How Progressive Are the Combined Net Benefits of Social Security and Tax Benefits for Retirement Saving?

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Prepared for the 16th Annual Joint Meeting of the Retirement Research Consortium
August 7-8, 2014
Washington, DC

The research reported herein was pursuant to a grant from the U.S. Social Security Administration (SSA), funded as part of the Retirement Research Consortium (RRC). The findings and conclusions expressed are solely those of the authors and do not represent the views of SSA, any agency of the federal government, the Urban Institute, or the Center for Retirement Research at Boston College.

Introduction

The Federal government promotes retirement income security through the mandatory Social Security Old Age and Survivors Insurance (OASI) system and through tax incentives for private saving in qualified retirement plans. The Social Security System also provides benefits for disabled workers.

Prior research has studied the distributional effects of each of these systems separately. Studies of the distributional effects of Social Security include those by Coronado, Fullerton, and Glass (2000), Fullerton and Mast (2005), Leimer (2004), Meyerson and Sabelhaus (2006), and Steuerle, Carasso, and Cohen (2003). Smith, Toder, and Iams (2004), using projections from the Model of Income in the Near Term (MINT) that the Urban Institute developed for the Social Security Administration, find that the Social Security retirement system is moderately progressive. This finding reflects the equalizing effect of a benefit formula that provides higher replacement rates for workers with lower lifetime earnings, offset in part by the combined effects of mandatory annuitization and relatively higher mortality rates for lower-earning workers. Including disability benefits in the analysis makes the entire Social Security system look more progressive because these benefits go disproportionately to low earning workers.

In contrast, studies using cross-section data from tax returns find that tax incentives for retirement saving disproportionately benefit higher income families (Burman et. al, 2004; Chernozhukov and Hansen, 2004; Engen and Gale, 2000; Even and Macpherson, 2003; Hall, and Orszag, 2004; Joulfaian and Richardson, 2001; Orszag and Greenstein, 2003). This reflects a combination of three factors: 1) higher participation rates in qualified retirement plans by higher income workers, 2) larger contribution rates per participant by higher-income workers, and 3) the larger benefit per dollar of saving that deferral of tax on contributions and tax-exemption of the inside buildup in retirement plans provides to workers in higher marginal rate brackets.

Performing analyses of the net distributional effect of tax benefits for retirement saving requires assumptions of how these benefits are financed. In the case of Social Security, the standard assumption is that Social Security benefits are funded by the payroll taxes dedicated to the Old Age Survivors and Disability Insurance (OASDI) trust funds and that employees bear the burden of both employer and employee contributions.[1] Most studies of the distribution of

[1] The OASDI trust funds also receive revenues from the inclusion of 50 percent of Social Security benefits in taxable income for taxpayers above certain income thresholds. The additional revenues from including 85 percent of

benefits from retirement saving do not assume explicitly how these benefits are financed. An exception is the paper by Toder, Harris, and Lim (2011), who simulate the effects of three options for financing the benefits.

This paper uses longitudinal data to estimate the combined lifetime distributional effects of OASDI benefits and taxes and tax benefits for retirement saving plans on workers in different birth cohorts. We use the standard assumptions that OASDI payroll taxes pay for OASDI benefits and that employees bear the burden of both the employer and employee shares of payroll taxes. We make three alternative assumptions of how the tax benefits for retirement saving are financed: 1) a constant across-the board percentage change in marginal income tax rates, 2) a constant across the board change in marginal individual income tax rates, and 3) a fixed per-capita tax payment for all adults.[2] We present updated estimates of the distributional effects of the Social Security retirement and disability systems, new estimates of the distributional effects of defined contribution retirement plans using longitudinal data, and estimates of the combined effects of the two systems.

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benefits in income for taxpayers above higher income thresholds are deposited in the Medicare Hospital Insurance (HI) trust fund. In this paper, we treat taxes on Social Security benefits as a reduction in net benefits instead of as a tax used to fund benefits.

[2] Toder, Harris, and Lim (2011) make similar financing assumptions for retirement saving plans, except that their flat credit is a fixed amount for each taxpayer and spouse and half that amount for each dependent child.

Literature Review

(forthcoming)

Data and Methods

Overview of DYNASIM

We use the Urban Institute's DYNASIM3 model.[3] DYNASIM3 starts with a self-weighting sample of 103,072 individuals from the 1990 to 1993 panels of the Survey of Income and Program Participation (SIPP) of the U.S. Census Bureau. The model ages this starting sample in yearly increments to 2087, using parameters estimated from longitudinal data sources and macroeconomic and demographic assumptions about the future from the Social Security Trustees.

