	1.0000	1.0117
2024........	102.92	67,055.34	9,613	26,696	1.0347	1.0352
2025........	104.83	69,534.32	9,974	27,746	1.0650	1.0589
2026........	106.72	71,952.76	10,360	28,771	1.0951	1.0831
2027........	108.64	74,431.84	10,727	29,762	1.1282	1.1083
2028........	110.60	76,626.52	11,038	30,614	1.1641	1.1346
2029........	112.59	78,738.96	11,334	31,452	1.2018	1.1619
2030........	114.61	80,892.11	11,623	32,320	1.2413	1.1911
2031........	116.68	83,098.17	11,914	33,222	1.2835	1.2216
2032........	118.78	85,191.64	12,189	34,138	1.3290	1.2601
2035........	125.31	91,526.06	13,149	37,070	1.4792	1.4026
2040........	137.00	103,154.86	14,877	42,423	1.7680	1.6765
2045........	149.78	116,129.77	16,748	48,300	2.1134	2.0039
2050........	163.75	130,383.43	18,799	54,825	2.5261	2.3952
2055........	179.03	146,212.61	21,086	62,192	3.0194	2.8630
2060........	195.74	163,914.93	23,657	70,544	3.6092	3.4222
2065........	214.00	183,892.10	26,514	79,912	4.3140	4.0906
2070........	233.96	206,377.12	29,646	90,302	5.1566	4.8895
2075........	255.79	231,654.52	33,081	101,834	6.1637	5.8444
2080........	279.66	260,139.82	36,896	114,766	7.3674	6.9858
2085........	305.75	292,107.05	41,212	129,504	8.8063	8.3501
2090........	334.28	328,026.09	46,140	146,448	10.5262	9.9810
2095........	365.46	368,262.47	51,724	165,801	12.5820	11.9303
2100........	399.56	413,333.48	57,994	187,740	15.0393	14.2603

[a] CPI-W indexed to calendar year 2023.

[b] Total earnings subject to OASDI contribution rates, adjusted to reflect the lower effective contribution rates (compared to the combined employee-employer rate) that apply to multiple-employer "excess wages."

[c] For each alternative, incorporates the average of the assumed annual yield for special public-debt obligations issuable to the trust funds in the 12 months of the prior year.

[d] For each alternative, incorporates the annual effective yield for all outstanding special public-debt obligations held by the trust fund, with a half-year's interest effect in each row. The effective yield for a period equals total interest earned during the period divided by the total exposure to interest on asset reserves and all income and cost items during the period. The reciprocals of the factors approximate the discounting/accumulation factors that are used to calculate summarized rates and balances in this report.

Table VI.G7 shows the operations of the combined OASI and DI Trust Funds in CPI-indexed 2023 dollars—that is, adjusted by the CPI indexing series as discussed above. The following items are presented in the table: (1) non-interest income, (2) interest income, (3) total income, (4) cost, and (5) asset reserves at the end of the year. Non-interest income consists of payroll tax contributions, income from taxation of scheduled OASDI benefits, and any reimbursements from the General Fund of the Treasury. Cost consists of scheduled benefits, administrative expenses, financial interchange with the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries. Table VI.G7 shows trust fund operations under the intermediate, low-cost, and high-cost sets of assumptions.

Table VI.G7.—Operations of the Combined OASI and DI Trust Funds, in CPI-Indexed 2023 Dollars,[a] Calendar Years 2023-2100

[In billions]

Calendar year	Non-interest income	Interest income	Total income	Cost[b]	Asset reserves at end of year[b]
Intermediate:					
2023	$1,269.0	$65.7	$1,334.7	$1,387.9	$2,776.7
2024	1,255.0	62.4	1,317.4	1,448.0	2,577.6
2025	1,293.2	58.6	1,351.8	1,499.5	2,369.5
2026	1,331.5	55.8	1,387.3	1,550.7	2,150.6
2027	1,361.1	53.0	1,414.2	1,598.9	1,915.4
2028	1,390.1	49.3	1,439.4	1,646.7	1,663.3
2029	1,418.1	44.5	1,462.6	1,693.7	1,393.2
2030	1,444.9	38.8	1,483.7	1,739.3	1,105.0
2031	1,472.7	31.9	1,504.6	1,783.8	800.0
2032[c]	1,497.7	23.7	1,521.3	1,826.6	476.0
Low-cost:					
2023	1,277.3	67.4	1,344.8	1,386.0	2,788.7
2024	1,294.7	67.1	1,361.8	1,432.8	2,635.9
2025	1,351.5	67.6	1,419.1	1,479.1	2,499.0
2026	1,407.8	70.4	1,478.3	1,524.9	2,379.6
2027	1,452.7	74.4	1,527.2	1,567.4	2,270.1
2028	1,497.9	78.1	1,575.9	1,609.4	2,170.4
2029	1,542.2	81.3	1,623.5	1,651.5	2,079.2
2030	1,585.9	84.6	1,670.5	1,692.7	1,996.5
2031	1,630.8	88.3	1,719.1	1,733.3	1,924.1
2032	1,673.1	91.5	1,764.6	1,773.1	1,859.5
2035	1,788.0	93.5	1,881.5	1,893.3	1,673.8
2040	1,988.7	80.7	2,069.4	2,088.9	1,362.2
2045	2,215.9	67.0	2,282.9	2,288.0	1,118.0
2050	2,483.7	59.8	2,543.6	2,533.9	987.0
2055	2,794.7	55.1	2,849.8	2,847.0	893.2
2060	3,148.5	43.8	3,192.3	3,235.4	661.5
2065	3,542.4	20.6	3,562.9	3,656.1	220.0
2070	d	d	d	d	d
2075	d	d	d	d	d
2080	d	d	d	d	d
2085	d	d	d	d	d
2090	d	d	d	d	d
2095	7,361.7	93.8	7,455.5	6,923.4	1,719.1
2100	8,324.1	243.3	8,567.4	7,917.5	4,367.9
High-cost:					
2023	1,250.6	65.4	1,316.0	1,390.0	2,755.9
2024	1,197.1	59.3	1,256.3	1,458.1	2,476.0
2025	1,238.4	52.5	1,290.9	1,525.9	2,195.8
2026	1,274.7	46.7	1,321.4	1,582.3	1,896.1
2027	1,298.7	40.7	1,339.5	1,636.6	1,565.4
2028	1,317.4	33.0	1,350.5	1,690.4	1,197.9
2029	1,333.1	24.5	1,357.6	1,742.7	791.6
2030[c]	1,346.7	15.3	1,362.0	1,793.7	346.0

[a] CPI-indexed 2023 dollars equal current dollars adjusted by the CPI indexing series in table VI.G6.

[b] Benefit payments which were scheduled to be paid on January 3 for some past and future years were actually paid on December 31 as required by the statutory provision for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. For comparability with the values for historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year.

[c] The combined OASI and DI Trust Funds become depleted in 2034 under the intermediate assumptions and in 2031 under the high-cost assumptions, so estimates for later years are not shown.

[d] The combined OASI and DI Trust Funds become depleted in 2067 under the low-cost assumptions, but combined asset reserves become positive again by the beginning of 2093 and remain positive through the remainder of the projection period. Estimates are not shown for years in which asset reserves are negative.

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

Figure VI.G1 compares annual cost with annual total income and annual non-interest income. The figure shows only the OASDI program under intermediate assumptions, and presents values in CPI-indexed 2023 dollars, consistent with table VI.G7. The difference between the income values for each year is equal to the trust fund interest earnings. The figure illustrates that, under intermediate assumptions, annual cost exceeds both total income and non-interest income for 2023 through 2034, when trust fund reserves become depleted. Estimates after reserve depletion are not shown. For 2023 through 2033 (the year preceding the year of trust fund reserve depletion), annual cost is covered by drawing down combined trust fund reserves. Note that income for 2023 is relatively high because of an estimated large positive adjustment to payroll tax contributions to be made in June 2023.

Figure VI.G1.—Estimated OASDI Income and Cost in CPI-Indexed 2023 Dollars, Based on Intermediate Assumptions

[In billions]

Calendar year
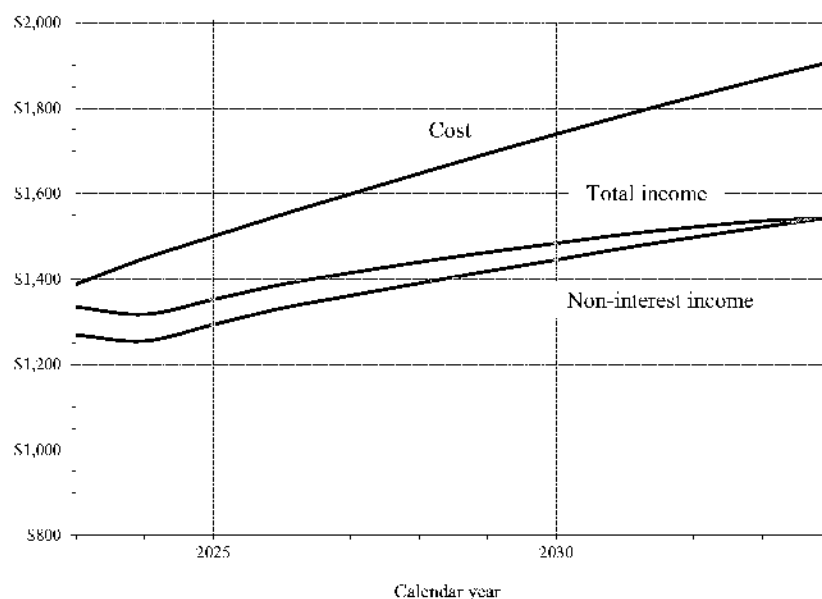
Table VI.G8 presents the operations of the combined OASI and DI Trust Funds in current, or nominal, dollars—that is, in dollars unadjusted for inflation. The following items are presented in the table: (1) non-interest income, (2) interest income, (3) total income, (4) cost, and (5) asset reserves at the end of the year. These estimates are presented using the intermediate, low-cost, and high-cost sets of demographic and economic assumptions to facilitate independent analysis.

