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Some analysts have proposed using revenues from the sale of emissions permits (designed to slow global warming) to plug the projected entitlements financing gap. This memo argues that earmarking is a bad idea, because there is no inherent connection between the magnitude of the two streams, and because the size of both streams (particularly the emission permit revenues) is extremely uncertain.

Comparison of Anticipated Magnitudes

The first three columns of the attached table show the Social Security Actuary's low, intermediate, and high estimates of the annual financing shortfall in the Social Security system as a fraction of GDP (excluding interest payments or receipts on trust fund balances).¹ In the intermediate projections, the shortfall is monotonically increasing over time, although about 80 percent of the ultimate deterioration has occurred by 2030, when the shortfall is projected to be about 1.7 percent of GDP.

The next three columns show projected emissions permit revenues as a fraction of GDP under the "Peak in 2015" plan (the least aggressive option considered), under three assumptions about the nature of the market for emissions permits: no international trading, trading among Annex I countries, and global trading.² Revenue estimates in 2030 vary by about a factor of ten depending on the assumption about trading. In the "no trading" regime, revenues in 2030 are roughly the same size as the Social Security shortfall, but under the other two options revenues fall far short. By 2050, revenues under "no trading" are more than twice the Social Security shortfall, but under the Annex I trading regime revenues are about 3/4 of the shortfall. The remaining columns of the table show projections of revenues under Annex I trading for the main alternatives to the "Peak in 2015" plan. Revenues for either the "-10% in 2010" or the "1995 in 2010" plans roughly match the intermediate projection of the Social Security financing gap by 2050, but in the early decades revenues substantially exceed the financing gap. Revenues from the "1990 in 2010" plan exceed the financing gap early on but are about 2/3 of the financing gap by 2050.

Of course, the emission-permit revenue scenarios that best match the intermediate projections of the Social Security shortfall do not even remotely match the low or high projections of the Social Security shortfall. Furthermore, the degree of uncertainty about the emission permit revenues is enormous. As an example, the current market price of sodium dioxide emissions permits in the US is about 1/10 of the price that economists had anticipated before the opening of the market.

Public Finance Considerations

Standard public finance theory indicates that earmarked taxes are generally a bad idea, because an optimizing social planner should be free to choose the overall tax schedule to minimize

¹This memo ignores Medicare because the cost estimates for Medicare are so extremely uncertain at this point.

²The permit price streams, emissions paths, and GDP for the climate policy simulations are outputs of SGM. Permit revenues assume an annual auction of all permits allocated to the U.S. government.

efficiency losses, and free to allocate incoming revenues to the places where the social marginal utility of expenditure is highest. From this perspective, the circumstances in which earmarking is least damaging are those in which the tax revenues bear some relationship to expenditure needs. The best example is the dedication of gasoline tax revenues to a trust fund for highway construction and maintenance. On this test, earmarking emissions permit revenues to financing Social Security is a terrible idea. Many of the kinds of shocks that would affect emission permit revenues (especially improvement of emissions technologies) are completely unrelated to shocks to the need for Social Security revenues, while shocks to Social Security needs are probably *negatively* correlated with emission permit revenues. For example, if fertility increases, Social Security financing needs will decline (at least over the projection period), but the extra population will produce more pollution and therefore *more* emission permit revenues.

The most persuasive arguments for earmarked taxes are generally public choice or political economy arguments, which begin either from the premise that the policymaker's objective function differs from that of society, or that the politics of the specific earmarked tax and expenditure have some important interaction that justifies the inefficiencies of earmarking. The best argument that can be made along such lines in this context is that the emission permit is "good" in a sense not likely to be appreciated by the political system at large (presumably because of global externalities), and that therefore it is important to tie the selfish interests of some powerful constituency to the fate of the emissions permits revenues. Specifically, the argument is that if emission permits are perceived as funding Social Security, they may survive political battles because the AARP would defend them (I use the AARP here as a stand-in for all self-proclaimed guardians of Social Security). This argument is not persuasive. The enormous uncertainty about the magnitude of emission permit revenues makes it seem very unlikely that the AARP would be keen to tie the fate of Social Security to an emissions-permit horse in the first place. Even if the Social Security and emissions permits could be linked initially, it seems likely that any shocks to emissions permit revenues would only make the AARP more eager to switch to a more reliable source of revenues. By contrast, the payroll tax is very well-suited as a source of Social Security revenues, because benefits are a function of wages and wage growth, so long-term productivity shocks affect both revenues and expenditures in similar ways.

Conclusion

A less explicit link between entitlements needs and emission permit revenues is more palatable than earmarking. In essentially any foreseeable future, the retirement of the baby boom generation will expand the Federal spending beyond any automatic increase in revenues, putting pressure on the Federal deficit. Extra general revenues from emissions permits would likely be used to some extent to plug that deficit hole, although it also seems likely that part of the revenues would be absorbed by extra spending. One could then use standard public finance arguments to say that, if emission permits are desirable from a social welfare perspective, they should be phased in gradually over time, with a time path chosen to deliver revenues just when the budget deficit is under the greatest pressure.

