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Social Security: A Bleak Outlook for Baby Boomers

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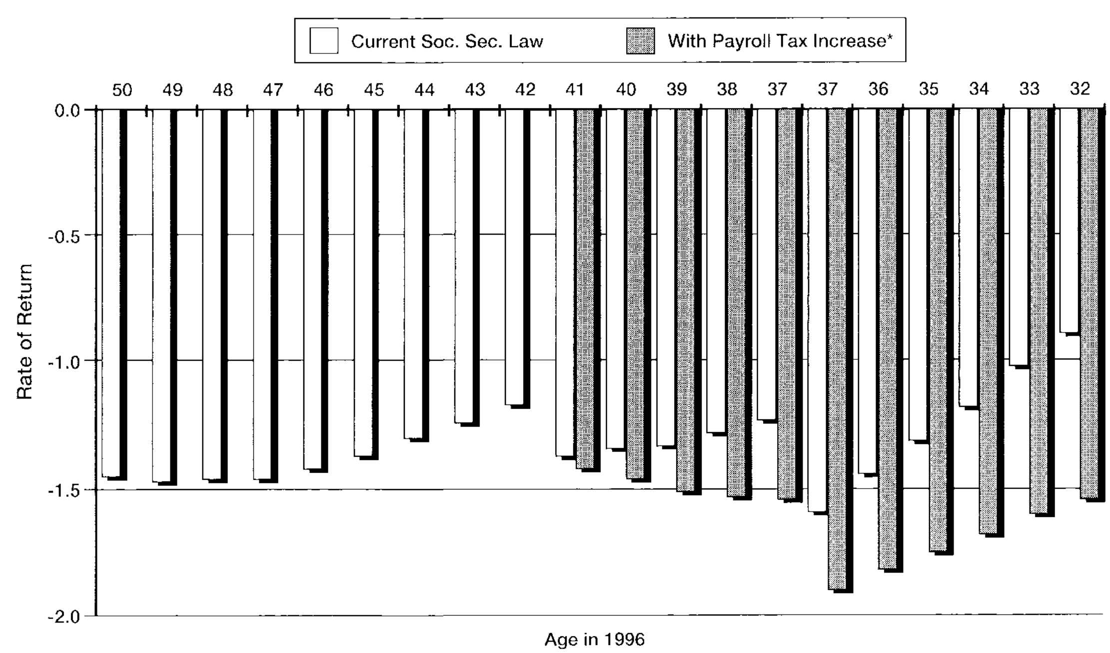
Most members of the baby-boom generation — those people born between 1946 and 1964 — can expect to lose money on Social Security when it is viewed as an investment for retirement. In fact, the negative returns shown in *Figure 1* will almost certainly become worse if lawmakers enact traditional reforms to keep the Social Security system from going broke in the year 2029.

Traditional approaches of repairing the solvency of the trust fund include increased payroll taxes, reduced benefits, or postponing the eligible retirement age. Such reforms will make Social Security an even worse deal for baby boomers—and the generations that follow them—because they each have the effect of raising the cost of Social Security benefits. The only productive alternative may be to break with tradition and implement some type of plan which permits taxpayers

Figure 1
Real Rate of Return on Social Security for Average-Wage Earning Baby Boomer Couple



* Payroll tax increase that is projected to be necessary to keep Social Security solvent.
Note: The graph includes two estimates for 37-year-olds, due to the fact that from 2025 to 2026 the eligibility age for full Social Security benefits rises from 66 years and 10 months to 67 years.
Source: Tax Foundation.

Table 1
Real Rate of Return on Employer/Employee Payroll Taxes for Selected Members of the Baby-Boom Generation

		Low Wage Couple		Average Wage Couple		High Wage Couple	
Year of Retirement	Worker's Age in 1996	Current Law Payroll Taxes	With Payroll Tax Increase*	Current Law Payroll Taxes	With Payroll Tax Increase*	Current Law Payroll Taxes	With Payroll Tax Increase
2012	50	-0.21%	*	-1.45%	*	-2.60%	*
2015	47	-0.27%	*	-1.46%	*	-2.55%	*
2019	43	-0.27%	*	-1.24%	*	-2.24%	*
2023	39	-0.47%	-0.63%	-1.33%	-1.51%	-2.23%	-2.43%
2027	36	-0.65%	-1.00%	-1.44%	-1.82%	-2.31%	-2.73%
2031	32	-0.20%	-0.79%	-0.89%	-1.54%	-1.81%	-2.53%

* Payroll tax increase that is projected to be necessary to keep Social Security solvent.
Source: Tax Foundation.