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Table VI.G8.—Operations of the Combined OASI and DI Trust Funds,
in Current Dollars, Calendar Years 2023-2100
[In billions]

Calendar year	Non-interest income	Interest income	Total income	Cost[a]	Asset reserves at end of year[a]
Intermediate:					
2023	$1,269.0	$65.7	$1,334.7	$1,387.9	$2,776.7
2024	1,286.7	64.0	1,350.7	1,484.6	2,642.8
2025	1,357.7	61.6	1,419.3	1,574.3	2,487.7
2026	1,431.5	60.0	1,491.5	1,667.2	2,312.0
2027	1,498.5	58.4	1,556.9	1,760.2	2,108.7
2028	1,567.0	55.6	1,622.7	1,856.3	1,875.1
2029	1,637.0	51.4	1,688.4	1,955.2	1,608.3
2030	1,707.9	45.9	1,753.9	2,056.0	1,306.2
2031	1,782.6	38.6	1,821.3	2,159.1	968.3
2032[b]	1,856.3	29.3	1,885.7	2,264.1	589.9
Low-cost:					
2023	1,277.3	67.4	1,344.8	1,386.0	2,788.7
2024	1,333.9	69.1	1,403.0	1,476.1	2,715.6
2025	1,434.1	71.7	1,505.8	1,569.6	2,651.8
2026	1,538.8	77.0	1,615.7	1,666.7	2,600.9
2027	1,635.5	83.8	1,719.2	1,764.5	2,555.6
2028	1,736.8	90.5	1,827.4	1,866.2	2,516.7
2029	1,841.9	97.1	1,939.0	1,972.4	2,483.3
2030	1,950.9	104.1	2,055.1	2,082.3	2,456.0
2031	2,066.4	111.8	2,178.2	2,196.2	2,438.0
2032	2,183.6	119.4	2,302.9	2,314.1	2,426.8
2035	2,549.9	133.3	2,683.2	2,700.0	2,387.0
2040	3,287.8	133.5	3,421.2	3,453.5	2,252.0
2045	4,246.9	128.5	4,375.4	4,385.2	2,142.8
2050	5,518.4	132.9	5,651.4	5,629.9	2,192.9
2055	7,198.4	142.0	7,340.3	7,332.9	2,300.5
2060	9,401.2	130.7	9,531.9	9,660.7	1,975.2
2065	12,262.0	71.2	12,333.2	12,655.7	761.5
2070	c	c	c	c	c
2075	c	c	c	c	c
2080	c	c	c	c	c
2085	c	c	c	c	c
2090	c	c	c	c	c
2095	61,853.4	788.2	62,641.7	58,170.7	14,443.6
2100	81,078.6	2,369.9	83,448.5	77,118.8	42,544.3
High-cost:					
2023	1,250.6	65.4	1,316.0	1,390.0	2,755.9
2024	1,232.0	61.0	1,293.0	1,500.7	2,548.2
2025	1,298.2	55.1	1,353.3	1,599.6	2,301.9
2026	1,360.4	49.8	1,410.2	1,688.7	2,023.5
2027	1,411.0	44.2	1,455.2	1,778.0	1,700.7
2028	1,457.1	36.5	1,493.6	1,869.5	1,324.8
2029	1,500.9	27.6	1,528.5	1,962.0	891.3
2030[b]	1,543.5	17.6	1,561.1	2,055.8	396.5

[a] Benefit payments which were scheduled to be paid on January 3 for some past and future years were actually paid on December 31 as required by the statutory provision for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. For comparability with the values for historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year.

[b] The combined OASI and DI Trust Funds become depleted in 2034 under the intermediate assumptions and in 2031 under the high-cost assumptions, so estimates for later years are not shown.

[c] The combined OASI and DI Trust Funds become depleted in 2067 under the low-cost assumptions, but combined asset reserves become positive again by the beginning of 2093 and remain positive through the remainder of the projection period. Estimates are not shown for years in which asset reserves are negative.

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

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Table VI.G9 presents values in CPI-indexed 2023 dollars—that is, adjusted by the CPI indexing series discussed at the beginning of this section. This table contains the annual non-interest income and cost of the combined OASI and DI Trust Funds, of the HI Trust Fund, and of the combined OASI, DI, and HI Trust Funds, based on the intermediate, low-cost, and high-cost sets of assumptions. For OASDI, non-interest income consists of payroll tax contributions, proceeds from taxation of scheduled OASDI benefits, and any reimbursements from the General Fund of the Treasury. Cost consists of scheduled benefits, administrative expenses, financial interchange with the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries. For HI, non-interest income consists of payroll tax contributions (including contributions from railroad employment), up to an additional 0.9 percent tax on earned income for relatively high earners, proceeds from the taxation of scheduled OASDI benefits, premium revenues, monies from fraud and abuse control activities, and any reimbursements from the General Fund of the Treasury. Total cost consists of scheduled benefits and administrative expenses. The Trustees show income and cost estimates generally on a cash basis for the OASDI program[1] and on an incurred basis for the HI program. Table VI.G9 also shows the annual balance, which equals the difference between non-interest income and cost.

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[1] OASDI benefits paid for entitlement for a particular month are generally paid in the succeeding month. There are two primary exceptions to this general rule. First, payments can occur with a greater delay when a benefit award is made after the month of initial benefit entitlement. At the time of benefit award, benefits owed for months of prior entitlement are then also paid to the beneficiary. For the projections in this report, such retroactive payments are included in the period where they are paid (at time of award). Second, when benefit payments scheduled for January 3 are paid on the prior December 31, because January 3 falls on a Sunday, such payments are shown in this report for the period they were scheduled to be paid.

Table VI.G9.—OASDI and HI Annual Non-Interest Income, Cost, and Balance in CPI-Indexed 2023 Dollars,[a] Calendar Years 2023-2100
[In billions]

Calendar year	OASDI			HI			Combined		
	Non-interest income	Cost[b]	Balance[b]	Non-interest income	Cost	Balance	Non-interest income	Cost[b]	Balance[b]
Intermediate:									
2023	$1,269	$1,388	-$119	$407	$404	$3	$1,676	$1,792	-$116
2024	1,255	1,448	-193	416	413	3	1,671	1,861	-190
2025	1,293	1,500	-206	428	434	-6	1,721	1,934	-213
2026	1,332	1,551	-219	447	456	-9	1,778	2,006	-228
2027	1,361	1,599	-238	460	479	-20	1,821	2,078	-257
2028	1,390	1,647	-257	472	503	-31	1,862	2,150	-288
2029	1,418	1,694	-276	484	528	-44	1,902	2,222	-320
2030	1,445	1,739	-294	496	551	-54	1,941	2,290	-349
2031	1,473	1,784	-311	509	574	-64	1,982	2,357	-375
2032	1,498	1,827	-329	522	598	-76	2,019	2,425	-405
2035	1,568	1,948	-379	554	665	-111	2,122	2,613	-491
2040	1,685	2,127	-442	607	748	-141	2,292	2,875	-582
2045	1,808	2,291	-483	662	818	-156	2,470	3,109	-639
2050	1,945	2,480	-535	723	882	-159	2,668	3,363	-694
2055	2,098	2,709	-611	794	947	-153	2,891	3,656	-765
2060	2,266	2,985	-719	872	1,022	-149	3,138	4,006	-868
2065	2,445	3,275	-829	957	1,108	-151	3,402	4,383	-981
2070	2,635	3,579	-944	1,047	1,204	-157	3,682	4,783	-1,101
2075	2,840	3,901	-1,061	1,144	1,303	-159	3,984	5,204	-1,220
2080	3,065	4,209	-1,144	1,248	1,401	-153	4,313	5,610	-1,297
2085	3,315	4,498	-1,183	1,362	1,500	-138	4,677	5,997	-1,321
2090	3,591	4,791	-1,200	1,486	1,602	-116	5,077	6,393	-1,316
2095	3,892	5,153	-1,260	1,622	1,709	-88	5,514	6,862	-1,348
2100	4,216	5,604	-1,388	1,769	1,815	-46	5,985	7,419	-1,434
Low-cost:									
2023	1,277	1,386	-109	411	397	14	1,688	1,782	-94
2024	1,295	1,433	-138	427	399	29	1,722	1,831	-109
2025	1,351	1,479	-128	447	417	30	1,799	1,897	-98
2026	1,408	1,525	-117	470	434	36	1,878	1,959	-81
2027	1,453	1,567	-115	486	450	36	1,939	2,017	-78
2028	1,498	1,609	-112	502	466	36	2,000	2,075	-76
2029	1,542	1,651	-109	518	483	35	2,060	2,134	-74
2030	1,586	1,693	-107	535	497	38	2,121	2,190	-69
2031	1,631	1,733	-103	552	511	42	2,183	2,244	-61
2032	1,673	1,773	-100	569	525	44	2,242	2,298	-56
2035	1,788	1,893	-105	618	562	56	2,406	2,455	-49
2040	1,989	2,089	-100	703	592	111	2,692	2,681	11
2045	2,216	2,288	-72	799	609	190	3,015	2,897	117
2050	2,484	2,534	-50	912	623	290	3,396	3,157	240
2055	2,795	2,847	-52	1,046	644	402	3,841	3,491	350
2060	3,148	3,235	-87	1,200	684	516	4,348	3,919	430
2065	3,542	3,656	-114	1,371	745	627	4,914	4,401	513
2070	3,980	4,109	-129	1,562	831	731	5,542	4,939	603
2075	4,478	4,604	-125	1,778	939	839	6,256	5,542	714
2080	5,055	5,103	-48	2,024	1,057	967	7,079	6,160	919
2085	5,727	5,601	125	2,308	1,186	1,122	8,035	6,788	1,248
2090	6,496	6,160	337	2,634	1,327	1,307	9,130	7,487	1,643
2095	7,362	6,923	438	3,007	1,480	1,527	10,368	8,403	1,965
2100	8,324	7,918	407	3,429	1,571	1,858	11,753	9,489	2,265