Year	Social Security Financing Gap (Annual, Percent of GDP)		
	Low	Intermediate	High
2000	0.6	0.4	0.2
2005	0.7	0.3	-0.2
2010	0.7	0.1	-0.5
2015	0.3	-0.3	-1.0
2020	-0.2	-0.9	-1.6
2025	-0.5	-1.4	-2.3
2030	-0.7	-1.7	-2.7
2035	-0.7	-1.8	-3.0
2040	-0.5	-1.7	-3.2
2045	-0.4	-1.7	-3.4
2050	-0.3	-1.7	-3.6

Emissions Trading Revenues (Annual, Percent of GDP)					
Peak in 2015			1990 in 2010 Annex I	-10% in 2010 Annex I	1995 in 2010 Annex I
US Only	Annex I	Global			
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.6	1.2	1.2
0.0	0.0	0.0	0.8	1.4	1.4
0.1	0.4	0.1	0.9	1.5	1.5
1.2	0.7	0.2	1.0	1.5	1.6
1.7	0.9	0.2	1.0	1.5	1.6
2.3	1.1	0.2	1.1	1.6	1.6
3.0	1.2	0.3	1.2	1.6	1.7
3.7	1.3	0.3	1.2	1.7	1.8
4.7	1.3	0.3	1.3	1.8	1.9

8/6

Phil Tseng, DOE

M-M 1.25

90%

1340 Stabilization

	2000	2005	2010	2015	2020	2025
price		~30-40	126.1	116.7	112.1	129.3
baseline			1767	1828	1940	2066
policy			1340	—————→		

.75

increases all the way through 2025

→ will get to me on Monday

Phil

8/11

M-M 0.75 90%

1340 stabilization

price

	2010	2015	2020	2025
	\$126	\$135	\$122	\$146

beyond 2025, need to redo tech assumptions for 2050, 2075 cases

→ may be infeasible w/ frozen tech at 2020

need to redo tech innovation if far into future

may take a couple of weeks

Appendices

B. LONG-RANGE ESTIMATES OF SOCIAL SECURITY TRUST FUND OPERATIONS IN DOLLARS

This appendix 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. It provides the means to track the progress of the funds during the projection period. Meaningful comparison of current dollar values over long periods of time can be difficult because of the tendency toward inflation. Some means of removing inflation is thus generally desirable. Several economic series, or "indices," are provided to allow current dollars to be adjusted for changes in prices, wages, and certain other aspects of economic growth during the projection period.

The selection of a particular index for adjustment of current dollars depends upon the analyst's decision as to which index provides the most useful standard for adjusting dollar amounts, over time, to create values that are appropriately comparable. Table III.B1 presents five such indices for adjustment.

One of the most common forms of standardization is based on some measure of change in the prices of consumer goods. One such price index is the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W, hereafter referred to as "CPI") which is published by the Bureau of Labor Statistics, Department of Labor. This is the index used to determine annual increases in OASDI monthly benefits payable after the year of initial eligibility. The CPI is assumed to increase ultimately at annual rates of 2.5, 3.5, and 4.5 percent for the low cost, intermediate, and high cost sets of assumptions (alternatives I, II, and III, respectively). Constant-dollar values (those adjusted by the CPI) are provided in table III.B2.

Another type of standardization combines the effects of price inflation and real-wage growth. The wage index presented here is the "SSA average wage index," as defined in section 215(i)(1)(G) of the Social Security Act. This index is used to make annual adjustments to many earnings-related quantities embodied in the Social Security Act, such as the contribution and benefit base. The average annual wage is assumed to increase ultimately by 3.9, 4.4, and 4.9 percent under the low cost, intermediate, and high cost alternatives (I, II, and III), respectively.

The taxable payroll index adjusts for the effects of changes in the number of workers and changes in the proportion of earnings that are

Operations in Dollars

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, adjusted for the lower effective tax rate on multiple-employer "excess wages," and including deemed wage credits for military service.

The gross domestic product (GDP) index adjusts for the growth in the aggregate amount of goods and services produced in the United States. Values adjusted by GDP (see appendix C) indicate their relative share of the total output of the economy. No explicit assumptions are made about growth in taxable payroll or GDP. These series are computed reflecting the other more basic economic and demographic assumptions, as discussed in section II.H.

Discounting with interest is another way of adjusting current dollars. The series of interest-rate factors included here is based on the average of the assumed annual interest rates for special public-debt obligations issuable to the trust funds. This series is slightly different from the interest rates used to create summarized values elsewhere in this report, where the actual yield on currently held trust fund assets is used for each year. Ultimate nominal interest rates, compounded semiannually, are assumed to be approximately 5.9, 6.2, and 6.4 percent for the low cost, intermediate, and high cost alternatives (I, II, and III), respectively.