Table 2
After-Tax Annual Social Security Benefit Compared with After-Tax Annual Annuity that could have been Purchased with Lifetime Employer/Employee Payroll Taxes Compounded with Interest — Current Law Payroll Taxes

		Low Wage Couple		Average Wage Couple		High Wage Couple	
Year of Retirement	Worker's Age in 1996	Annual After-Tax S.S. Benefits	Hypothetical Annual After-Tax Annuity	Annual After-Tax S.S. Benefits	Hypothetical Annual After-Tax Annuity	Annual After-Tax S.S. Benefits	Hypothetical Annual After-Tax Annuity
2012	50	$26,835	$29,879	$39,484	$50,065	$53,217	$75,481
2015	47	31,017	34,495	45,631	57,516	61,532	86,242
2019	43	37,622	41,379	55,339	67,626	74,649	100,531
2023	39	44,164	48,807	64,961	78,864	87,624	116,012
2027	36	52,432	58,664	77,256	94,222	104,014	137,530
2031	32	63,779	68,469	93,896	108,741	126,439	159,528

Note: Annuities reflect female life expectancies.
Source: Tax Foundation.

to opt out of Social Security.

Table 1 reports the rate of return a sample of two-earner baby-boom couples with different wage profiles (see *Table 5*) can expect to receive on their lifetime employer/employee payroll taxes. The first column for each couple assumes the continuation of the current law payroll tax rate. The second column for each couple assumes the payroll tax rate increase necessary to maintain the financial integrity of the Social Security trust fund, as projected under the summarized intermediate "cost rate" assumptions of the Social Security Board of Trustees. Under these assumptions, the employer/employee payroll tax rate for Social Security (Old-Age and Survivors Insurance only) will increase from the post-1997 level of 10.6 percent to 14.7 percent in the year 2020, and remain at that level until 2045. Thus, only baby boomers under the age of 41 in 1996 (retiring in 2021 or later) are affected by the assumed tax increase.

For each couple profile in *Table 1*, notice the fluctuation in the rate of return on Social Security under the current law payroll tax rate. (*Figure 1* shows this pattern on a continuous basis for average-wage couples.) Aside from real wage growth (to which Social Security benefits are linked), these fluctuations occur for two primary reasons.

First, couples of different ages face different interest rates over their lifetime. To evaluate the rate of return on an investment properly, one must define the cost of the expected benefits. In the case of Social Security benefits, the cost includes lifetime employer/employee payroll taxes paid plus the interest the taxes would have earned (on a compounded basis). The later the baby-boom couples reported in *Table 1* retire, the lower the lifetime real interest rates they are hypothetically able to earn on their payroll taxes. The simple reason for this outcome is that the inflation-adjusted interest rates projected by the Social Security Administration for its special-issue bonds are substantially lower than than the historical interest rates on these bonds during the 1980s and, to a lesser extent, the 1990s.

The second reason for the fluctuations seen in *Table 1* has to do with the phasing in of the second eligible-age increase implemented by the Social Security reforms of 1983. Beginning in the year 2021, the eligible age for full Social Security benefits begins to increase from 66 to 67 in two-month increments until fully phased-in by the year 2026. (The first eligible-age increase — from 65 to 66 — becomes fully phased-in by the year 2008.) For every two-month period that the eligibility age increases, a Social Security recipient must pay extra payroll taxes and receive fewer Social Security benefits than they would have otherwise. Thus, advancing the eligibility age increases the cost and reduces the benefits of Social Security, thereby lowering the "investment" returns on Social Security for those people retiring during, and after, the time of transition.