The model integrates many important trends and group-level differences in life course processes, including birth, death, schooling, leaving home, first marriage, remarriage, divorce, disability, work, retirement, and earnings. It projects the major sources of income and wealth annually from age 15 until death, including employment, earnings, Social Security benefits, benefits from employer-sponsored defined benefit (DB) pensions, Supplemental Security Income (SSI), home equity, retirement accounts (defined contribution (DC) plans, individual retirement accounts (IRAs), and Keoghs), and other assets (saving, checking, money market, certificate of deposit (CD), stocks, bonds, equity in businesses, vehicles, and non-home real estate, less unsecured debt). Many of DYNASIM's core outcomes are benchmarked to the intermediate assumptions of the Social Security Trustees, including average earnings, employment rates, disability, and mortality.

DYNASIM calculates federal income tax liabilities using an income tax calculator developed by Jon Bakija (Smith et al 2007). The tax calculator uses annual projected tax unit income and assets from the SIPP panels matched to a Statistics of Income (SOI) data file that includes itemized deductions and other variables needed to calculate income tax. The tax calculator assumes historic current law federal income tax rules from 1992 to 2014, including the differential tax treatment of dividend income and capital gains, the surtaxes on earnings and

[3] More details about DYNASIM are available in Smith (2012) and Favreault and Smith (2004).

investment income of high income taxpayers enacted in the Affordable Care Act (ACA) of 2010 and taking effect in 2013, and the provisions in the American Tax Relief Act of 2012 (ATRA). Tax provisions affecting the treatment of Social Security benefits have not changed since 1993, but the share of Social Security benefits included in taxable income is continually increasing under current law in part because the threshold levels for inclusion of benefits in taxable income are not indexed for inflation.[4] In our baseline, we generally assume current law tax policy, including current law rules for adjusting tax brackets for inflation. However, other than the Social Security and surtax thresholds, which are not indexed, DYNASIM inflates tax thresholds and retirement saving contribution limits by projected changes in wage growth instead of the CPI after 2023. This assumption prevents real bracket creep from pushing families into increasingly higher income tax brackets in the long run as wage growth outpaces price growth. DYNASIM also calculates Social Security coverage and annual payroll taxes using current law payroll tax rates. Only earnings in covered employment are subject to payroll tax.[5]

DYNASIM3 projects pension assets and income from employer-sponsored defined benefit (DB) plans, cash balance (CB) plans, and retirement accounts (401K, 403B, and IRAs). Starting information about pension coverage on current and past jobs, pension contribution rates, and account balances comes from SIPP self-reported information. Projected DB pension information reflects pension plan structures through December 2008, including DB pension plan freezes and conversions to CB plans. DYNASIM3 assumes that all non-union private sector DB pensions will experience a hard freeze between 2007 and 2016 and two-thirds of state and local pensions will experience a soft freeze between 2007 and 2016.[6]

DYNASIM3 projects annual balances in retirement accounts based on annual contributions to investment accounts and accumulated investment returns. DYNASIM3 starts with the self-reported SIPP retirement account balances. Because of documented deficiencies in

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[4] Similarly, the thresholds used to determine the ACA surtaxes on high-income taxpayers are not indexed for inflation.

[5] Today, the majority of workers are in Social Security and Medicare (HI) covered employment. The share in covered employment has risen over time due to multiple changes in coverage rules. In 2002, 96 percent of civilian workers were covered under OASDI and 98 percent were covered under HI (Ways and Means 2004 Table 1-7).

[6] In a hard freeze, all workers cease accruing DB benefits as of the freeze date and the firm substitutes a DC plan. In a soft freeze, new workers get a substitute DC plan while existing workers remain in the DB plan.

the SIPP asset data (Czajka, Jacobson, and Cody 2003; Smith, Favreault, and Cashin 2005), asset balances in retirement accounts (as well as financial assets outside of retirement accounts) in DYNASIM3's starting SIPP sample are adjusted to align with asset distributions from the 1992 Survey of Consumer Finances (SCF). Individuals are also assigned an individual-specific risk tolerance based on SCF data. An individual's share of retirement account assets invested in equities varies by age and risk tolerance, with high-risk and younger individuals investing more in equities than low-risk and older individuals. DYNASIM assigns a growing share of workers to invest in target date funds over time using prevalence rates from the Employee Benefits Research Institute (Copeland 2011). DYNASIM assigns target date investors to specific target date funds based on the dollar-weighted share of the 40 largest target date funds (Morningstar 2012, Table 3). Workers with target date funds use the stock and bond portfolio mix of their assigned fund at each age. All investors rebalance portfolios annually to preserve the target mix of stocks and bonds.

DYNASIM3 uses historical price changes and returns for stocks, long-term corporate bonds, and long-term government bonds through 2014 to grow portfolios. Investment experience varies for each individual because the model sets rates of return stochastically, using historical means and standard deviations. The model accounts for the 2008 stock market crash, which reduced equity values by 37 percent, by assuming that the market recovers to half of its projected pre-crash value by 2017 (Butrica, Smith, and Toder 2009, 2010). DYNASIM3 implements this assumption by using historic returns through 2013 and assumes a 7.42 percent average real rate of return on stocks from 2014 to 2017 before stocks resume their historic average real return of 6.5 percent after 2017. DYNASIM3 assumes mean real rates of return of 3.5 percent for corporate bonds, 3.0 percent for government bonds, and standard deviations of 17.28 percent for stocks and 2.14 percent for bonds.[7] The 6.5 percent real return on stocks reflects a capital appreciation of about 3.5 percent and a dividend yield of around 3.0 percent, in line with the long-term performance of the S&P 500. The model subtracts one percentage point from annual stock and bond returns to reflect administrative costs.