Appendices

**Table III.B1.—Selected Economic Variables by Alternative,
Calendar Years 1996-2075**
[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI ¹	SSA average wage index ²	Taxable payroll ³	Gross domestic product	Compound interest-rate factor ⁴
Intermediate:					
1996	96.92	\$25,723.87	\$3,077	\$7,580	0.9372
1997	100.00	26,731.84	3,229	7,963	1.0000
1998	103.21	27,582.94	3,350	8,365	1.0675
1999	106.54	28,674.74	3,503	8,796	1.1404
2000	110.13	29,875.21	3,671	9,256	1.2182
2001	113.96	31,139.42	3,860	9,748	1.3007
2002	117.92	32,487.42	4,057	10,273	1.3883
2003	122.08	33,926.04	4,266	10,825	1.4818
2004	126.35	35,427.70	4,489	11,408	1.5807
2005	130.75	36,985.18	4,726	12,024	1.6849
2006	135.35	38,608.67	4,977	12,678	1.7939
2010	155.31	45,865.58	6,087	15,587	2.2911
2015	184.46	56,883.93	7,695	19,886	3.1089
2020	219.08	70,549.22	9,623	25,111	4.2185
2025	260.20	87,497.34	11,972	31,542	5.7241
2030	309.04	108,516.90	14,975	39,835	7.7672
2035	367.04	134,586.00	18,805	50,507	10.5394
2040	435.93	166,917.69	23,614	64,037	14.3012
2045	517.75	207,016.45	29,548	80,902	19.4055
2050	614.92	256,748.19	36,879	101,948	26.3317
2055	730.33	318,426.94	45,966	128,296	35.7300
2060	867.41	394,922.84	57,308	161,494	48.4828
2065	1,030.21	489,795.44	71,500	203,431	65.7872
2070	1,223.56	607,459.38	89,191	256,211	89.2679
2075	1,453.21	753,389.75	111,126	322,298	121.1294
Low Cost:					
1996	97.22	25,831.11	3,079	7,587	.9372
1997	100.00	26,812.51	3,249	8,004	1.0000
1998	102.65	27,569.06	3,391	8,422	1.0670
1999	105.24	28,606.74	3,555	8,853	1.1374
2000	107.82	29,705.69	3,730	9,304	1.2102
2001	110.54	30,834.16	3,918	9,775	1.2862
2002	113.31	31,998.55	4,116	10,270	1.3662
2003	116.15	33,265.39	4,323	10,787	1.4499
2004	119.05	34,570.01	4,537	11,323	1.5382
2005	122.02	35,914.90	4,764	11,887	1.6318
2006	125.05	37,312.17	5,003	12,480	1.7311
2010	138.03	43,482.33	6,033	15,031	2.1837
2015	156.17	52,649.06	7,463	18,677	2.9202
2020	176.69	63,748.26	9,162	23,039	3.9051
2025	199.91	77,187.36	11,229	28,374	5.2222
2030	226.18	93,459.62	13,896	35,284	6.9836
2035	255.90	113,162.29	17,318	44,184	9.3390
2040	289.52	137,018.58	21,635	55,466	12.4888
2045	327.57	165,904.11	26,979	69,499	16.7011
2050	370.62	200,879.14	33,611	87,000	22.3340
2055	419.32	243,227.44	41,898	108,973	29.8668
2060	474.42	294,503.37	52,321	136,734	39.9402
2065	536.76	356,589.09	65,412	171,770	53.4112
2070	607.30	431,763.41	81,751	215,706	71.4257
2075	687.10	522,785.63	102,015	270,469	95.5161

**Table III.B1.—Selected Economic Variables by Alternative,
Calendar Years 1996-2075 (Cont.)**
[GDP and taxable payroll in billions]

Calendar year	Adjusted CPI ¹	SSA average wage index ²	Taxable payroll ³	Gross domestic product	Compound interest-rate factor ⁴
High Cost:					
1996	96.37	\$25,716.81	\$3,075	\$7,573	0.9372
1997	100.00	26,750.93	3,212	7,922	1.0000
1998	103.94	27,356.31	3,263	8,159	1.0693
1999	109.57	29,114.53	3,479	8,801	1.1467
2000	116.14	30,833.02	3,696	9,416	1.2390
2001	121.51	31,711.98	3,786	9,661	1.3436
2002	126.95	33,854.48	4,032	10,371	1.4572
2003	132.65	35,547.71	4,285	11,072	1.5708
2004	138.65	37,243.99	4,552	11,739	1.6831
2005	144.90	39,054.18	4,814	12,444	1.8007
2006	151.41	40,973.14	5,087	13,184	1.9227
2010	180.56	49,613.66	6,304	16,515	2.4737
2015	225.01	63,020.05	8,128	21,595	3.3869
2020	280.40	80,049.07	10,344	27,885	4.6372
2025	349.43	101,679.58	13,055	35,705	6.3490
2030	435.45	129,155.00	16,501	45,785	8.6927
2035	542.65	164,054.72	20,876	58,766	11.9017
2040	676.24	208,384.88	26,316	75,159	16.2953
2045	842.72	264,693.72	32,986	95,576	22.3107
2050	1,050.18	336,218.09	41,165	121,007	30.5468
2055	1,308.72	427,069.53	51,193	152,668	41.8233
2060	1,630.90	542,470.31	63,557	192,292	57.2626
2065	2,032.40	689,054.25	78,878	242,110	78.4013
2070	2,532.73	875,247.50	97,849	304,698	107.3434
2075	3,156.25	1,111,753.00	121,259	383,075	146.9697

¹ The CPI used to adjust OASDI benefits is the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI), as defined by the Bureau of Labor Statistics, Department of Labor. The values shown are adjusted by dividing the calendar-year annual average CPI by the analogous value for 1997, and multiplying the result by 100, thereby initializing the CPI at 100 for 1997.

² The "SSA average wage index" is defined in section 215(i)(1)(G) of the Social Security Act; it is used in the calculations of initial benefits and the automatic adjustment of the contribution and benefit base and other wage-indexed program amounts.

³ Taxable payroll consists of total earnings subject to OASDI contribution rates, adjusted to include deemed wages based on military service and to reflect the lower effective contribution rates (compared to the combined employee-employer rate) which apply to multiple-employer "excess wages."

⁴ The compound interest-rate factor is based on the average of the assumed annual interest rates for special public-debt obligations issuable to the trust funds in the 12 months of the year, under each alternative.