Baby Boomers Will Overpay for Their Social Security

Another way to understand the quality of the investment Social Security will be for baby boomers is to compare baby-boom couples' expected annual after-tax Social Security benefits with a hypothetical after-tax annuity that they could have purchased with their lifetime employer/employee payroll taxes. The figures

Table 3
Lifetime Employer/Employee Payroll Taxes Paid (with Interest), Cost of Purchasing an Annuity of Equal Value to Social Security Benefits, and the Percentage Decrease in Payroll Tax Rates Required to Eliminate Excess Payroll Taxes Paid

Low-Wage Couple

Year of Retirment	Worker's Age in 1996	Lifetime Payroll Taxes*	Lifetime Payroll Taxes Needed to Buy Annuity Equal to Social Security*	Change In Payroll Tax Rates Necessary to Eliminate Excess Payroll Taxes Paid
2012	50	$483,617	$434,338	-10.19%
2015	47	561,145	504,566	-10.08
2019	43	679,866	618,143	-9.08
2023	39	833,926	754,599	-9.51
2027	36	988,166	883,186	-10.62
2031	32	1,161,126	1,081,595	-6.85

Average-Wage Couple

Year of Retirment	Worker's Age in 1996	Lifetime Payroll Taxes*	Lifetime Payroll Taxes Needed to Buy Annuity Equal to Social Security*	Change In Payroll Tax Rates Necessary to Eliminate Excess Payroll Taxes Paid
2012	50	$810,339	$639,077	-21.13%
2015	47	935,645	742,301	-20.66
2019	43	1,111,116	909,232	-18.17
2023	39	1,347,485	1,109,939	-17.63
2027	36	1,587,121	1,301,337	-18.01
2031	32	1,844,082	1,592,336	-13.65

High-Wage Couple

Year of Retirment	Worker's Age in 1996	Lifetime Payroll Taxes*	Lifetime Payroll Taxes Needed to Buy Annuity Equal to Social Security*	Change In Payroll Tax Rates Necessary to Eliminate Excess Payroll Taxes Paid
2012	50	$1,221,727	$861,360	-29.50%
2015	47	1,402,937	1,000,982	-28.65
2019	43	1,651,750	1,226,513	-25.74
2023	39	1,982,194	1,497,153	-24.47
2027	36	2,316,615	1,752,052	-24.37
2031	32	2,705,352	2,144,215	-20.74

* Adjusted for inflation and compounded with interest.
Note: Inflation adjustments are in retirement-year dollars, so figures are not comparable on constant-dollar basis across retirement years. Annuities reflect female life expectancies.
Source: Tax Foundation.

in *Table 2* demonstrate that every couple of the baby-boom generation would have been much wealthier if their (current law) payroll taxes had been placed in an interest-bearing account rather than immediately paid out to Social Security recipients. (See page 6 for interest rate assumptions.)

For example, low-wage couples retiring in the year 2012 can expect to receive $26,835 in inflation-adjusted, after-tax Social Security benefits each year. Their hypothetical annual annuity, however, would have amounted to $29,879, a $3,044 per-year difference. More importantly, under the hypothetical annuity arrangement, the full value of the annuity (and its underlying principal) would remain in the couples' estate in the event of an untimely death, or deaths. Under Social Security, the cashflow simply stops for the deceased and the survivors have no claim to any amount of principal.

In addition, the annuity values in *Table 2* are based on the relatively low interest rates earned on Social Security Administration special-issue bonds. With market rates of interest on private securities, the hypothetical annuities would be substantially larger than those reported. (Note that the couples presented are two-earner couples. The calculation for couples with only one earner and a dependent spouse are different, because of the Social Security rules that allow the worker to receive 150 percent of their formulary benefits to cover their dependent spouse. For couples with a male worker and a female dependent spouse, only high-wage baby-boom couples would be better off with the hypothetical annuity.)

The essence of the results reported in *Table 2* is that most boomers will pay too much for their Social Security benefits. *Table 3* provides calculations showing in a lifetime context how much boomers, as represented in the couple profiles, will be forced to overpay for their Social Security benefits, given current-law payroll tax rates. The figures presented in *Table 3* show the results of a query: If taxpayers were permitted to invest their employer/employee payroll taxes on their own (at Social Security interest rates) and still receive their expected level of annual Social Security benefits in the form of an annuity, what would be the required level of lifetime payroll tax rates?