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[7] The assumed rates of return are those recommended by the Social Security Administration's Office of the Chief Actuary for the President's Commission to Strengthen Social Security (2001). The standard deviations are derived from real returns over the 62-year period between 1952 and 2013 for large company stocks and Treasury bills reported in Ibbotson Associates (2014). Inflation assumptions follow the 2013 intermediate assumptions used by the Social Security trustees (Social Security Board of Trustees 2013).

DYNASIM includes detailed Social Security and federal income tax calculators, allowing us to measure changes in Social Security benefits and income tax collections under current law and alternate policies.

Simulating the Effects of Alternate Ways of Financing Retirement Saving Incentives through DC Plans

We run five simulations – a baseline and four policy options. Our baseline simulation incorporates current law tax incentives for saving in qualified DC retirement plans. Worker contributions to DC plans are excluded from income tax but are included in taxable earnings for Social Security and Medicare taxes. Employer contributions to DC plans are excluded from both income and payroll taxes. Investment returns within DC plans accrue tax-free. The tax liability for earnings deposited in retirement accounts is deferred until the money is withdrawn as a lump sum withdrawal, as an annuity, or as occasional withdrawals. IRS requires minimum distributions beginning at age 70 ½.[8] DYNASIM incorporates the assumption that individuals must draw down retirement account assets to meet the minimum distribution requirements, but for some families this represents a shifting of assets from inside retirement accounts to assets outside of retirement accounts. Some families draw down account balances at rates faster than required by law.

In option 1, we remove the special tax treatment for qualified DC retirement plans. In this simulation, workers deposit after-tax instead of pretax earnings to retirement account balances and their annual investment returns within the account are taxable each year. [9] Because the amounts within the account are in after-tax dollars, withdrawals in retirement are tax-free.

We assume workers make the same before tax contribution as in the baseline simulation, but save the after tax amount. We assume the after-tax returns within the account are reinvested.

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[8] To discourage the use of retirement funds for purposes other than normal retirement, the law also imposes a 10 percent additional tax on certain early distributions from certain retirement plans before age 59 ½.

[9] The Affordable Care Act of 2010 (ACA) provided, that, beginning in 2013, high-income taxpayers (those with incomes above $250,000 for joint returns and $200,000 for individual returns) also pay a surtax of 3.8 percent of their investment income that is allocated to the Medicare Hospital Insurance (HI) trust fund. Investment income includes interest, dividends, and capital gains. For taxpayers with income at or near these thresholds, changes in taxable income affect the amount of the HI surtax in both the accumulation and asset spend down phases.

The tax paid on income accrued within the accounts varies depending on the investment portfolio and amount of rebalancing. Bond returns generate taxable interest income. Stock returns generate dividends and capital gains. We assume individuals hold long-term bonds with a 2 percent annual real interest rate and that the difference between the total bond return and the real interest rate is capital appreciation (loss). We assume stocks generate a 3 percent real dividend rate every year, so that the difference between the total stock return in any year and the dividend return is capital appreciation (loss). Additionally, we assume annual rebalancing to maintain a target stock and bond ratio. Rebalanced reinvestments are done in after tax dollars. The sale of stocks through rebalancing or spend down generates taxable realized capital gains or losses and an adjustment in the basis of assets within the account.[10]

Compared to the current law baseline, workers in option 1 accumulate less retirement savings each year because they accumulate DC balances in after tax dollars. They pay higher income taxes while contributing because they lose the tax exclusion on worker contributions. They also pay higher income taxes because they pay taxes on the asset returns. However, they pay no income taxes on withdrawals. Removing withdrawals from taxable income reduces federal income tax (including taxes on Social Security benefits) compared to the baseline treatment in retirement. Option 1 provides an alternate baseline (baseline 2) from which we can measure the cost in lost tax revenue of providing the tax deferral of DC savings.

When the tax preference for DC accounts is removed, individuals with positive investment income pay more income taxes during the accumulation phase and pay lower income taxes during the spend down phase of their lives. Because investment income is taxable, they accumulate less wealth over their lifetimes than under current law. As a result, they receive lower retirement income compared to the baseline.