Table VI.G9.—OASDI and HI Annual Non-Interest Income, Cost, and Balance in CPI-Indexed 2023 Dollars,[a] Calendar Years 2023-2100 (Cont.)
[In billions]

	OASDI			HI			Combined		
Calendar year	Non-interest income	Cost[b]	Balance[b]	Non-interest income	Cost	Balance	Non-interest income	Cost[b]	Balance[b]
High-cost:									
2023	$1,251	$1,390	-$139	$396	$410	-$14	$1,646	$1,800	-$153
2024	1,197	1,458	-261	399	425	-25	1,596	1,883	-286
2025	1,238	1,526	-288	412	454	-42	1,651	1,980	-329
2026	1,275	1,582	-308	432	486	-54	1,707	2,068	-361
2027	1,299	1,637	-338	444	519	-75	1,743	2,156	-413
2028	1,317	1,690	-373	454	552	-98	1,771	2,242	-471
2029	1,333	1,743	-410	463	586	-123	1,796	2,328	-533
2030	1,347	1,794	-447	472	617	-145	1,819	2,410	-592
2031	1,360	1,844	-483	482	649	-167	1,842	2,493	-651
2032	1,371	1,892	-521	491	684	-193	1,862	2,576	-714
2035	1,407	2,019	-612	511	787	-276	1,918	2,805	-888
2040	1,463	2,198	-734	541	935	-394	2,005	3,133	-1,128
2045	1,512	2,348	-836	568	1,082	-514	2,080	3,430	-1,350
2050	1,559	2,504	-945	594	1,231	-636	2,153	3,734	-1,581
2055	1,606	2,673	-1,067	622	1,362	-740	2,228	4,035	-1,807
2060	1,656	2,862	-1,206	653	1,484	-832	2,309	4,346	-2,038
2065	1,706	3,048	-1,342	683	1,592	-909	2,388	4,640	-2,252
2070	1,752	3,233	-1,481	712	1,672	-960	2,464	4,906	-2,441
2075	1,797	3,418	-1,621	740	1,719	-978	2,537	5,137	-2,599
2080	1,840	3,579	-1,739	768	1,748	-980	2,608	5,327	-2,719
2085	1,884	3,707	-1,824	795	1,766	-971	2,678	5,473	-2,795
2090	1,930	3,804	-1,874	821	1,781	-959	2,751	5,585	-2,834
2095	1,978	3,891	-1,913	848	1,797	-948	2,827	5,688	-2,861
2100	2,029	3,993	-1,964	878	1,900	-1,023	2,907	5,893	-2,986

[a] CPI-indexed 2023 dollars equal current dollars adjusted by the CPI indexing series in table VI.G6.
[b] OASDI benefit payments which were scheduled to be paid on January 3 for some past and future years were actually paid on December 31 as required by the statutory provision for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. For comparability with the values for historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year.

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

Table VI.G10 shows values in current, or nominal, dollars—that is, in dollars unadjusted for inflation. This table presents the annual non-interest income, cost, and balance of the combined OASI and DI Trust Funds, of the HI Trust Fund, and of the combined OASI, DI, and HI Trust Funds, based on the intermediate, low-cost, and high-cost sets of assumptions.

Table VI.G10.—OASDI and HI Annual Non-Interest Income, Cost, and Balance in Current Dollars, Calendar Years 2023-2100

[In billions]

Calendar year	OASDI Non-interest income	OASDI Cost[a]	OASDI Balance[a]	HI Non-interest income	HI Cost	HI Balance	Combined Non-interest income	Combined Cost[a]	Combined Balance[a]
Intermediate:									
2023	$1,269	$1,388	-$119	$407	$404	$3	$1,676	$1,792	-$116
2024	1,287	1,485	-198	426	423	3	1,713	1,908	-195
2025	1,358	1,574	-217	449	456	-7	1,807	2,030	-223
2026	1,432	1,667	-236	480	490	-10	1,912	2,157	-245
2027	1,498	1,760	-262	506	528	-22	2,004	2,288	-283
2028	1,567	1,856	-289	532	567	-35	2,099	2,423	-325
2029	1,637	1,955	-318	558	610	-51	2,195	2,565	-369
2030	1,708	2,056	-348	587	651	-64	2,295	2,707	-412
2031	1,783	2,159	-377	616	694	-78	2,399	2,853	-454
2032	1,856	2,264	-408	647	741	-95	2,503	3,005	-502
2035	2,087	2,592	-505	738	886	-148	2,825	3,477	-653
2040	2,525	3,187	-662	910	1,121	-211	3,435	4,308	-872
2045	3,051	3,866	-815	1,117	1,380	-264	4,168	5,246	-1,079
2050	3,695	4,712	-1,017	1,374	1,676	-302	5,069	6,388	-1,319
2055	4,486	5,794	-1,308	1,697	2,025	-328	6,183	7,819	-1,635
2060	5,456	7,187	-1,731	2,100	2,460	-360	7,556	9,647	-2,091
2065	6,629	8,878	-2,248	2,594	3,004	-410	9,224	11,882	-2,658
2070	8,044	10,925	-2,881	3,196	3,675	-479	11,239	14,599	-3,360
2075	9,760	13,405	-3,645	3,931	4,478	-547	13,691	17,883	-4,192
2080	11,859	16,286	-4,427	4,829	5,422	-593	16,689	21,708	-5,020
2085	14,442	19,594	-5,153	5,932	6,533	-601	20,374	26,127	-5,754
2090	17,615	23,499	-5,884	7,287	7,858	-571	24,902	31,357	-6,455
2095	21,496	28,457	-6,961	8,955	9,438	-483	30,451	37,895	-7,444
2100	26,211	34,844	-8,633	11,001	11,286	-285	37,213	46,131	-8,918
Low-cost:									
2023	1,277	1,386	-109	411	397	14	1,688	1,782	-94
2024	1,334	1,476	-142	440	411	29	1,774	1,887	-113
2025	1,434	1,570	-135	474	443	31	1,909	2,013	-104
2026	1,539	1,667	-128	514	474	40	2,053	2,141	-88
2027	1,635	1,765	-129	547	507	41	2,183	2,271	-88
2028	1,737	1,866	-129	582	540	42	2,319	2,407	-88
2029	1,842	1,972	-131	619	577	42	2,461	2,549	-89
2030	1,951	2,082	-131	658	611	47	2,609	2,694	-84
2031	2,066	2,196	-130	700	647	53	2,766	2,843	-77
2032	2,184	2,314	-131	743	685	57	2,926	3,000	-73
2035	2,550	2,700	-150	881	801	80	3,431	3,501	-70
2040	3,288	3,453	-166	1,162	978	184	4,450	4,432	18
2045	4,247	4,385	-138	1,531	1,168	363	5,778	5,553	225
2050	5,518	5,630	-111	2,027	1,384	644	7,546	7,014	532
2055	7,198	7,333	-135	2,695	1,658	1,036	9,893	8,991	902
2060	9,401	9,661	-259	3,583	2,041	1,542	12,984	11,702	1,283
2065	12,262	12,656	-394	4,747	2,578	2,169	17,009	15,234	1,775
2070	15,973	16,488	-516	6,268	3,333	2,935	22,241	19,821	2,419
2075	20,833	21,416	-583	8,270	4,367	3,902	29,102	25,783	3,319
2080	27,261	27,518	-257	10,917	5,702	5,215	38,177	33,220	4,958
2085	35,803	35,020	783	14,432	7,416	7,017	50,235	42,435	7,799
2090	47,084	44,643	2,441	19,090	9,620	9,470	66,174	54,263	11,911
2095	61,853	58,171	3,683	25,262	12,434	12,828	87,115	70,605	16,510
2100	81,079	77,119	3,960	33,401	15,303	18,097	114,479	92,422	22,057

**Table VI.G10.—OASDI and HI Annual Non-Interest Income, Cost, and
Balance in Current Dollars, Calendar Years 2023-2100 (Cont.)**
[In billions]