Table III.B2 shows estimated operations of the combined OASI and DI Trust Funds in constant 1997 dollars (i.e., adjusted by the CPI indexing series as discussed above). Items included in the table are: income excluding interest, interest income, total income, total outgo, and assets at the end of the year. Income excluding interest consists of payroll-tax contributions, income from taxation of benefits, and miscellaneous reimbursements from the general fund of the Treasury. Outgo consists of benefit payments, administrative expenses, net transfers from the OASI and DI Trust Funds to the Railroad Retirement program under the financial-interchange provisions, and payments for vocational rehabilitation services for disabled beneficiaries.

Appendices

These estimates are based on the low cost, intermediate, and high cost sets of assumptions (alternatives I, II, and III).

Table III.B2.—Estimated Operations of the Combined OASI and DI Trust Funds in Constant 1997 Dollars ¹ by Alternative, Calendar Years 1997-2075
[In billions]

Calendar year	Income excluding interest	Interest income	Total income	Outgo	Assets at end of year
Intermediate:					
1997	\$407.7	\$43.7	\$451.3	\$370.8	\$647.4
1998	409.1	47.1	456.2	377.0	706.5
1999	414.4	50.4	464.8	384.1	765.1
2000	420.4	53.8	474.3	390.9	823.5
2001	427.6	57.1	484.8	398.6	882.0
2002	434.4	60.5	494.9	406.9	940.3
2003	441.3	63.9	505.2	414.9	998.7
2004	448.6	67.1	515.7	423.9	1,056.7
2005	457.2	70.3	527.5	433.0	1,115.8
2006	464.7	73.3	538.0	442.3	1,173.5
2010	497.4	81.3	578.7	489.0	1,378.5
2015	533.1	87.1	620.2	568.1	1,484.6
2020	565.7	77.2	642.9	665.0	1,293.5
2025 ²	596.9	44.5	641.3	760.4	717.0
Low Cost:					
1997	409.1	43.6	452.8	369.9	649.8
1998	416.1	47.4	463.5	375.4	721.1
1999	425.5	51.4	476.8	381.8	798.4
2000	435.2	55.8	491.0	387.8	882.5
2001	447.1	60.4	507.5	394.5	973.8
2002	458.0	65.3	523.4	401.5	1,071.8
2003	469.3	70.6	539.9	408.1	1,177.4
2004	480.5	76.2	556.7	416.0	1,289.3
2005	493.0	82.4	575.3	424.2	1,409.2
2006	504.6	88.8	593.4	432.7	1,535.7
2010	553.0	115.8	668.8	481.7	2,083.8
2015	608.0	152.7	760.7	571.0	2,752.2
2020	663.9	182.9	846.8	683.4	3,268.9
2025	723.2	200.7	923.9	797.5	3,564.4
2030	794.3	206.3	1,000.6	905.0	3,653.4
2035	876.8	206.0	1,082.8	994.6	3,650.8
2040	968.6	208.1	1,176.7	1,066.7	3,701.4
2045	1,067.8	217.2	1,285.0	1,147.7	3,876.5
2050	1,176.5	232.1	1,408.6	1,248.2	4,149.6
2055	1,297.6	250.0	1,547.6	1,373.8	4,472.3
2060	1,433.2	269.7	1,703.0	1,510.2	4,829.8
2065	1,584.1	294.4	1,878.6	1,652.6	5,279.1
2070	1,750.2	326.3	2,076.5	1,811.2	5,856.2
2075	1,931.2	364.5	2,295.8	1,995.7	6,542.9
High Cost:					
1997	406.5	43.8	450.2	372.0	645.2
1998	396.3	46.6	442.9	379.6	684.0
1999	399.8	48.9	448.7	382.4	715.1
2000	402.8	51.7	454.5	389.5	739.7
2001	394.3	54.1	448.4	403.7	751.7
2002	401.3	55.1	456.4	413.2	762.7
2003	408.8	55.6	464.3	421.9	772.4
2004	415.1	55.5	470.6	431.4	778.1
2005	421.0	55.2	476.1	441.0	779.7
2006	425.5	54.3	479.9	450.9	775.2
2010	444.6	42.4	487.0	493.1	678.6
2015 ²	464.1	21.4	485.5	559.7	335.6

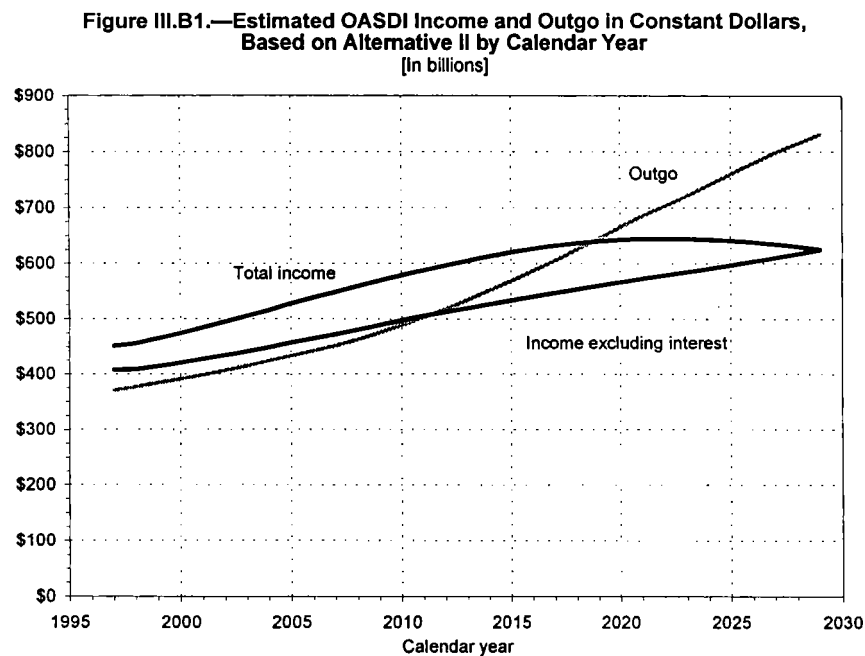
¹ The adjustment from current to constant dollars is by the CPI indexing series shown in table III.B1.