In order to assess how saving incentives affect the after-tax distribution of income, we need to know who pays for them. Studies of the net distributional effects of Social Security benefits usually compare the distribution of the benefits with the distribution of the payroll taxes

[10] We don't assume any rebalancing of assets within the stock or bond portfolios; capital gains realizations are generated only through the sale of stocks (bonds) to purchase bonds (stocks). Therefore, we may understate the amount of capital gains tax that might be paid on accruals within the account.

that finance them.[11] To estimate the net distributional effects of tax preferences for private retirement saving, we need an assumption about which taxes would be lower or spending program higher if the government were not providing tax-favored retirement accounts. We simulate hypothetical alternative tax regimes to use for this comparison. These tax cuts or spending increases are revenue-neutral alternatives to a removal of the retirement saving tax preference.

We simulate three alternative ways of reducing taxes with the same revenue cost as the tax expenditure for qualified DC retirement saving plans. To do this, we first calculate the present value of the difference in federal receipts between option 1 (removing the special tax treatment for retirement accounts) and the current law baseline. This calculation shows the loss in federal income tax revenue from the retirement saving preference. Our three alternate tax policies are designed to give up the same present value of tax revenue as the current tax preferences for retirement saving, but the options change how much and who gets the tax cuts. These estimates assume the policy change is effective in 1992 and includes the effects of tax collections from taxpayers in all age or cohort groups through 2087.

The three revenue-neutral alternative tax policies that eliminate the retirement saving preference are as follows:

- *Simulation 2a. Eliminate the reference saving preference and reduce all personal income tax rates across the board by 3.7 percent.* This is implemented in the simulation by eliminating the tax preference as in the Option 1 simulation, while multiplying all marginal income tax rates by 0.963. We apply these tax rate changes to the incomes and tax base associated with Option 1. That is, we treat the marginal tax rate cut as a revenue-neutral alternative to introducing the retirement saving preferences. Thus, we set these two changes to generate the same present value of federal income taxes as current law. This option lowers

[11] This seems like an obvious assumption because Social Security retirement and disability benefits are funded by a 6.2 percent payroll tax on employers and employees, which is deposited in the OASDI trust funds. While this assumption is typically used in studies of net benefits from OASDI, we really don't know what the tax system would look like in the absence of the Social Security taxes. For example, the increase in payroll tax rates in the 1970s and 1980s were accompanied by expansions of the earned income tax credit, which offset the cost of these taxes for low-wage workers. It is possible the income tax structure might have been different if the OASDI program had not been expanded, so we really don't know for sure who is paying for the benefits.

2014 tax rates from 10, 15, 25, 28, 33, 35, and 39.6 percent to 9.63, 14.45, 24.08, 26.96, 31.78, 33.71, and 38.13 percent.

- *Simulation 2b. Eliminate the reference saving preference and reduce all personal income tax rates across the board by 0.9 percentage points.* This is implemented by subtracting 0.9 percentage points from all marginal income tax rates. Again, these two changes generate the same present value of federal income taxes as current law. This option lowers 2014 tax rates from 10, 15, 25, 28, 33, 35, and 39.6 percent to 9.1, 14.1. 24.1, 27.1, 32.1, 34.1, and 38.7 percent.
- *Simulation 2c. Eliminate the retirement saving preferences as in simulations 2a and 2b, but provide each household with a refundable credit of $200 per adult (in 2014 wage-adjusted dollars).* Again, these two changes generate the same present value of federal income taxes as current law.

These revenue neutral tax alternatives provide a basis from which to identify the taxes paid for the benefit (higher retirement income) of the deferral of DC contributions in current law.

Preliminary Simulation Results

We calculate distributional effects of a) Social Security benefits and taxes and b) retirement income tax incentives and tax options to finance them by lifetime earnings quintile for birth cohorts between 1950-59 and 1980-89. We rank individuals using an expanded measure of the present value of lifetime earnings that includes wage compensation, the employer share of payroll taxes, and the employer's DC contributions. We limit the sample to individuals who survive to age 50. We calculate the present value of earnings and taxes using a 2 percent real discount rate (Steuerle and Rennane 2011). For years when an individual is married, we assign each individual half the couple's total income and taxes. For years when an individual is single, we include only the individual's own income and taxes. We assume surviving spouses inherit remaining assets at the death of a spouse and couples split assets at divorce.

<u>OASDI Benefits and Taxes by Lifetime Earnings Group</u>

Between the 1950-69 and 1980-89 cohorts, the projected average present value of shared lifetime earnings increased from about $2.7 million to about $3.8 million in 2014 dollars, an increase of about 42 percent (Table 1). The projected growth in lifetime earnings for the top 5 percent of

earners is much larger (96 percent) than the average growth rate. As a result, DYNASIM projects the top 5 percent of earners in the 1980-89 birth cohorts will receive almost 21 percent of lifetime earnings for their cohorts, up from 15 percent of lifetime earnings for the top 5 percent in the 1950-69 birth cohorts.