Calendar year	OASDI			HI			Combined		
	Non-interest income	Cost[a]	Balance[a]	Non-interest income	Cost	Balance	Non-interest income	Cost[a]	Balance[a]
High-cost:									
2023	$1,251	$1,390	-$139	$396	$410	-$14	$1,646	$1,800	-$153
2024	1,232	1,501	-269	411	437	-26	1,643	1,938	-295
2025	1.298	1.600	-301	432	476	-44	1.731	2.076	-345
2026	1.360	1.689	-328	461	518	-58	1.821	2.207	-386
2027	1,411	1,778	-367	483	564	-81	1,894	2,342	-448
2028	1.457	1.869	-412	502	610	-109	1.959	2.480	-521
2029	1.501	1.962	-461	521	659	-139	2.022	2.621	-600
2030	1,543	2,056	-512	541	707	-166	2,085	2,763	-678
2031	1,587	2,151	-564	562	757	-195	2,149	2,908	-759
2032	1.629	2.247	-618	583	812	-229	2.211	3.059	-848
2035	1.763	2.530	-766	640	986	-346	2.403	3.515	-1,112
2040	2,005	3,011	-1,006	742	1,281	-539	2,746	4,292	-1,545
2045	2,265	3,517	-1,252	851	1,621	-770	3,116	5,138	-2,022
2050	2.552	4.100	-1.548	974	2,015	-1,042	3.526	6.115	-2.590
2055	2.875	4.785	-1.910	1,114	2,439	-1,325	3.989	7.224	-3.235
2060	3,241	5,602	-2,360	1,277	2,906	-1,628	4,519	8,507	-3,989
2065	3,650	6,523	-2,873	1,461	3,407	-1,946	5,111	9,929	-4,819
2070	4.100	7.565	-3.465	1,666	3,913	-2,247	5.766	11.477	-5.712
2075	4,596	8,743	-4,146	1,894	4,397	-2,503	6,490	13,139	-6,649
2080	5,145	10,008	-4,863	2,148	4,889	-2,741	7,293	14,897	-7,605
2085	5.759	11.336	-5.577	2,430	5,399	-2,969	8.189	16.735	-8.546
2090	6.451	12.717	-6.266	2,746	5,953	-3,207	9.197	18.670	-9.473
2095	7,230	14,222	-6,992	3,101	6,566	-3,465	10,331	20,788	-10,456
2100	8.108	15.954	-7.846	3,507	7,593	-4,086	11.615	23.547	-11.931

[a] OASDI benefit payments which were scheduled to be paid on January 3 for some past and future years were actually paid on December 31 as required by the statutory provision for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. For comparability with the values for historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment each year.

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

H. ANALYSIS OF BENEFIT PAYMENTS FROM THE OASI TRUST FUND WITH RESPECT TO DISABLED BENEFICIARIES
(Required by section 201(c) of the Social Security Act)

Effective January 1957, the OASI Trust Fund pays monthly benefits to disabled children aged 18 and over of retired and deceased workers if the disability began before age 18. The age by which disability must have begun was later changed to age 22. Effective February 1968, the OASI Trust Fund pays reduced monthly benefits to disabled widows and widowers at ages 50 and over. Effective January 1991, the requirements for the disability of the widow or widower were made less restrictive.

At the end of 2022, the OASI Trust Fund was providing monthly benefit payments to about 1,128,000 people because of their disabilities or the disabilities of children. This total includes approximately 21,000 mothers and fathers (wives or husbands under normal retirement age of retired-worker beneficiaries and widows or widowers of deceased insured workers) who met all other qualifying requirements and were receiving unreduced benefits solely because they had disabled-child beneficiaries (or disabled children aged 16 or 17) in their care. In calendar year 2022, the OASI Trust Fund paid a total of $13,266 million to the people described above. Table VI.H1 shows OASI scheduled benefits for disability for selected calendar years during 1960 through 2022 and estimates for 2023 through 2032 based on the intermediate set of assumptions.

**Table VI.H1.—Scheduled Benefit Payments From the OASI Trust Fund
With Respect to Disabled Beneficiaries**

[Beneficiaries in thousands; scheduled benefits in millions]

Calendar year	Disabled beneficiaries, end of year			Amount of scheduled benefits[a] [b]		
	Total	Children[c]	Widows-widowers[d]	Total	Children[c]	Widows-widowers[e]
Historical data:						
1960	117	117		$59	$59	
1965	214	214		134	134	
1970	316	281	36	301	260	$41
1975	435	376	58	664	560	104
1980	519	460	59	1,223	1,097	126
1985	594	547	47	2,072	1,885	187
1990	662	613	49	2,882	2,649	233
1995	772	681	91	4,202	3,672	531
2000	811	707	104	5,203	4,523	680
2005	836	728	108	6,449	5,556	834
2010	996	879	117	8,671	7,662	1,008
2015	1,096	972	124	10,640	9,528	1,109
2016	1,109	988	121	10,909	9,818	1,087
2017	1,124	1,006	117	11,222	10,156	1,061
2018	1,139	1,027	112	11,767	10,729	1,031
2019	1,144	1,041	103	12,148	11,152	983
2020	1,147	1,051	95	12,351	11,403	934
2021	1,136	1,050	86	12,453	11,578	861
2022	1,128	1,051	78	13,266	12,414	829
Estimates under the intermediate assumptions:						
2023	1,141	1,069	71	14,514	13,669	822
2024	1,153	1,084	69	15,265	14,419	822
2025	1,170	1,102	68	15,939	15,088	826
2026	1,189	1,121	68	16,706	15,828	853
2027	1,209	1,140	69	17,515	16,606	883
2028	1,227	1,157	70	18,343	17,395	921
2029	1,246	1,177	69	19,204	18,224	952
2030	1,264	1,196	68	20,081	19,092	960
2031	1,284	1,216	68	21,006	19,989	987
2032	1,305	1,236	69	21,996	20,938	1,028

[a] Beginning in 1966, includes payments for vocational rehabilitation services.

[b] Amounts for 2020 and 2021 are adjusted to include in 2021 operations those benefit payments regularly scheduled in the law to be paid on January 3, 2021, which were actually paid on December 31, 2020 as required by the statutory provision for early benefit payments when the normal delivery date is on a weekend or holiday. Such shifts in payments across calendar years have occurred in the past, including in 2016, and will occur periodically in the future whenever January 3rd falls on a Sunday. In order to provide a consistent perspective on trust fund operations over time, all trust fund operations in each year reflect the 12 months of benefits that are regularly scheduled for payment in that year.

[c] Also includes certain mothers and fathers (see text).

[d] In 1984 and later years, includes only disabled widows and widowers aged 50-59, because disabled widows and widowers age 60 and older are eligible for the same benefit as a nondisabled aged widow or widower. Therefore, they are not receiving benefits solely because of a disability.

[e] In 1983 and prior years, includes the offsetting effect of lower benefits payable to disabled widows and widowers who continued to receive benefits after attaining age 60 (62, for disabled widowers prior to 1973), compared to the higher nondisabled widow's and widower's benefits that would otherwise be payable. In 1984 and later years, includes only scheduled benefits to disabled widows and widowers aged 50-59 (see footnote d).

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

Under the intermediate assumptions, estimated total scheduled benefits paid from the OASI Trust Fund with respect to disabled beneficiaries will increase from $14,514 million in calendar year 2023 to $21,996 million in calendar year 2032.

In calendar year 2022, benefit payments (including payments for vocational rehabilitation services) with respect to disabled persons from the OASI Trust Fund and from the DI Trust Fund (including payments from the DI fund to all children and spouses of disabled-worker beneficiaries) totaled $156,861 million. Of this amount, $13,266 million, or 8.5 percent, represented payments from the OASI Trust Fund. Table VI.H2 contains these and similar figures for selected calendar years during 1960 through 2022 and estimates for calendar years 2023 through 2032.

Table VI.H2.—Scheduled Benefit Payments[a] Under the OASDI Program With Respect to Disabled Beneficiaries
[Amounts in millions]

| Calendar year | Total[b] | DI Trust Fund[c] | OASI Trust Fund | |
			Amount[d]	Percentage of total
Historical data:				
1960	$627	$568	$59	9.4
1965	1,707	1,573	134	7.9
1970	3,386	3,085	301	8.9
1975	9,169	8,505	664	7.2
1980	16,738	15,515	1,223	7.3
1985	20,908	18,836	2,072	9.9
1990	27,717	24,835	2,882	10.4
1995	45,140	40,937	4,202	9.3
2000	60,204	55,001	5,203	8.6
2005	91,835	85,386	6,449	7.0
2010	132,916	124,245	8,671	6.5
2015	154,028	143,388	10,640	6.9
2016	153,709	142,800	10,909	7.1
2017	154,048	142,826	11,222	7.3
2018	155,526	143,760	11,767	7.6
2019	157,289	145,141	12,148	7.7
2020	155,933	143,582	12,351	7.9
2021	152,538	140,085	12,453	8.2
2022	156,861	143,595	13,266	8.5
Estimates under the intermediate assumptions:				
2023	162,584	148,070	14,514	8.9
2024	170,786	155,521	15,265	8.9
2025	181,291	165,353	15,939	8.8
2026	192,051	175,345	16,706	8.7
2027	201,292	183,777	17,515	8.7
2028	209,539	191,196	18,343	8.8
2029	216,103	196,899	19,204	8.9
2030	222,804	202,723	20,081	9.0
2031	230,957	209,952	21,006	9.1
2032	240,239	218,243	21,996	9.2

[a] Amounts for 2020 and 2021 are adjusted to include in 2021 operations those benefit payments regularly scheduled in the law to be paid on January 3, 2021, which were actually paid on December 31, 2020 as required by the statutory provision for early benefit payments when the normal delivery date is on a weekend or holiday. Such shifts in payments across calendar years have occurred in the past, including in 2016, and will occur periodically in the future whenever January 3rd falls on a Sunday. In order to provide a consistent perspective on trust fund operations over time, all trust fund operations in each year reflect the 12 months of benefits that are regularly scheduled for payment in that year.