² Estimates for later years are not shown because the combined OASI and DI Trust Funds are estimated to become exhausted in 2029 under the intermediate assumptions and in 2018 under the high cost assumptions.

Note: Totals do not necessarily equal the sums of rounded components.

Operations in Dollars

Figure III.B1 provides a comparison of outgo with total annual income (including interest) and annual income excluding interest, for the OASDI program under intermediate assumptions. All values are expressed in constant dollars, as shown in table III.B2. The difference between the income values for each year is equal to the trust fund interest earnings. Thus the figure illustrates the fact that, under intermediate assumptions, combined OASDI expenditures will be payable from (1) current tax income alone through 2011, (2) current tax income plus a portion of annual interest income for years 2012 through 2018, and (3) current tax income, annual interest income, plus a portion of the principal balance in the trust funds for years 2019 through 2028, i.e., through the year preceding the year of trust fund exhaustion.



Appendices

Table III.B3.—Estimated Operations of the Combined OASI and DI Trust Funds in Current Dollars by Alternative, Calendar Years 1997-2075
(In billions)

Calendar year	Income excluding interest	Interest income	Total income	Outgo	Assets at end of year
Intermediate:					
1997	\$407.7	\$43.7	\$451.3	\$370.8	\$647.4
1998	422.3	48.6	470.8	389.1	729.2
1999	441.5	53.7	495.2	409.3	815.1
2000	463.0	59.3	522.3	430.5	906.9
2001	487.3	65.1	552.5	454.3	1,005.1
2002	512.2	71.4	583.6	479.9	1,108.9
2003	538.8	78.0	616.8	506.5	1,219.1
2004	566.8	84.8	651.6	535.6	1,335.1
2005	597.8	91.9	689.7	566.2	1,458.7
2006	628.9	99.3	728.2	598.6	1,588.2
2010	772.5	126.3	898.8	759.5	2,141.0
2015	983.3	160.7	1,144.0	1,048.0	2,738.5
2020	1,239.5	169.1	1,408.5	1,457.0	2,833.8
2025 ¹	1,553.1	115.7	1,668.8	1,978.5	1,865.5
Low Cost:					
1997	409.1	43.6	452.8	369.9	649.8
1998	427.1	48.6	475.7	385.3	740.3
1999	447.7	54.1	501.8	401.8	840.2
2000	469.2	60.2	529.4	418.2	951.5
2001	494.2	66.8	561.0	436.1	1,076.4
2002	519.0	74.0	593.0	455.0	1,214.4
2003	545.1	82.0	627.1	474.0	1,367.6
2004	572.0	90.7	662.7	495.3	1,535.0
2005	601.5	100.5	702.0	517.5	1,719.5
2006	631.0	111.1	742.0	541.1	1,920.4
2010	763.3	159.9	923.2	664.9	2,876.2
2015	949.5	238.5	1,188.0	891.8	4,298.1
2020	1,173.0	323.2	1,496.2	1,207.5	5,775.8
2025	1,445.8	401.2	1,846.9	1,594.3	7,125.4
2030	1,796.6	466.5	2,263.1	2,046.9	8,263.2
2035	2,243.7	527.2	2,770.9	2,545.2	9,342.3
2040	2,804.3	602.5	3,406.8	3,088.3	10,716.4
2045	3,497.8	711.5	4,209.4	3,759.5	12,698.1
2050	4,360.4	860.1	5,220.5	4,626.0	15,378.9
2055	5,441.1	1,048.3	6,489.4	5,760.8	18,753.2
2060	6,799.6	1,279.7	8,079.3	7,164.8	22,913.4
2065	8,503.1	1,580.3	10,083.4	8,870.4	28,336.3
2070	10,629.1	1,981.4	12,610.5	10,999.6	35,564.8
2075	13,269.6	2,504.6	15,774.2	13,712.8	44,956.1
High Cost:					
1997	406.5	43.8	450.2	372.0	645.2
1998	411.9	48.4	460.3	394.6	710.9
1999	438.1	53.5	491.6	419.0	783.6
2000	467.7	60.1	527.8	452.3	859.1
2001	479.2	65.7	544.9	490.5	913.4
2002	509.5	70.0	579.5	524.6	968.3
2003	542.2	73.7	615.9	559.6	1,024.6
2004	575.5	76.9	652.5	598.2	1,078.9
2005	610.0	79.9	689.9	639.0	1,129.8
2006	644.3	82.3	726.5	682.6	1,173.7
2010	802.8	76.5	879.3	890.3	1,225.2
2015 ¹	1,044.3	48.1	1,092.5	1,259.3	755.1

¹ Estimates for later years are not shown because the combined OASI and DI Trust Funds are estimated to become exhausted in 2029 under alternative II and in 2018 under alternative III.