In *Table 3*, the "Lifetime Payroll Taxes" column under each couple profile reports the actual lifetime employer/employee payroll taxes these boomers will "pay" for their Social Security benefits, after compounding the taxes with interest and adjusting for inflation. (Note that these lifetime figures are the sums used to

Table 4
Annual Social Security Benefits Versus Value of Annuities Under a Chilean-Style Opt-Out Program, Assuming Taxpayers Opt Out in 1996

Low-Wage Couple

Year of Retirement	Worker's Age in 1996	Annual After-Tax Value of Annuity Paid for With: Payroll Taxes Paid Through Opt-Out Date*	Annual After-Tax Value of Annuity Paid for With: Private Savings in Lieu of Payroll Taxes	Total of After-Tax Opt-Out Annuities	After-Tax Soc. Sec. Benefits
2012	50	$15,105	$7,680	$22,785	$26,835
2015	47	16,617	10,686	27,304	31,017
2019	43	18,487	15,915	34,401	37,622
2023	39	19,236	24,304	43,539	44,164
2027	36	21,492	33,781	55,273	52,432
2031	32	21,780	46,884	68,664	63,779

Average-Wage Couple

Year of Retirement	Worker's Age in 1996	Annual After-Tax Value of Annuity Paid for With: Payroll Taxes Paid Through Opt-Out Date*	Annual After-Tax Value of Annuity Paid for With: Private Savings in Lieu of Payroll Taxes	Total of After-Tax Opt-Out Annuities	After-Tax Soc. Sec. Benefits
2012	50	$25,301	$13,928	$39,229	$39,484
2015	47	27,416	19,386	46,802	45,631
2019	43	29,291	28,887	58,178	55,339
2023	39	29,597	44,115	73,712	64,961
2027	36	32,209	61,336	93,546	77,256
2031	32	29,912	85,015	114,928	93,896

High-Wage Couple

Year of Retirement	Worker's Age in 1996	Annual After-Tax Value of Annuity Paid for With: Payroll Taxes Paid Through Opt-Out Date*	Annual After-Tax Value of Annuity Paid for With: Private Savings in Lieu of Payroll Taxes	Total of After-Tax Opt-Out Annuities	After-Tax Soc. Sec. Benefits
2012	50	$37,774	$23,478	$61,252	$53,217
2015	47	40,120	32,690	72,810	61,532
2019	43	41,869	48,712	90,582	74,649
2023	39	40,724	74,390	115,114	87,624
2027	36	41,096	103,326	144,422	104,014
2031	32	31,132	143,240	174,372	126,439

* Compunded with interest until retirement.
Note: Annuities reflect female life expectancies.
Source: Tax Foundation.

calculate the hypothetical annuities in *Table 2* and represent a conservative estimate of the additional lifetime wealth the couples could have accumulated for their estate, net of any Social Security benefits they receive.) The "Lifetime Payroll Taxes Needed" column under each couple profile reports the sums required to purchase an annual annuity of equal value to annual Social Security benefits, derived by making the payroll tax rate adjustments reported in the "Change in Lifetime Payroll Tax Rates" column.

Evaluating the current-law situation for average wage couples retiring in the year 2015 will illustrate the point. These couples will pay $193,344 too much for their expected Social Security benefits because the 13 different employer/employee payroll tax rates they face over their lifetimes will have been 20.66 percent too high. For example, the scheduled 1996 rate of 10.52 percent "should" be 8.346 percent.

The excessive payroll tax rates faced by the average wage couples will result in lifetime employer/employee payroll taxes (compounded with interest and adjusted for inflation) of $935,645. Yet the price of an after-tax annual annuity equal in value to this couple's expected after-tax Social Security benefits amounts to only $742,301. The $193,344 excess is eliminated by decreasing the couples' various lifetime payroll tax rates by 20.66 percent.

Boomers Would Favor Chilean-Style Opt-Out Plan

In 1981, Chile became the first nation to offer its citizens a plan for opting out of its government-run social security system and into a (mandatory) system that is privately run. (Workers that entered the labor force after implementation of the plan had to participate in the privately run plan.) According to José Piñera, the architect of the opt-out plan while he was Chile's minister of labor and social welfare, over 90 percent of all people covered under the government-run system have chosen to opt into the privately run system.