The present value of OASDI benefits (net of income taxes on benefits) as a share of the present value of lifetime earnings is 10 percent for the 1950-59 birth cohorts, and averages between 10.2 percent and 10.6 percent of earnings for the 1960-69 through 1980-89 birth cohorts (Table 2).[12] Benefits as a share of lifetime earnings are much larger for lower than for higher earning workers. For example, for the 1980-89 birth cohorts, lifetime benefits as a share of lifetime earnings decline from about 26 percent for workers in the bottom quintile to 13 percent for the middle quintile and only 4 percent for the top 5 percent. Disability benefits account for slightly over a fifth (21.5 percent) of total combined retirement and disability benefits. But disability benefits are a much larger share of total benefits for lower than for higher earning workers. They amount to almost half of benefits for workers in the bottom lifetime earnings quintile, but less than 10 percent of benefits in the top quintile.

OASDI taxes also rise between the 1950-59 and 1960-69 birth cohorts, reflecting increases in payroll tax rates through 1990. For the 1960-69 through 1980-89 cohorts, payroll taxes represent between 9.6 and 9.1 percent of lifetime earnings (Table 3). Payroll taxes as a share of lifetime earnings are roughly constant through the bottom four quintiles, but then decline in the top quintile as higher lifetime earning workers have more years with earnings above the OASDI tax threshold ($117,000 in 2014 dollars). Combining taxes and benefits, we find that the Social Security retirement and disability systems are highly progressive (Table 4). The present value of net benefits exceeds the present value of taxes for the bottom three quintiles of the distribution, but is less than present value of taxes in the top quintile of the income distribution. The gap between benefits and taxes is largest by far in the bottom quintile – over 15 percent of the present value of lifetime earnings for the 1960-69 through 1980-89 birth cohorts.[13]

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[12] About 9 percent of our sample (those surviving to age 50), die before claiming OASDI benefits. Many of these individuals pay OASDI taxes. Those who die at younger ages have lower lifetime earnings both because they work fewer years than those who survive to older ages, but also because lower earners are more likely to die younger.

[13] The rise in earnings in the top end of the earnings distribution over time increases the average wage index (AWI) used to calculate Average Indexed Monthly Earnings (AIME) and Social Security benefits. The growth in the AWI

Overall the present value of benefits exceeds the present value of taxes for all four groups of birth cohorts, reflecting a long-term imbalance in OASDI funding. The difference between the present value of benefits and the present value of taxes increases for later birth cohorts, rising from 0.73 percent of earnings for the 1950-59 cohorts to 1.39 percent of earnings for the 1980-89 cohorts.

Revenue Effects of Retirement Saving Incentives

We simulate the revenue and distributional effects of retirement saving incentives for qualified defined contribution (DC) retirement plans. Due to data limitations in DYNASIM, we only capture the effects of these incentives for post-1991 contributions to qualified retirement plans. DYNASIM provides an estimate of 1992 balances in DC retirement plans for workers in all cohorts, but does not show the pattern of accumulation in DC plans prior to 1992. This means we don't simulate the *additional* wealth workers receive because their pre-1992 accruals were tax-free. Thus, while we capture the effects of the incentives fully for workers in the 1970-79 and 1980-89 birth cohorts (with the exception of a very small number of contributions by the older members of the 1970-79 cohorts when they are less than 22 years old) and mostly for those in the 1960-69 birth cohorts (because workers contribute relatively little to these accounts before age 32), we may be missing the effects of substantial contributions for workers in the 1950-59 cohorts.[14] This limitation means that we understate the revenue loss from DC plans and therefore understate the other tax changes that would be needed to pay for them.

The simulations do not include the tax benefits for workers in defined benefit (DB) retirement plans. This is an important omission for workers in earlier cohorts, but is less important for later cohorts as, except in the public sector and some unionized private firms, most employers have replaced their DB plans with DC plans.

We first simulate the gain in federal revenue from eliminating tax benefits for all new contributions to qualified DC retirement plans beginning in tax year 1992. We assume households keep their consumption from wages unchanged when the tax incentives are removed

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due to rising earnings inequality increases Social Security benefits relative to lifetime earnings among low lifetime earners at an increasing rate for later cohorts.

[14] DYNASIM does have data on starting assets in plans in 1992, so there is no special problem with projecting the lifetime accruals of the earlier cohorts. What is missing are data on the pattern of contributions prior to 1992.

and invest in the same portfolio as previously. But now their deposits to the accounts are reduced by the additional income tax due on the earnings contributed. And the interest, dividends, and capital gains they accrue within the account are now taxable the same as if they were earned outside of a retirement saving plan. They continue to reinvest income earned within the accounts, as under current law, but now the reinvested income is lower because it is taxable. Finally, amounts withdrawn from the accounts in retirement are now tax-free (except for taxes on unrealized capital gains) because the contributions and inside buildup (except for unrealized gains) have been taxable.

We then simulate alternative tax cuts (applied to the incomes that would be earned without the retirement saving incentives) that offset the revenue gain from eliminating the incentives. This shows us how much taxpayers are paying for the retirement saving benefits under alternative assumptions about how the benefits are financed. The three alternative tax cuts we simulate are described on page 9 and summarized in Table 5. Figure 1 shows the calculated tax rates for current law and simulation 2a and 2b for 2014.