Note: Totals do not necessarily equal the sums of rounded components.

Operations in Dollars

Table III.B3 shows estimated operations of the combined OASI and DI Trust Funds in current dollars—that is in dollars unadjusted for price inflation. Items included in the table are: income excluding interest, interest income, total income, total outgo, and assets at the end of the year. These estimates, based on the low cost, intermediate, and high cost sets of economic and demographic assumptions (I, II, and III), are presented to facilitate independent analysis.

Table III.B4 shows, in current dollars, estimated income (excluding interest) and estimated total outgo (excluding the cost of accumulating target trust fund balances) 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 low cost, intermediate, and high cost sets of assumptions (alternatives I, II, and III) described earlier in this report. For OASDI, income excluding interest consists of payroll-tax contributions, proceeds from taxation of OASDI benefits, and miscellaneous transfers from the general fund of the Treasury. Outgo consists of benefit payments, administrative expenses, net transfers from the trust funds to the Railroad Retirement program, and payments for vocational rehabilitation services for disabled beneficiaries. For HI, income excluding interest consists of contributions (including contributions from railroad employment), proceeds from the taxation of OASDI benefits, and payments from the general fund of the Treasury for contributions on deemed wage credits for military service. Total outgo consists of outlays (benefits and administrative expenses) for insured beneficiaries. Income and outgo estimates are shown on a cash basis for the OASDI program and on an incurred basis for the HI program.

Table III.B4 also shows the difference between income excluding interest and outgo, which is called the balance. The balance indicates the size of the net cash flow from tax income and expenditures to the funds.

Appendices

Table III.B4.—Estimated OASDI and HI Income Excluding Interest, Outgo, and Balance in Current Dollars by Alternative, Calendar Years 1997-2070

[In billions]

Calendar year	OASDI			HI			Combined		
	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance
Intermediate:									
1997 ...	\$408	\$371	\$37	\$116	\$142	-\$26	\$523	\$512	\$11
1998 ...	422	389	33	121	154	-33	544	543	(1)
1999 ...	441	409	32	127	168	-40	569	577	-8
2000 ...	463	431	33	134	182	-48	597	612	-15
2001 ...	487	454	33	141	197	-56	629	651	-23
2002 ...	512	480	32	149	213	-64	661	693	-31
2003 ...	539	507	32	158	230	-72	696	736	-40
2004 ...	567	536	31	167	248	-81	734	784	-50
2005 ...	598	566	32	177	268	-91	775	834	-59
2006 ...	629	599	30	187	289	-101	816	888	-71
2010 ...	772	759	13	236	391	-156	1,008	1,151	-143
2015 ...	983	1,048	-65	311	582	-271	1,295	1,630	-335
2020 ...	1,239	1,457	-218	408	868	-460	1,647	2,325	-677
2025 ...	1,553	1,978	-425	531	1,269	-738	2,084	3,247	-1,163
2030 ...	1,954	2,616	-662	690	1,837	-1,147	2,644	4,453	-1,809
2035 ...	2,464	3,354	-891	898	2,581	-1,683	3,361	5,935	-2,574
2040 ...	3,099	4,198	-1,098	1,162	3,513	-2,351	4,261	7,711	-3,450
2045 ...	3,885	5,255	-1,370	1,494	4,675	-3,180	5,379	9,929	-4,550
2050 ...	4,858	6,627	-1,769	1,919	6,150	-4,231	6,777	12,777	-6,000
2055 ...	6,071	8,438	-2,367	2,463	8,061	-5,598	8,534	16,499	-7,964
2060 ...	7,588	10,731	-3,143	3,163	10,655	-7,492	10,752	21,386	-10,635
2065 ...	9,485	13,566	-4,081	4,059	14,192	-10,134	13,544	27,758	-14,215
2070 ...	11,850	17,107	-5,258	5,201	18,921	-13,720	17,051	36,028	-18,977
Low Cost:									
1997 ...	409	370	39	117	140	-23	526	510	16
1998 ...	427	385	42	124	152	-27	551	537	14
1999 ...	448	402	46	132	164	-32	579	565	14
2000 ...	469	418	51	139	176	-37	608	594	15
2001 ...	494	436	58	147	188	-41	641	624	17
2002 ...	519	455	64	155	200	-45	674	655	19
2003 ...	545	474	71	164	213	-49	709	687	22
2004 ...	572	495	77	173	226	-53	745	721	23
2005 ...	602	518	84	182	240	-57	784	757	27
2006 ...	631	541	90	192	254	-62	823	795	28
2010 ...	763	665	98	237	319	-82	1,001	984	16
2015 ...	950	892	58	307	432	-125	1,256	1,323	-67
2020 ...	1,173	1,207	-34	394	586	-192	1,567	1,793	-227
2025 ...	1,446	1,594	-149	504	770	-266	1,950	2,364	-414
2030 ...	1,797	2,047	-250	647	1,028	-381	2,444	3,075	-631
2035 ...	2,244	2,545	-301	833	1,363	-530	3,077	3,908	-831
2040 ...	2,804	3,088	-284	1,070	1,793	-722	3,874	4,881	-1,006
2045 ...	3,498	3,759	-262	1,371	2,358	-987	4,869	6,117	-1,248
2050 ...	4,360	4,626	-266	1,755	3,092	-1,338	6,115	7,718	-1,603
2055 ...	5,441	5,761	-320	2,249	4,055	-1,806	7,690	9,816	-2,126
2060 ...	6,800	7,165	-365	2,884	5,367	-2,483	9,684	12,532	-2,848
2065 ...	8,503	8,870	-367	3,700	7,160	-3,460	12,203	16,030	-3,827
2070 ...	10,629	11,000	-371	4,743	9,567	-4,824	15,372	20,566	-5,194