Table 4 shows that, for financial reasons alone, most couples of the baby-boom generation would choose a similar option. The experiment performed to derive the results in *Table 4* resembles the key elements of the Chilean opt-out plan.

Chile has provided government bonds (called recognition bonds) to all people that have chosen to opt out of its government-run social security system. These bonds, which earn a competitive rate of interest paid out of the Chilean government's general revenues, have a face value equal to the present value of the benefits each Chilean earned under the government-run system. When the Chileans reach retirement age they can redeem their recognition bonds and buy a privately provided annuity.

In a similar fashion, suppose baby-boom couples in the United States that choose to opt out of Social Security could be given bonds equal to the inflation-adjusted lifetime employer/employee payroll taxes paid to date. These bonds would earn compounded, tax-free interest income (at the rate earned on Social Security Administration special-issue bonds) from the time of opt-out until the time of retirement. Upon retirement, the couples could (without tax consequences) purchase annuities from private companies (at market interest rates) with the mature value of the bonds. The inflation-adjusted annual after-tax value of such annuities are reported in *Table 4* under the "Payroll Taxes Paid Through Opt-Out Date" column of each couple profile.

Chileans that have opted out of the government-run social security system (and those newly entering the workforce) must start contributing to a qualified private pension plan (which resembles a tax-free mutual fund) approximately the same amount as they and their employers would have paid in payroll taxes under the government-run system. Upon retirement, the mature value of the Chileans' private pension plan may be used to purchase a (qualified) annuity from a private company at market rates of interest.

Likewise, suppose baby-boom couples in the United States could use the equivalent of their expected payroll taxes, upon opting out of Social Security, to invest in a privately run pension plan. Upon retirement, the couples could (without tax consequences) purchase annuities from private companies (at market interest rates) with the mature value of their pension plan accounts.

The inflation-adjusted annual after-tax value of such annuities are reported in *Table 4* in the "Private Savings in Lieu of Payroll Taxes" column under each couple profile. (In the spirit of the rules governing pension plan investments in the United States, the interest rates used when the couples' money is in the custody of a private company assumes the rate of return on a portfolio containing equal shares of A-, Aa-, and Aaa-rated corporate securities.)

The "Total of After-Tax Opt-Out Annuities" column under each couple profile in *Table 4* sums the two separate annuity streams to arrive at the total annual cashflow available to retiring couples if they opted out of Social Security in the year 1996. Comparing this sum with the couples' annual "After-Tax Social Security Benefits" determines

Table 5
*Description of Taxpayer Types**

Taxpayer Profiles	Age Entered Labor Force	Starting Wage**
Low Wage Earner		
Male	18	50% of Avg. Wage
Female	18	36% of Avg. Wage
Average Wage Earner		
Male	22	100% of Avg. Wage
Female	22	62% of Avg. Wage
High Wage Earner		
Male	26	175% of Avg. Wage
Female	26	109% of Avg. Wage

* Couple's composed of like males and females.
** The economy-wide average wage is reported (and future years estimated) by Social Security's Board of Trustees. Each type of wage earner is assumed to expericece wage growth until age 50 equal to the growth of average wages plus one percentage point. After age 50, wages grow at the rate of inflation until the taxpayer retires at the legal retirment age for full Social Security eligibility. Historically, the median income of females has grown at a rate similar to that of males, but is, on average, 62% of the median income for males. An adjustment was made for low-wage females to conform with current minimum wage laws.
Source: Tax Foundation.

whether or not couples retiring in designated years would choose to opt out of the Social Security system.

Under current law, every low wage couple retiring in the year 2025 (age 37 in 1996) or later would choose to opt out of Social Security (the year would move up to 2022 with the payroll tax increase used for *Table 1*); every average wage couple retiring in the year 2013 (age 49 in 1996) or later would opt out; and every high wage couple would choose to opt out. In fact, average wage couples age 33 or younger in 1996 and high wage couples age 38 or younger in 1996 would choose to opt out of Social Security even if they lost *all* of the benefits associated with their previously-paid lifetime employer/employee payroll taxes upon opting out.