Eliminating the tax preference for retirement saving accounts raises federal receipts by $581 billion between 1992 and 2001, by $559 billion between 2002 and 2011, and by $7.4 trillion between 1992 and 2091 in 2014 price adjusted dollars (Table 6). When combined with tax cuts that keep the present value of federal receipts unchanged, federal receipts at first increase and then decline. In the first decade, eliminating the tax preference on new contributions to retirement saving accounts increases taxable income mainly because contributions are now taxable but also because of new taxes on investment returns. Over time, receipts from these taxes on investment returns grow with the buildup of wealth outside of qualified plans, but there are also increasing offsets from reduced taxation of retirement benefits.

The shift in the taxation of DC contributions from time of withdrawal (current law) to time of contribution (no tax preference) raises the present value of federal receipts because people generally face higher marginal tax rates when working than when retired. Over time, however, under current law, average marginal tax rates in retirement will increase relative to marginal tax rates when working because a larger share of Social Security benefits will become taxable, raising taxable incomes and pushing retirees into higher rate brackets. This increase in the share of Social Security benefits that are taxable will occur because the thresholds for taxing Social Security benefits are not indexed for inflation. Consequently, over time the revenue loss

from no longer taxing withdrawals from accounts will increase relative to the revenue gain from taxing contributions. This will cause the net revenue pickup from eliminating the DC tax preference to grow more slowly.

We set the parameters of the tax cuts in Simulations 2a through 2c to make the net present value of the revenue loss from the alternate tax cuts equal to the net present value of the revenue loss from the retirement saving. Because the revenue loss from the tax cuts grows faster than the revenue loss from the retirement saving preference, present value neutrality implies that the combination of the tax cuts and retirement saving preference loses revenue in the early years, but then gains revenue in later years.

Present Value of Retirement Saving Incentives and Tax Options to Finance Them

We compare the present value of the benefits taxpayers receive from the DC retirement saving incentives to the present value of the higher taxes they pay because of the incentives under the three assumptions about how the benefits are paid for. For these calculations, we start with revised baselines of what income and taxes would be without the tax benefits for DC plans under the three alternative tax change assumptions (simulation 2a-2c). We then introduce the benefits for DC plans and restore taxes to their current levels (current law). We compare the increased after-tax retirement income from the DC tax preferences[15] with the increased taxes under these three options to finance them. For all three tax options (the increases in marginal tax rates and reduction in refundable tax credits), we assume the higher taxes reduce after-tax consumption, but do not affect saving or pre-tax retirement incomes.[16]

These calculations are analogous to the calculations of the net benefits from Social Security, where we also compare the present value of increased retirement income (produced by Social Security benefits) with the present value of taxes used to finance them. For the calculations of the net benefits from Social Security, like other researchers, we assume that the payroll taxes used to finance them have no effect on saving or future retirement income.

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[15] . Retirement income from DC savings is the income from assets in retirement years plus the value of bequests (unspent assets at the end of life). We include assets both inside and outside of retirement accounts because families can support consumption from both types of accounts.

[16] We start with the same retirement account balances and taxable investment income within retirement plans as in baseline 2. We apply the tax rate changes to the baseline 2 incomes

The retirement saving incentives raise the ratio of the present value of net retirement income to the present value of earnings more for higher than for lower income workers (Table 7). For example, for the 1980-89 birth cohorts, the incentives raise the present value of retirement income by only 0.5 percent of earnings for the workers in the bottom shared lifetime earnings quintile, while raising retirement income by 2.7 percent of income in the 80-95th percentiles and 3.2 percent in the top 5 percent. The top 5 percent receives the largest increase in retirement income as a share of lifetime earnings for all cohort groups, except for the 1970-79 cohorts, where they receive slightly less than the 80-95th percentiles.[17] Changes over time in the ratio of the contribution limits relative to earnings affect differences in lifetime benefits from retirement saving incentives among different cohorts of high earners.

If one assumes that higher marginal tax rates were used to pay for the saving incentives, then the taxes paid to finance them also rise as a share of lifetime earnings as earnings increase (Table 8). For the 1980-89 cohorts, for example, paying for the incentives with an across the board increase in marginal income tax rates of 3.7 percent increases lifetime taxes by 0.2 percent of lifetime earnings for the bottom quintile, by 0.3 percent of earnings for the middle quintile, and by 1.1 percent of earnings for the top 5 percent (simulation 2a). The distribution is similar, though somewhat less progressive if marginal tax rates are raised by 0.9 percent of taxable income for all earners. In that case, for the 1980-89 cohorts, lifetime taxes go up by 0.3 percent of lifetime earnings in the bottom quintile, 0.5 percent of lifetime earnings in the middle quintile and 0.8 percent of lifetime earnings for the top 5 percent (simulation 2b).