Operations in Dollars

Table III.B4.—Estimated OASDI and HI Income Excluding Interest, Outgo, and Balance in Current Dollars by Alternative, Calendar Years 1997-2070 (Cont.)
[In billions]

Calendar year	OASDI			HI			Combined		
	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance	Income excluding interest	Outgo	Balance
High Cost:									
1997 ...	\$406	\$372	\$34	\$112	\$142	-\$30	\$518	\$514	\$4
1998 ...	412	395	17	119	158	-39	531	553	-22
1999 ...	438	419	19	125	174	-49	563	593	-30
2000 ...	468	452	15	129	191	-61	597	643	-46
2001 ...	479	491	-11	138	211	-73	617	701	-84
2002 ...	509	525	-15	147	233	-85	657	757	-101
2003 ...	542	560	-17	157	256	-100	699	816	-117
2004 ...	576	598	-23	166	282	-115	742	880	-138
2005 ...	610	639	-29	177	309	-133	787	948	-162
2006 ...	644	683	-38	189	340	-152	833	1,023	-190
2010 ...	803	890	-88	242	500	-258	1,044	1,390	-345
2015 ...	1,044	1,259	-215	327	822	-496	1,371	2,082	-711
2020 ...	1,342	1,798	-456	437	1,360	-923	1,779	3,157	-1,378
2025 ...	1,709	2,514	-804	579	2,209	-1,630	2,289	4,723	-2,434
2030 ...	2,178	3,431	-1,253	765	3,470	-2,705	2,943	6,901	-3,957
2035 ...	2,774	4,553	-1,779	1,008	5,164	-4,157	3,781	9,717	-5,936
2040 ...	3,512	5,904	-2,392	1,314	7,278	-5,963	4,827	13,182	-8,355
2045 ...	4,421	7,636	-3,215	1,701	9,789	-8,088	6,122	17,425	-11,303
2050 ...	5,544	9,910	-4,367	2,193	12,865	-10,671	7,737	22,775	-15,038
2055 ...	6,934	12,945	-6,011	2,823	16,842	-14,019	9,757	29,787	-20,030
2060 ...	8,661	16,873	-8,212	3,629	22,200	-18,571	12,290	39,073	-26,783
2065 ...	10,806	21,831	-11,024	4,658	29,466	-24,807	15,464	51,296	-35,832
2070 ...	13,468	28,088	-14,620	5,970	39,179	-33,209	19,438	67,266	-47,828

¹ Between \$0 and \$500 million.

Notes:

1. Annual figures are available from the Office of the Chief Actuary, Social Security Administration.
2. Totals do not necessarily equal the sums of rounded components.

Table III.B5 shows estimated future benefit amounts payable to persons attaining age 65 in various years based on retirement at the normal retirement age and at age 65, for various steady levels of pre-retirement earnings, based on intermediate assumptions. The benefit amount is shown in current dollars, constant dollars (adjusted by the CPI indexing series shown in table III.B1), and as a percentage of earnings in the 12-month period preceding retirement. The normal retirement age is currently 65 and is scheduled to increase to age 66 during the period 2000-05 (at a rate of 2 months per year as workers attain age 62) and to age 67 during the period 2017-22 (also by 2 months per year as workers attain age 62). The pre-retirement earnings levels shown are: low (earnings at 45 percent of the projected SSA average wage index), average (earnings at the amount of the projected SSA average wage index), high (earnings at 160 percent of the projected SSA average wage index), and maximum (earnings at the amount of the projected OASDI contribution and benefit base).

Appendices

**Table III.B5.—Estimated Average Benefit Amount Payable¹ to Retired Workers
With Various Steady Pre-Retirement Earnings Levels Based on
Intermediate Assumptions, Calendar Years 1997-2075**