Table 4 also offers a fiscal perspective of a Chilean-style opt-out plan. No statements can be made about the financing of an opt-out plan. Nevertheless, comparing the figures under the "Payroll Taxes Paid Through Opt-Out Date" column with those under the "After-Tax Social Security Benefits" column provides some insight into how much the federal government's accrued Social Security liabilities might decline under an opt-out plan. For example, an average wage couple retiring in the year 2015 can expect to receive $45,631 in inflation-adjusted annual Social Security benefits. However, when this couple chooses the opt-out plan the federal government would have a liability (in annualized terms) of $27,416, a 40 percent reduction. The remainder of the couple's $46,802 annual cashflow comes from their privately funded annuity. Thus, in addition to making future retirees much wealthier, providing an opt-out plan similar to that performed in Chile could help short circuit the greatest potential fiscal policy crisis in U.S. history — the retirement of the baby-boom generation.

Assumptions and Methods

Table 5 lists the primary characteristics of the different taxpayer profiles. The average wage is that reported for each year by the Social Security Administration's Board of Trustees. Future-year average wages conform to the intermediate wage-growth assumptions reported by the Board of Trustees. Under the method used for first-year wages, a low-wage male in 1995 would earn $12,413; an average wage male $24,825; and a high wage male $43,444.

Interest Rates

The choice of interest rates is crucial to three elements of the analysis presented in this report: (1) The application of compounded interest to lifetime employer/employee payroll taxes, (2) the calculation of annuity values, and (3) the net present value (opt-out age) calculations if all benefits associated with payroll taxes paid are forfeited.

This report applies a clear standard for selecting interest rates. When couples' money is presumed to be in the custody of the government, Social Security Administration interest rates apply. When couples' money is presumed to be in the custody of a private company, the average rates of interest on A-, Aa-, and Aaa-rated corporate securities apply.

The Social Security Administration rate of interest is the average of the nominal interest rates, which, in practice, are compounded semi-annually, for special public-debt obligations issuable to the Social Security Administration trust funds in each of the 12 months of a given year. These interest rates are reported by the Board of Trustees. Future-year interest rates are those projected by the Board of Trustees under their "intermediate" assumptions. When necessary, these interest rates are inflation-adjusted using the CPI-W price index, which is the index used by the Board of Trustees to calculate Social Security cost-of-living adjustments. (The inflation-adjusted rate of interest for the year 2005 and beyond is 2.3 percent.) The projected inflation rates are those provided under the intermediate assumptions of the Board of Trustees.

Historical data for the annual rates of interest on A-, Aa-, and Aaa-rated corporate securities are published by the Board of Governors of the Federal Reserve. This report uses a straight average of these annual rates. To forecast the average rate on these private securities, the annual difference between the average private rate and the Social Security Administration rate was calculated. The historical average of the differences (1.24 percentage points) is added to the intermediate assumptions forecast of Social Security Administration interest rates made by the Board of Trustees.

Income Taxation of Social Security Benefits and Annuities

Two issues present themselves in the taxation of Social Security benefits: (1) Estimating taxpayer income and (2) whether or not to use marginal or average income tax rates.

Income was estimated using Internal Revenue Service data that reported the sources of income for taxpayers age 65 and older. These data were used to determine the share of total Social Security benefits to both adjusted gross income and taxable income. A major caveat with this data source is that reports on this category of taxpayers stopped after the Tax Reform Act of 1986.

After estimating adjusted gross income, the year-to-year rules for determining the taxable portion (if any) of Social Security could be applied to the couples. The estimates of taxable income were used to determine the applicable income tax brackets. Couples are classified as joint filers. However, no attempt is made to re-classify widows to single-filer status after they have exhausted their two years of eligible joint-filer status upon becoming a widow. By not re-classifying widows, it is likely that their tax rates are somewhat lower than they would be if re-classified.

Average income tax rates were used to tax both Social Security benefits and annuities. It seems implausible that one could categorized either Social Security benefits or a purchased annuity as a taxpayer's marginal source of income. In addition, using average income tax rates offers a more conservative estimate of the effect benefits taxation has on the financial calculations. The Statistics of Income Division of the IRS reports average tax rates for different tax brackets. The Tax Foundation estimated average tax rates for 1993 and beyond using preliminary 1993 statistics of income data.

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