[b] Beginning in 1966, includes payments for vocational rehabilitation services.

[c] Scheduled benefits for disabled workers and their children and spouses.

[d] Scheduled benefits for disabled children aged 18 and over, for certain mothers and fathers (see text), and for disabled widows and widowers (see footnote c, table VI.H1).

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

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I. GLOSSARY

Actuarial balance. The difference between the summarized income rate and the summarized cost rate as a percentage of taxable payroll over a given valuation period.

Actuarial deficit. A negative actuarial balance.

Administrative expenses. Expenses incurred by the Social Security Administration and the Department of the Treasury in administering the OASDI program and the provisions of the Internal Revenue Code relating to the collection of contributions. Such administrative expenses are paid from the OASI and DI Trust Funds.

Advance tax transfers. Amounts representing the estimated total OASDI tax contributions for a given month. From May 1983 through November 1990, such amounts were credited to the OASI and DI Trust Funds at the beginning of each month. The trust funds reimbursed the General Fund of the Treasury for the associated loss of interest. Advance tax transfers are no longer made unless needed in order to pay benefits.

Alternatives I, II, or III. See "Assumptions."

Annual balance. The difference between the income rate and the cost rate for a given year.

Asset reserves. See "Trust fund reserves".

Assumptions. Values related to future trends in key factors that affect the trust funds. Demographic assumptions include fertility, mortality, net immigration, marriage, and divorce. Economic assumptions include unemployment rates, average earnings, inflation, interest rates, and productivity. Program-specific assumptions include retirement patterns, and disability incidence and termination rates. This report presents three sets of demographic, economic, and program-specific assumptions:

- Alternative II is the intermediate set of assumptions, and represents the Trustees' best estimates of likely future demographic, economic, and program-specific conditions.
- Alternative I is a low-cost set of assumptions—it assumes relatively rapid economic growth, high inflation, and favorable (from the standpoint of program financing) demographic and program-specific conditions.
- Alternative III is a high-cost set of assumptions—it assumes relatively slow economic growth, low inflation, and unfavorable (from the standpoint of program financing) demographic and program-specific conditions.

See tables V.A2, V.B1, and V.B2.

Automatic cost-of-living benefit increase. The annual increase in benefits, effective for December, reflecting the increase, if any, in the cost of living. A

benefit increase is applicable only after a beneficiary becomes eligible for benefits. In general, the benefit increase equals the percentage increase in the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) measured from the third quarter of the last year for which there was an increase to the third quarter of the current year. If there is no increase in the CPI-W, there is no cost-of-living benefit increase. See table V.C1.

Auxiliary benefits. Monthly benefits payable to a spouse or child of a retired or disabled worker, or to a survivor of a deceased worker.

Average indexed monthly earnings—AIME. The measure of lifetime earnings used in determining the primary insurance amount (PIA) for most workers who attain age 62, become disabled, or die after 1978. A worker's actual past earnings are adjusted by changes in the average wage index, in order to bring them up to their approximately equivalent value at the time of retirement or other eligibility for benefits.

Average wage index—AWI. A series that generally increases with the average amount of total wages per worker with any wages for each year after 1950, including wages in noncovered employment and wages in covered employment in excess of the OASDI contribution and benefit base. (See Title 20, Chapter III, section 404.211(c) of the Code of Federal Regulations for a more precise definition.) The average wage index is used to index the taxable earnings of most workers first becoming eligible for benefits in 1979 or later, and for automatic adjustments in the contribution and benefit base, bend points, earnings test exempt amounts, and other wage-indexed amounts. See tables V.C1 and VI.G6.

Award. An administrative determination that an individual is entitled to receive a specified type of OASDI benefit. Awards can represent not only new entrants to the benefit rolls but also persons already on the rolls who become entitled to a different type of benefit. Awards usually result in the immediate payment of benefits, although payments may be deferred or withheld depending on the individual's particular circumstances.

Baby boom. The period from the end of World War II (1946) through 1965 marked by unusually high birth rates.

Bend points. The dollar amounts defining the AIME or PIA brackets in the benefit formulas. For the bend points for years 1979 and later, see table V.C2.

Beneficiary. A person who has been awarded benefits on the basis of his or her own or another's earnings record. The benefits may be either in current-payment status or withheld.

Benefit award. See "Award."

Benefit conversion. See "Disability conversion."

Benefit payments. The amounts disbursed for OASI and DI benefits by the Department of the Treasury.

Benefit termination. See "Termination."

Best estimate assumptions. See "Assumptions."

Board. See "Board of Trustees."

Board of Trustees. A Board established by the Social Security Act to oversee the financial operations of the Federal Old-Age and Survivors Insurance Trust Fund and the Federal Disability Insurance Trust Fund. The Board is composed of six members. Four members serve by virtue of their positions in the Federal Government: the Secretary of the Treasury, who is the Managing Trustee; the Secretary of Labor; the Secretary of Health and Human Services; and the Commissioner of Social Security. The President appoints and the Senate confirms the other two members to serve as public representatives. Also referred to as the "Board" or the "Trustees."

Cash flow. Actual or projected revenue (other than interest paid to the trust funds) and costs reflecting the levels of payroll tax contribution rates and benefits scheduled in the law. Net cash flow is the difference between non-interest income and cost.

Consumer Price Index—CPI. An official measure of inflation in consumer prices. In this report, CPI refers to the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The Bureau of Labor Statistics, Department of Labor, publishes historical values for the CPI-W.

Contribution and benefit base. Annual dollar amount above which earnings in employment covered under the OASDI program are neither taxable nor creditable for benefit-computation purposes. (Also referred to as maximum contribution and benefit base, annual creditable maximum, taxable maximum, and maximum taxable.) See tables V.C1 and V.C6. See "Hospital Insurance (HI) contribution base."

Contributions. See "Payroll tax contributions."

Conversion. See "Disability conversion."

Cost. The cost shown for a year includes benefits scheduled for payment in the year (without regard to the ability to make the payments in full), administrative expenses, financial interchange with the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries.

Cost-of-living adjustment. See "Automatic cost-of-living benefit increase."

Cost rate. The cost rate for a year is the ratio of the cost of the program to the taxable payroll for the year.

Covered earnings. Wages or earnings from self-employment covered by the OASDI program.

Covered employment. All employment for which earnings are creditable for Social Security purposes. The program covers almost all employment. Some exceptions are:

- State and local government employees whose employer has not elected to be covered under Social Security and who are participating in an employer-provided pension plan.
- Current Federal civilian workers hired before 1984 who have not elected to be covered.
- Self-employed workers earning less than $400 in a calendar year.

Covered worker. A person who has earnings creditable for Social Security purposes based on services for wages in covered employment or income from covered self-employment.

CPI-indexed dollars. Amounts adjusted by the CPI to the value of the dollar in a particular year.

Creditable earnings. Wages or self-employment earnings posted to a worker's earnings record. Such earnings determine eligibility for benefits and the amount of benefits on that worker's record. The contribution and benefit base is the maximum amount of creditable earnings for each worker in a calendar year.

Current-cost financing. See "Pay-as-you-go financing."

Current dollars. Amounts expressed in nominal dollars with no adjustment for inflation.

Currently insured status. A worker is currently insured when he or she has accumulated six quarters of coverage during the 13-quarter period ending with the current quarter.

Current-payment status. Status of a beneficiary to whom a benefit is being paid for a given month (with or without deductions, provided the deductions add to less than a full month's benefit).

Deemed filing. Under certain circumstances, a person applying for or receiving either an aged-spouse benefit or a retired-worker benefit is required to also file for the other of these two types of benefits. For those first eligible for benefits before 2016, this requirement applies to any person under normal retirement age who is eligible for the other benefit as of the starting month for the first benefit. For those first eligible for benefits in 2016 and later, this requirement applies whenever the person is eligible for the other benefit. This can occur at any age, and in months after the starting month of the first benefit.

Deemed wage credit. See "Military service wage credits."

Delayed retirement credits. Increases in the benefit amount for certain individuals who did not receive benefits for months after attaining normal retirement age but before age 70. Delayed retirement credits apply to benefits for

January of the year following the year they are earned or for the month of attainment of age 70, whichever comes first. See table V.C3.

Demographic assumptions. See "Assumptions."

Disability. For Social Security purposes, the inability to engage in any substantial gainful activity (see "Substantial gainful activity—SGA") by reason of any medically determinable physical or mental impairment that can be expected to result in death or to last for a continuous period of not less than 12 months. Special rules apply for workers at ages 55 and over whose disability is based on blindness.

The law generally requires that a person be disabled continuously for 5 months before he or she can qualify for a disabled-worker benefit.

Disability conversion ratio. For a given year, the ratio of the number of disability conversions to the average number of disabled-worker beneficiaries at all ages during the year.

Disability conversion. Upon attainment of normal retirement age, a disabled-worker beneficiary is automatically converted to retired-worker status.

Disability incidence rate. The proportion of workers in a given year, insured for but not receiving disability benefits, who apply for and are awarded disability benefits.

Disability Insurance (DI) Trust Fund. See "Trust fund."