The distribution would be very different, however, if one assumed the retirement saving incentives were paid for by an equal per-capita lump sum tax for all adults (or, equivalently by an across-the-board spending cut that affects all adults equally.) If that were the case, the burden of the tax as a share of lifetime earnings would fall most heavily on the lowest earners. Earners in the bottom quintile of lifetime earnings would pay lifetime taxes equal to 2.3 percent of

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[17] For some years, the very highest earners receive less benefits as a share of income from retirement saving contributions than the upper-middle income earners because of caps on amounts that can be contributed to DC accounts. Toder, Harris, and Lim (2011) show that for tax year 2012 contributions taxpayers in the top 1 percent of the distribution receive less benefit from the incentives as a share of income than taxpayers in the 80th-99th percentiles. Note, however, that the lifetime benefit as share of lifetime income from the retirement savings preference can be highest for those at the top end of the income distribution even if they are affected by the contributions cap in some years because many of these workers made contributions over much of their careers that were not limited by the caps.

lifetime earnings, while those in middle quintile would pay 0.8 percent of their lifetime earnings, and those in the top 5 percent only 0.2 percent (simulation 2c).

Combining the taxes and benefits, we find the retirement saving incentives provide net benefits for the four cohorts as a whole (Table 9). In part, that reflects the fact that earlier cohorts who are not benefiting from post-1992 retirement saving incentives are paying for some of the taxes to support them. Therefore, the tax change does not have to be revenue-neutral for the four cohorts, but only for the population as a whole. With other cohorts bearing some of the tax burden, the present value of benefits from the retirement saving incentives for the four cohort groups shown can exceed the present value of increased taxes they pay. The larger benefits for the later cohorts than for the earlier cohorts reflect the fact that we are estimating the benefits of these incentives only for contributions made beginning in tax year 1992. Later cohorts will therefore have accrued higher income in tax-favored retirement plans for a larger share of their working lives than earlier cohorts. If we had data or back-casted projections in DYNASIM for pre-1992 retirement contributions, the growth in net benefits for the later cohorts would have been smaller. Without this limitation, we would still expect to find some increase in net benefits for later cohorts, however, because of increases in availability of and participation in DC retirement plans over time.

The net distributional effects of retirement saving incentives are very sensitive to how we assume they are paid for. For all financing assumptions, net benefits are larger for top fifth of the population than for the populations as a whole. If the benefits are financed by a constant percentage increase in higher marginal rates (simulation 2a), earners in the 80-95th percentiles fare about the same earners in the top 5 percent, receiving benefits equal to 2.1 percent of lifetime earnings for the 1980-89 cohorts, but fare slightly better for the 1960-69 and 1970-79 cohorts. For example, for the 1970-79 cohorts net benefits are 2.1 percent of earnings for the 80-95th percentiles and 1.5 percent of earnings for the top 5 percent.

For the two methods of raising marginal tax rates to pay for the incentives, all earnings groups receive net benefits, although the higher earnings groups benefit more. For example, for the 1980-89 cohorts, with a constant percentage across the board increase in marginal tax rates (simulation 2a), net benefits are 2.1 percent of earnings for the top 5 percent, compared with 0.3 percent of earnings for the bottom quintile and 1.0 percent of earnings for the middle quintile. With a constant percentage point increase in marginal tax rates (simulation 2b), the top 5 percent

receives net benefits equal to 2.4 percent of lifetime earnings, compared with net benefits of 0.2 percent of earnings for the bottom quintile and 0.9 percent of earnings for the middle quintile.

The results are strikingly different if we assume the benefits are paid for by a lump sum per-capita tax or a spending cut that affects all adults equally regardless of their income (simulation 2c). With that financing assumption, the bottom two quintiles are worse off because the additional taxes they pay (or program benefits they lose with an equivalent spending cut) are worth more than their gain from the retirement saving incentives. And the top 5 percent of earners benefits the most under this financing assumption because they pay less under a lump sum tax (or equivalent spending cut) than they would if we assumed higher income tax rates pay for the incentives.

Net Combined Value of Social Security Benefits and Retirement Saving Incentives

When we combine the net distributional effects of Social Security and retirement saving incentives, we tentatively estimate that the net effects remain progressive, in spite of the regressive distribution of retirement saving benefits (Table 10). For all the financing assumptions, the combined net benefits of the two programs as a share of shared lifetime earnings is largest for workers in the bottom quintile of the distribution (figure 2) and is successively lower as a share of lifetime earnings for each lifetime earnings group up to the top 5 percent (figure 3). For the 1980-89 cohorts, however, earners in the top 5 percent receive larger combined net benefits as a share of lifetime earnings than earners in the 80-95th percentile we assume retirement savings incentives are paid for by an equal per-capita increase in tax liability (figure 4).

These results are suggestive, but more work is required. They make the combined system look more progressive than it is because we understate the relative magnitude of retirement saving incentives compared with Social Security benefits. This understatement reflects two omissions – 1) the omission of increased retirement income due to tax benefits for defined benefit plans and 2) the omission of increased retirement income due to contributions to tax-qualified DC retirement plans prior to 1992. Future work will fill in these gaps.