Year attain age 65 ²	Retirement at normal retirement age				Retirement at age 65		
	Age at retire- ment	Current dollars	Constant 1997 dollars ³	Percent of earnings	Current dollars	Constant 1997 dollars ³	Percent of earnings
Low earnings: ⁴							
1997	65:0	\$6,810	\$6,810	58.8	\$6,810	\$6,810	58.8
2000	65:0	7,461	6,775	57.8	7,461	6,775	57.8
2005	65:6	9,254	6,956	56.8	8,797	6,728	55.2
2010	66:0	11,698	7,277	56.7	10,507	6,765	53.1
2015	66:0	14,502	7,596	56.7	13,034	7,066	53.2
2020	66:2	18,096	7,935	56.6	15,971	7,290	52.5
2025	67:0	23,203	8,324	56.4	18,818	7,155	49.4
2030	67:0	28,775	8,692	56.4	23,095	7,473	49.4
2035	67:0	35,684	9,076	56.4	28,643	7,804	49.4
2040	67:0	44,265	9,479	56.4	35,527	8,150	49.4
2045	67:0	54,903	9,899	56.5	44,060	8,510	49.4
2050	67:0	68,094	10,337	56.5	54,651	8,887	49.4
2055	67:0	84,461	10,796	56.5	67,781	9,281	49.4
2060	67:0	104,752	11,273	56.5	84,065	9,692	49.4
2065	67:0	129,918	11,772	56.5	104,271	10,121	49.4
2070	67:0	161,125	12,293	56.5	129,316	10,569	49.4
2075	67:0	199,841	12,837	56.5	160,390	11,037	49.4
Average earnings:							
1997	65:0	11,226	11,226	43.6	11,226	11,226	43.6
2000	65:0	12,322	11,189	43.0	12,322	11,189	43.0
2005	65:6	15,289	11,493	42.2	14,526	11,109	41.0
2010	66:0	19,340	12,031	42.2	17,354	11,174	39.5
2015	66:0	23,974	12,557	42.1	21,519	11,666	39.5
2020	66:2	29,922	13,121	42.1	26,369	12,036	39.0
2025	67:0	38,416	13,782	42.1	30,749	11,817	36.7
2030	67:0	47,634	14,389	42.0	38,127	12,337	36.7
2035	67:0	59,080	15,026	42.0	47,286	12,883	36.7
2040	67:0	73,281	15,693	42.1	58,647	13,453	36.7
2045	67:0	90,888	16,387	42.1	72,740	14,049	36.7
2050	67:0	112,731	17,114	42.1	90,226	14,673	36.7
2055	67:0	139,811	17,871	42.1	111,902	15,322	36.7
2060	67:0	173,400	18,661	42.1	138,788	16,000	36.7
2065	67:0	215,065	19,488	42.1	172,136	16,709	36.7
2070	67:0	266,731	20,350	42.1	213,488	17,448	36.7
2075	67:0	330,806	21,250	42.1	264,770	18,220	36.7
High earnings: ⁵							
1997	65:0	14,462	14,462	35.1	14,462	14,462	35.1
2000	65:0	15,969	14,501	34.8	15,969	14,501	34.8
2005	65:6	20,079	15,094	34.7	19,075	14,588	33.7
2010	66:0	25,502	15,865	34.8	22,927	14,762	32.6
2015	66:0	31,616	16,560	34.7	28,438	15,417	32.6
2020	66:2	39,450	17,298	34.7	34,853	15,909	32.2
2025	67:0	50,523	18,126	34.6	40,619	15,611	30.3
2030	67:0	62,654	18,926	34.6	50,378	16,302	30.3
2035	67:0	77,710	19,764	34.6	62,485	17,024	30.3
2040	67:0	96,376	20,638	34.6	77,494	17,777	30.3
2045	67:0	119,532	21,552	34.6	96,112	18,563	30.3
2050	67:0	148,247	22,505	34.6	119,207	19,386	30.3
2055	67:0	183,871	23,502	34.6	147,850	20,244	30.3
2060	67:0	228,040	24,542	34.6	183,377	21,141	30.3
2065	67:0	282,834	25,629	34.6	227,425	22,076	30.3
2070	67:0	350,772	26,762	34.6	282,064	23,053	30.3
2075	67:0	435,042	27,946	34.6	349,821	24,072	30.3

Operations in Dollars

**Table III.B5.—Estimated Average Benefit Amount Payable ¹ to Retired Workers
With Various Steady Pre-Retirement Earnings Levels Based on
Intermediate Assumptions, Calendar Years 1997-2075 (Cont.)**

Year attain age 65 ²	Retirement at normal retirement age				Retirement at age 65		
	Age at retire- ment	Current dollars	Constant 1997 dollars ³	Percent of earnings	Current dollars	Constant 1997 dollars ³	Percent of earnings
Maximum earnings: ⁶							
1997	65:0	\$15,955	\$15,955	25.4	\$15,955	\$15,955	25.4
2000	65:0	17,919	16,271	25.4	17,919	16,271	25.4
2005	65:6	23,106	17,369	26.3	21,951	16,788	25.6
2010	66:0	30,232	18,807	27.2	27,042	17,411	25.4
2015	66:0	38,175	19,995	27.7	34,239	18,562	25.9
2020	66:2	47,829	20,973	27.8	42,207	19,265	25.8
2025	67:0	61,366	22,016	27.7	49,271	18,936	24.3
2030	67:0	76,098	22,987	27.7	61,102	19,772	24.2
2035	67:0	94,366	24,001	27.7	75,761	20,641	24.2
2040	67:0	116,860	25,025	27.7	93,825	21,523	24.2
2045	67:0	144,829	26,113	27.6	116,282	22,459	24.2
2050	67:0	179,622	27,268	27.6	144,204	23,451	24.2
2055	67:0	222,768	28,474	27.6	178,852	24,489	24.2
2060	67:0	276,287	29,734	27.6	221,817	25,572	24.2
2065	67:0	342,660	31,050	27.6	275,108	26,704	24.2
2070	67:0	424,968	32,423	27.6	341,192	27,885	24.2
2075	67:0	527,061	33,857	27.6	423,162	29,119	24.2

¹ Annual benefit amount is the benefit payable for the 12-month period starting with the month of retirement.

² Assumed to attain age 65 in January of the year.

³ The adjustment from current to constant dollars is made using the CPI indexing series shown in table III.B1.

⁴ Earnings equal to 45 percent of average.

⁵ Earnings equal to 160 percent of average.

⁶ Earnings equal to the OASDI contribution and benefit base.