Disability insured status. A worker is disability insured if he or she is: (1) a fully insured worker who has accumulated 20 quarters of coverage during the 40-quarter period ending with the current quarter, (2) a fully insured worker aged 24-30 who has accumulated quarters of coverage 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 quarters of coverage during the 12-quarter period ending with the current quarter.

Disability prevalence rate. The proportion of persons insured for disability benefits who are disabled-worker beneficiaries in current-payment status.

Disability termination rate. The proportion of disabled-worker beneficiaries in a given year whose disability benefits terminate as a result of their recovery or death.

Disabled-worker benefit. A monthly benefit payable to a disabled worker under normal retirement age and insured for disability. Before November 1960, disability benefits were limited to disabled workers aged 50-64.

Dual entitlement. A person may be entitled to more than one benefit at the same time. For example, a person may be entitled as a retired worker on his or her own record and as a spouse on another record. However, a person's benefit amount can never exceed the highest single benefit to which that per-

son is entitled. Some benefits are calculated independently with the larger benefit being paid or the smaller benefit being paid plus the excess amount of the larger one.

Earnings. Unless otherwise qualified, all wages from employment and net earnings from self-employment, whether or not they are taxable or covered.

Earnings test. The provision requiring the withholding of benefits if beneficiaries under normal retirement age have earnings in excess of certain exempt amounts. See table V.C1.

Economic assumptions. See "Assumptions."

Effective interest rate. See "Interest rate."

Excess wages. Wages in excess of the contribution and benefit base on which a worker initially makes payroll tax contributions, usually as a result of working for more than one employer during a year. Employee payroll taxes on excess wages are refundable to affected employees, while the employer taxes are not refundable.

Expenditures. Actual payments made or expected to be made under current law, including benefits paid or payable, administrative expenses, financial interchange with the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries. Includes only the portion of cost that is payable with the financing provisions in current law.

Exposed population. For any event (such as being awarded a benefit, or dying), the group that is exposed to the possibility of experiencing the event. For example, the exposed population for disabled worker awards (incidence) is the disability insured population less those already receiving benefits.

Federal Insurance Contributions Act—FICA. Provision authorizing payroll taxes on the wages of employed persons to provide for Old-Age, Survivors, and Disability Insurance, and for Hospital Insurance. Workers and their employers generally pay the tax in equal amounts.

Financial interchange. Provisions of the Railroad Retirement Act providing for transfers between the trust funds and the Social Security Equivalent Benefit Account of the Railroad Retirement program in order to place each trust fund in the same financial position it would have been had railroad employment always been covered under Social Security.

Fiscal year. The accounting year of the United States Government. Starting in 1976, a fiscal year is the 12-month period ending September 30. For example, fiscal year 2023 began October 1, 2022, and will end September 30, 2023.

Full advance funding. A financing method in which contributions are established to match the full cost of future benefits as these costs are incurred through current service. Such financing methods also provide for amortization over a fixed period of any financial obligation that is incurred at the

beginning of the program (or subsequent modification) as a result of granting credit for past service.

Fully insured status. A worker is fully insured when his or her total number of quarters of coverage is greater than or equal to the number of years elapsed after the year of attainment of age 21 (but not less than six). Once a worker has accumulated 40 quarters of coverage, he or she remains permanently fully insured.

General Fund of the Treasury. Funds held by the Treasury of the United States, other than income collected for a specific purpose (such as Social Security), and maintained in a separate account for that purpose.

General Fund reimbursements. Payments from the General Fund of the Treasury to the trust funds for specific items defined in the law, including:

- The cost of noncontributory wage credits for military service before 1957, and periodic adjustments of previous determinations.

- The cost in 1971-82 of deemed wage credits for military service performed after 1956.

- The cost of benefits to certain uninsured persons who attained age 72 before 1968.

- The cost of payroll tax credits provided to employees in 1984 and self-employed persons in 1984-89 by Public Law 98-21.

- The cost in 2009-17 of excluding certain self-employment earnings from SECA taxes under Public Law 110-246.

- Payroll tax revenue forgone under the provisions of Public Laws 111-147, 111-312, 112-78, and 112-96.

- A portion of proceeds from repayments of loans authorized under Public Law 116-136.

The General Fund also reimburses the trust funds for various other items, including interest on checks which are not negotiated 6 months after the month of issue and costs incurred in performing certain legislatively mandated activities not directly related to administering the OASI and DI programs.

Gross domestic product—GDP. The total dollar value of all goods and services produced by labor and property located in the United States, regardless of who supplies the labor or property.

Hospital Insurance (HI) contribution base. Annual dollar amount above which earnings in employment covered under the HI program are not taxable. (Also referred to as maximum contribution base, taxable maximum, and maximum taxable.) Beginning in 1994, the HI contribution base was eliminated.

High-cost assumptions. See "Assumptions."

Hospital Insurance (HI) Trust Fund. See "Trust fund."

Immigration. See "Lawful permanent resident (LPR) immigration" and "Other-than-LPR immigration."

Income. Income for a given year is the sum of tax revenue on a cash basis (payroll tax contributions and income from the taxation of scheduled benefits), reimbursements from the General Fund of the Treasury, if any, and interest credited to the trust funds.

Income rate. Ratio of non-interest income to the OASDI taxable payroll for the year.

Infinite horizon. The period extending indefinitely into the future.

Inflation. An increase in the general price level of goods and services.

Insured status. The state or condition of having sufficient quarters of coverage to meet the eligibility requirements for retired-worker or disabled-worker benefits, or to permit the worker's spouse and children or survivors to establish eligibility for benefits in the event of his or her disability, retirement, or death. See "Quarter of coverage."

Interest. A payment in exchange for the use of money during a specified period.

Interest rate. Interest rates on new public-debt obligations issuable to Federal trust funds (see "Special public-debt obligation") are determined monthly. Such rates are equal to the average market yield on all outstanding marketable U.S. securities not due or callable until after 4 years from the date the rate is determined. See table V.B2 for historical and assumed future interest rates on new special-issue securities. The effective interest rate for a trust fund is the ratio of the interest earned by the fund over a given period of time to the average level of asset reserves held by the fund during the period. The effective rate of interest thus represents a measure of the overall average interest earnings on the fund's portfolio of investments. See table VI.G6 for projected compound new-issue interest factors and compound effective trust-fund interest factors.

Interfund borrowing. The borrowing of asset reserves by a trust fund (OASI, DI, or HI) from another trust fund when the first fund is in danger of depletion. The Social Security Act permitted interfund borrowing only during 1982 through 1987, and required all amounts borrowed to be repaid prior to the end of 1989. The only exercise of this authority occurred in 1982, when the OASI Trust Fund borrowed from the DI and HI Trust Funds. The final repayment of borrowed amounts occurred in 1986.

Intermediate assumptions. See "Assumptions."

Lawful permanent resident (LPR) immigration. Persons who enter the Social Security area population and are granted LPR status, or who are already in the Social Security area population and adjust their status to become LPRs. Persons who enter the country with legal visas but without

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LPR status, such as temporary foreign workers and students, are not included in the "LPR immigration" category.

Legal emigration. Lawful permanent residents and citizens who leave the Social Security area population.

Life expectancy. Average remaining number of years expected prior to death. Period life expectancy is calculated for a given year using the actual or expected death rates at each age for that year. Cohort life expectancy, sometimes referred to as generational life expectancy, is calculated for individuals at a specific age in a given year using actual or expected death rates from the years in which the individuals would actually reach each succeeding age if they survive.

Long-range. The first 75 projection years. The Trustees make long-range actuarial estimates for this period because it covers approximately the maximum remaining lifetime for virtually all current Social Security participants.

Low-cost assumptions. See "Assumptions."

Lump-sum death payment. A lump sum, generally $255, payable on the death of a fully or currently insured worker. The lump sum is payable to the surviving spouse of the worker, under most circumstances, or to the worker's children.

Maximum family benefit. The maximum monthly amount that can be paid on a worker's earnings record. Whenever the total of the individual monthly benefits payable to all the beneficiaries entitled on one earnings record exceeds the maximum, each dependent's or survivor's benefit is proportionately reduced. Benefits payable to divorced spouses or surviving divorced spouses are not reduced under the family maximum provision.

Medicare. A nationwide, Federally administered health insurance program authorized in 1965 under Title XVIII of the Social Security Act to cover the cost of hospitalization, medical care, and some related services for most persons age 65 and over. In 1972, lawmakers extended coverage to persons receiving Social Security Disability Insurance payments for 2 years and persons with End-Stage Renal Disease. (For beneficiaries whose primary or secondary diagnosis is Amyotrophic Lateral Sclerosis, the 2-year waiting period is waived.) In 2010, persons exposed to environmental health hazards within areas under a corresponding emergency declaration became Medicare-eligible. In 2006, prescription drug coverage was added as well. Medicare consists of two separate but coordinated trust funds—Hospital Insurance (HI, Part A) and Supplementary Medical Insurance (SMI). The SMI Trust Fund is composed of two separate accounts—the Part B account and the Part D account. Almost all persons who are aged 65 and over or disabled and who are entitled to HI are eligible to enroll in Part B and Part D on a voluntary basis by paying monthly premiums.

Military service wage credits. Credits toward OASDI earnings records for benefit computation purposes, recognizing that military personnel receive non-wage compensation (such as food and shelter) in addition to their basic pay and other cash payments. Military personnel do not pay payroll taxes on these credits. Noncontributory wage credits of $160 were provided for each month of active military service from September 16, 1940, through December 31, 1956. For years after 1956, the basic pay of military personnel is covered under the Social Security program on a contributory basis. In addition to the contributory credits for basic pay, noncontributory wage credits of $300 were granted for each calendar quarter, from January 1957 through December 1977, in which a person received pay for military service. Noncontributory wage credits of $100 were granted for each $300 of military wages, up to a maximum credit of $1,200 per calendar year, from January 1978 through December 2001.

National average wage index—AWI. See "Average wage index—AWI."

Non-interest income. Non-interest income for a given year is the sum of tax revenue on a cash basis (payroll tax contributions and income from the taxation of scheduled benefits) and reimbursements from the General Fund of the Treasury, if any.

Nonresident alien beneficiary. An OASDI beneficiary who is not a U.S. citizen and who is living abroad while receiving benefits.

Normal retirement age—NRA. The age at which a person may first become entitled to retirement benefits without reduction based on age. For persons reaching age 62 before 2000, the normal retirement age is 65. It increases gradually to 67 for persons reaching age 62 in 2022 or later, beginning with an increase to 65 years and 2 months for persons reaching age 62 in 2000. See table V.C3.

Old-Age and Survivors Insurance (OASI) Trust Fund. See "Trust fund."

Old-law base. Amount the contribution and benefit base would have been if the 1977 amendments had not provided for ad hoc increases. The Social Security Amendments of 1972 provided for automatic annual indexing of the contribution and benefit base. The Social Security Amendments of 1977 specified ad hoc bases for 1978-81, with subsequent bases updated in accordance with the normal indexing procedure. See table V.C2.

Open-group unfunded obligation. See "Unfunded obligation."

Other-than-LPR emigration. Other-than-LPR immigrants who leave the Social Security area population or who adjust their status to become LPRs.

Other-than-LPR immigration. Persons who enter the Social Security area population and stay to the end of the year without being granted LPR status, such as undocumented immigrants, and foreign workers and students entering with temporary visas.

Par value. The value printed on the face of a bond. For special issues held by the trust funds, par value is the redemption value at any time up to maturity.

Partial advance funding. A financing method in which contribution levels are established to provide a substantial accumulation of trust fund asset reserves, thereby generating interest income to the trust funds and reducing the need for contribution increases or cost reductions in periods when costs are relatively high or income is relatively low. The trust fund buildup under partial advance funding is smaller than it would be with full advance funding.

Pay-as-you-go financing. A financing method in which contribution levels are established with the intent to produce annual income levels required to pay current benefits, with trust fund asset reserves built up only to the extent needed to prevent immediate depletion of the fund reserves by random fluctuations.

Payroll tax contributions. The amount based on a percent of earnings, up to an annual maximum, that must be paid by:

- employers and employees on wages from employment under the Federal Insurance Contributions Act,

- the self-employed on net earnings from self-employment under the Self-Employment Contributions Act, and

- States on the wages paid in 1986 and earlier to State and local government employees covered under the Social Security Act through voluntary agreements under section 218 of the act.

Also referred to as payroll taxes.

Population in the Social Security area. See "Social Security area population."

Potential GDP. Sustainable trend level of GDP (see "Gross domestic product—GDP"). That is, the hypothetical level of GDP that would be achieved at full sustainable employment and use of capital. For the purposes of this report, potential GDP is estimated consistent with long-range ultimate assumptions for the unemployment rate and other economic variables and can be interpreted as the hypothetical level of GDP in the absence of business cycles and other short-term fluctuations.

Present value. The equivalent value, at the present time, of a stream of values (either income or cost, past or future). Present value is used widely in calculations involving financial transactions over long periods of time to account for the time value of money, by discounting or accumulating these transactions at the rate of interest. Present-value calculations for this report use the effective yield on combined OASI and DI Trust Fund asset reserves.

Primary insurance amount—PIA. The monthly amount payable to a retired worker who begins to receive benefits at normal retirement age or, generally, to a disabled worker. This amount, which is typically related to the worker's average monthly wage or average indexed monthly earnings, is also used as a base for computing all types of benefits payable on an individual's earnings record.

Primary-insurance-amount formula. The mathematical formula relating the PIA to the AIME for workers who attain age 62, become disabled, or die after 1978. The PIA is equal to the sum of 90 percent of AIME up to the first bend point, plus 32 percent of AIME above the first bend point up to the second bend point, plus 15 percent of AIME in excess of the second bend point. Automatic benefit increases are applied beginning with the year of eligibility. See table V.C2 for historical and assumed future bend points and table V.C1 for historical and assumed future benefit increases.

Quarter of coverage. Basic unit of measurement for determining insured status. For 1978, a worker earned one quarter of coverage, up to four, for each $250 of that worker's annual covered earnings. After 1978, the $250 amount increases automatically with increases in the national average wage index. See table V.C2.

Railroad Retirement. A Federal insurance program, similar to Social Security, designed for workers in the railroad industry. The provisions of the Railroad Retirement Act provide for a system of coordination and financial interchange between the Railroad Retirement program and the Social Security program.

Reallocation of payroll tax rates. An increase in the payroll tax rate for either the OASI or DI Trust Fund, with a corresponding reduction in the rate for the other fund, so that the total OASDI payroll tax rate is not changed.

Real wage differential. The difference between the percentage increases in: (1) the average annual wage in covered employment and (2) the average annual Consumer Price Index. See section V.B.

Recession. A period of adverse economic conditions, generally defined as two or more successive calendar quarters of negative real growth in gross domestic product.

Reserves. See "Trust fund reserves."

Retired-worker benefit. A monthly benefit payable to a fully insured retired worker aged 62 or older or to a person entitled under the transitionally insured status provision in the law.

Retirement earnings test. See "Earnings test."

Retirement eligibility age. The age, currently age 62, at which a fully insured individual first becomes eligible to receive retired-worker benefits.

Scheduled benefits. The level of benefits specified under current law.

Scenario-based model. A model with specified assumptions for and relationships among variables. Under such a model, any specified set of assumptions determines a single outcome directly reflecting the specifications.

Self-employment. Operation of a trade or business by an individual or by a partnership in which an individual is a member.

Self-Employment Contributions Act–SECA. Provision authorizing Social Security payroll taxes on the net earnings of most self-employed persons.

Short-range. The first 10 projection years. The Social Security Act requires estimates for 5 years; the Trustees prepare estimates for an additional 5 years to help clarify trends that are only starting to develop in the mandated first 5-year period.

Social Security Act. Provisions of the law governing most operations of the Social Security program. The original Social Security Act is Public Law 74-271, enacted August 14, 1935. With subsequent amendments, the Social Security Act consists of 21 titles, of which three have been repealed. Title 11 of the Social Security Act authorizes the Old-Age, Survivors, and Disability Insurance program.

Social Security area population. The population composed of: (1) residents of the 50 States and the District of Columbia (adjusted for net census undercount); (2) civilian residents of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands; (3) Federal civilian employees and persons in the U.S. Armed Forces abroad and their dependents; (4) non-citizens living abroad who are insured for Social Security benefits; and (5) all other U.S. citizens abroad.

Solvency. A program is solvent at a point in time if it is able to pay scheduled benefits when due with scheduled financing. For example, the OASDI program is solvent over any period for which the trust funds maintain a positive level of asset reserves.

Special public-debt obligation. Securities of the United States Government issued exclusively to the OASI, DI, HI, and SMI Trust Funds and other Federal trust funds. Section 201(d) of the Social Security Act provides that the public-debt obligations issued for purchase by the OASI and DI Trust Funds shall have maturities fixed with due regard for the needs of the funds. The usual practice has been to spread the holdings of special issues, as of each June 30, so that the amounts maturing in each of the next 15 years are approximately equal. Special public-debt obligations are redeemable at par value at any time and carry interest rates determined by law (see "Interest rate"). See tables VI.A4 and VI.A5 for a listing of the obligations held by the OASI and DI Trust Funds, respectively.

Stochastic model. A model used for projecting a probability distribution of potential outcomes. Such models allow for random variation in one or more variables through time. The random variation is generally based on fluctuations observed in historical data for a selected period. A large number of sim-

ulations, each of which reflects random variation in the variable(s), produce a distribution of potential outcomes.

Substantial gainful activity—SGA. The level of work activity used to establish disability. A finding of disability requires that a person be unable to engage in substantial gainful activity. A person who earns more than a certain monthly amount (net of impairment-related work expenses) is ordinarily considered to be engaging in SGA. The amount of monthly earnings considered as SGA depends on the nature of a person's disability. The Social Security Act specifies a higher SGA amount for statutorily blind individuals; Federal regulations specify a lower SGA amount for non-blind individuals. Both SGA amounts increase with increases in the national average wage index.

Summarized balance. The difference between the summarized income rate and the summarized cost rate, expressed as a percentage of GDP. The difference between the summarized income rate and cost rate as a percentage of taxable payroll is referred to as the actuarial balance.

Summarized cost rate. The ratio of the present value of cost to the present value of the taxable payroll (or GDP) for the years in a given period, expressed as a percentage. To evaluate the financial adequacy of the program, the summarized cost rate is adjusted to include the cost of reaching and maintaining a target trust fund level. A trust fund level of about 1 year's cost is considered to be an adequate reserve for unforeseen contingencies; therefore, the targeted trust fund ratio is 100 percent of annual cost. Accordingly, the adjusted summarized cost rate is equal to the ratio of: (1) the sum of the present value of the cost during the period plus the present value of the targeted ending trust fund level to (2) the present value of the taxable payroll (or GDP) during the projection period.

Summarized income rate. The ratio of the present value of scheduled non-interest income to the present value of taxable payroll (or GDP) for the years in a given period, expressed as a percentage. To evaluate the financial adequacy of the program, the summarized income rate is adjusted to include asset reserves on hand at the beginning of the period. Accordingly, the adjusted summarized income rate equals the ratio of: (1) the sum of the trust fund reserve at the beginning of the period plus the present value of non-interest income during the period to (2) the present value of the taxable payroll (or GDP) for the years in the period.

Supplemental Security Income—SSI. A Federally administered program (often with State supplementation) of cash assistance for needy aged, blind, or disabled persons. The General Fund of the Treasury funds Federal expenditures for the SSI program. The Social Security Administration administers it.

Supplementary Medical Insurance (SMI) Trust Fund. See "Trust fund."

Survivor benefit. Benefit payable to a survivor of a deceased worker.

Sustainable solvency. Sustainable solvency for the financing of the program under a specified set of assumptions is achieved when the projected trust fund ratio is positive throughout the 75-year projection period and is either stable or rising at the end of the period.

Taxable earnings. Wages or self-employment income, in employment covered by the OASDI or HI programs, that is under the applicable annual maximum taxable limit. For 1994 and later, no maximum taxable limit applies to the HI program.

Taxable payroll. A weighted sum of taxable wages and taxable self-employment income. When multiplied by the combined employee-employer payroll tax rate, taxable payroll yields the total amount of payroll taxes incurred by employees, employers, and the self-employed for work during the period.

Taxable self-employment income. The maximum amount of net earnings from self-employment by an earner which, when added to any taxable wages, does not exceed the contribution and benefit base. For HI beginning in 1994, all net earnings from self-employment.

Taxable wages. See "Taxable earnings."

Taxation of benefits. Beginning in 1984, Federal law subjected up to 50 percent of an individual's or a couple's OASDI benefits to Federal income taxation under certain circumstances. Treasury allocates the revenue derived from this provision to the OASI and DI Trust Funds on the basis of the income taxes paid on the benefits from each fund. Beginning in 1994, the law increased the maximum percentage from 50 percent to 85 percent. The HI Trust Fund receives the additional tax revenue resulting from the increase to 85 percent.

Taxes. See "Payroll tax contributions" and "Taxation of benefits."

Termination. Cessation of payment because the beneficiary is no longer entitled to receive a specific type of benefit. For example, benefits might terminate as a result of the death of the beneficiary, the recovery of a disabled beneficiary, or the attainment of age 18 by a child beneficiary. In some cases, an individual may cease one benefit and this is not a termination because they become immediately entitled to another type of benefit, such as the conversion of a disabled-worker beneficiary at normal retirement age to a retired-worker beneficiary.

Test of long-range close actuarial balance. The conditions required to meet this test are:

- The trust fund satisfies the test of short-range financial adequacy; and
- The trust fund ratio stays above zero throughout the 75-year projection period, such that benefits would be payable in a timely manner throughout the period.

The Trustees apply the test to OASI, DI, and the combined OASDI program based on the intermediate set of assumptions.

Test of short-range financial adequacy. The conditions required to meet this test are:

- If the trust fund ratio is at least 100 percent at the beginning of the 10-year projection period, then it must remain at or above 100 percent throughout the entire projection period;

- If the ratio is initially less than 100 percent, then it must reach at least 100 percent within 5 years (without reserve depletion at any time during this period) and then remain at or above 100 percent throughout the remainder of the 10-year period.

The Trustees apply the test to OASI, DI, and the combined OASDI program based on the intermediate set of assumptions.

Total-economy productivity. The ratio of real GDP to hours worked by all workers. Also referred to as "labor productivity."

Total fertility rate. The sum of the single-year-of-age birth rates for girls and women aged 14 through 49, where the rate for age 14 includes births to girls aged 14 and under, and the rate for age 49 includes births to women aged 49 and over. The total fertility rate may be interpreted as the average number of children that would be born to a woman if she were to experience, at each age of her life, the birth rate observed in, or assumed for, a specified year, and if she were to survive the entire childbearing period.

Trust fund. Separate accounts in the United States Treasury which hold the payroll taxes received under the Federal Insurance Contributions Act and the Self-Employment Contributions Act; payroll taxes resulting from coverage of State and local government employees; any sums received under the financial interchange with the railroad retirement account; voluntary hospital and medical insurance premiums; and reimbursements or payments from the General Fund of the Treasury. As required by law, the Department of the Treasury invests funds not required to meet current expenditures in interest-bearing securities backed by the full faith and credit of the U.S. Government. The interest earned is also deposited in the trust funds.

- **Old-Age and Survivors Insurance (OASI).** The trust fund used for paying monthly benefits to retired-worker (old-age) beneficiaries, their spouses and children, and to survivors of deceased insured workers.

- **Disability Insurance (DI).** The trust fund used for paying monthly benefits to disabled-worker beneficiaries, their spouses and children, and for providing rehabilitation services to the disabled.

- **Hospital Insurance (HI).** The Medicare trust fund that covers specified inpatient hospital services, posthospital skilled nursing care, home health services, and hospice care for aged and disabled individuals who meet the eligibility requirements. Also known as Medicare Part A.
- **Supplementary Medical Insurance (SMI).** The Medicare trust fund composed of the Part B Account, the Part D Account, and the Transitional Assistance Account. The Part B Account pays for a portion of the costs of physicians' services, outpatient hospital services, and other related medical and health services for voluntarily enrolled aged and disabled individuals. The Part D Account pays private plans to provide prescription drug coverage, beginning in 2006. The Transitional Assistance Account paid for transitional assistance under the prescription drug card program in 2004 and 2005.

The trust funds are distinct legal entities which operate independently. Fund operations are sometimes combined on a hypothetical basis.

Trust fund ratio. A measure of trust fund adequacy. The asset reserves at the beginning of a year (equal to the reserves at the end of the prior year), which do not include advance tax transfers, expressed as a percentage of the cost for the year. The trust fund ratio represents the proportion of a year's cost which could be paid solely with the reserves at the beginning of the year.

Trust fund reserve depletion. The point at which reserves in a trust fund are insufficient to pay scheduled benefits in full and on time.

Trust fund reserves. The cumulative excess of trust fund income over trust fund cost over all years to date. These reserves are held by the trust funds in the form of Treasury notes and bonds, other securities guaranteed by the Federal Government, certain Federally sponsored agency obligations, and cash.

Trustees. See "Board of Trustees."

Undisbursed balances. In general, refers to the cumulative differences between the actual cash payments for a month compared to security redemptions from the trust fund reserves made on a preliminary basis to cover such cash payments during the same month. On a monthly basis, the Social Security Administration (SSA) pays benefits and makes payments for other programmatic expenses associated with the trust funds. During each month, SSA draws cash from the trust funds on a preliminary basis, which results in Treasury redeeming invested securities to cover such payments. This monthly difference can be either positive or negative depending on net monthly activity, and is added to the balance at the end of the prior month.

A net positive undisbursed balance represents a situation where cumulative redemptions from the trust fund's securities are more than was needed to cover actual program cash payments through the end of the month. A net negative balance represents a situation where cumulative program cash pay-

ments exceeded the amount redeemed from the invested securities. A negative value requires future redemption of additional invested securities.

In addition, about every seven years, when January 3 falls on a Sunday, benefit payments scheduled to be paid on January 3rd are actually paid on December 31 of the preceding year, as required by the statutory provision included in the 1977 Social Security Amendments for early delivery of benefit payments when the normal payment delivery date is a Saturday, Sunday, or legal public holiday. Consistent with practice in prior reports and for comparability with other historical years and the projections in this report, all trust fund operations and asset reserves reflect the 12 months of benefits scheduled for payment in each year. Therefore, such advance payments are included as positive values in the undisbursed balance at the end of the calendar years in which the advance payments are made.

Unfunded obligation. A measure of the shortfall of trust fund income to fully cover program cost through a specified date after depletion of trust fund asset reserves. This measure can be expressed in present value dollars, discounted to the beginning of the valuation period, by computing the excess of the present value of the projected cost of the program through a specified date over the sum of: (1) the value of trust fund reserves at the beginning of the valuation period; and (2) the present value of the projected non-interest income of the program through a specified date, assuming scheduled tax rates and benefit levels. This measure can apply for all participants through a specified date, i.e., the open group, or be limited to a specified subgroup of participants.

Unfunded obligation ratio. The unfunded obligation accumulated through the beginning of a year expressed as a percentage of the cost for the year.

Unnegotiated check. A check which has not been cashed 6 months after the end of the month in which the check was issued. When a check has been outstanding for a year, the Department of the Treasury administratively cancels the check and reimburses the issuing trust fund separately for the amount of the check and interest for the period the check was outstanding. The appropriate trust fund also receives an interest adjustment for the time the check was outstanding if it is cashed 6 to 12 months after the month of issue. If a check is presented for payment after it has been administratively canceled, a replacement check is issued.

Valuation period. A period of years which is considered as a unit for purposes of calculating the financial status of a trust fund.

Vocational rehabilitation (VR). Services provided to disabled persons to help them to return to gainful employment. VR services are designed to provide an individual with the training or other services that are needed to return to work, to begin working, or to enter a new line of work. The trust funds, and the General Fund in the case of individuals also receiving Supplemental

Security Income disability benefits, reimburse the providers of such services only in those cases where the services contributed to the successful rehabilitation of the beneficiaries.