Conclusions

Two major federal programs promote retirement saving – the mandatory Social Security retirement program and tax incentives for retirement saving. We use DYNASIM, a longitudinal model that simulates lifetime earnings, wealth accruals and spend down in retirement, demographic events (longevity, marital status, fertility), Social Security retirement and disability benefits, pension contributions and benefits, and federal taxes, to estimate the effects of these programs on lifetime incomes and taxes paid. We estimate the distribution of net benefits of these programs for workers grouped by the present value of their shared lifetime earnings, where shared earnings for a worker are the worker's earnings when single and half the combined earnings of the worker and spouse when married.

The distributional effects of these programs depend on how one assumes they are paid for. Under a set of reasonable assumptions about how each program is financed, we find that the Social Security program is relatively more beneficial for low earners and the retirement saving incentives are relatively more beneficial for high earners.

Combining the two, we tentatively find that the net effects of both federal retirement programs favor lower over higher earning workers. This reflects the relative size of the two programs. The compulsory nature of OASDI taxation and high OASDI contribution rates generate considerably higher lifetime benefits than the increases in lifetime benefits generated by the tax preference for voluntary DC saving among workers offered plans. Therefore, the size of the progressively distributed OASDI benefits swamp the size of the regressively distributed benefits from DC saving plans, making the combined system progressive under all of our DC financing options. Because our tentative estimates understate the size of retirement incentives relative to Social Security retirement benefits, this is still a work in progress. The next stage of our research will correct this imbalance.

References

Burman, Leonard E., William G. Gale, Matthew Hall, and Peter R. Orszag. 2004. "Distributional Effects of Defined Contribution Plans and Individual Retirement Accounts." Discussion Paper No. 16. Washington, DC: Tax Policy Center.

Butrica, Barbara A., Karen E. Smith, and Eric J. Toder. 2009. *Retirement Security and the Stock Market Crash: What Are the Possible Outcomes?* Washington, DC: The Urban Institute.

Chernozhukov, Victor and Christian Hansen. 2004? "The Impact of 401(k) Participation on the Wealth Distribution." *Review of Economics and Statistics.*

Copeland, Craig. 2011. "Target-Date Fund Use in 401(k) Plans and the Persistence of Their Use, 2007−2009." Washington, DC: Employee Benefits Research Institute. Issue Brief No. 361.

Coronado, Julia L., Don Fullerton, and Thomas Glass. 2000. "The Progressivity of Social Security." Working Paper 7520. Cambridge, MA: National Bureau of Economic Research.

Czajka, John L., Jonathan E. Jacobson, and Scott Cody. 2003. *Survey Estimates of Wealth: Comparative Analysis and Review of the Survey of Income and Program Participation*. Washington, DC: Social Security Administration.

Engen, Eric and William G. Gale. 2000. "The Effects of 401(k) Plans on Household Wealth: Differences Across Earnings Groups." Working Paper 8032. Cambridge, MA: National Bureau of Economic Research.

Even, William and David Macpherson. 2003. "The Distributional Consequences of the Shift to Defined Contribution Plans." Working Paper. Tallahassee, FL: Florida State University.

Favreault, Melissa M., and Karen Smith. 2004. "A Primer on the Dynamic Simulation of Income Model (DYNASIM3)." Discussion Paper. Washington, DC: Urban Institute.

Fullerton, Don and Brent Mast. 2005. "Income Redistribution from Social Security." Washington, DC: American Enterprise Institute. January.

Hall, Matthew and Peter Orszag. 2004. "Distributional Effects of Defined Contribution Plans and Individual Retirement Accounts." Discussion Paper 15. Washington, DC: Tax Policy Center.

Ibbotson Associates. 2014. *Ibbotson SBBI 2014 Classic Yearbook: Market Results for Stocks, Bonds, Bills, and Inflation 1926–2014*. Chicago, IL: Ibbotson Associates.

Joulfaian, David and David Richardson. 2001. "Who Takes Advantage of Tax Deferred Saving Programs? Evidence from Federal Income Tax Data." *National Tax Journal* 54(4): 669-88.

Leimer, Dean. 2004. “Historical Redistribution under the Social Security Old-Age and Survivors Insurance and Disability Insurance Programs.” ORES Working Paper 201. Washington, DC: Social Security Administration.

Meyerson, Noah and John Sabelhaus. 2006. “Is Social Security Progressive?” Economic and Budget Issue Brief. Washington, DC: Congressional Budget Office.

Morningstar. 2012. “Target-Date Series Research Paper: 2012 Industry Survey.” Available at: http://corporate.morningstar.com/us/documents/MethodologyDocuments/MethodologyPapers/TargetDateFundSurvey_2012.pdf.

President’s Commission to Strengthen Social Security. 2001. *Strengthening Social Security and Creating Personal Wealth for all Americans: Report of the President’s Commission*. Washington, DC: President’s Commission to Strengthen Social Security.

Orszag, Peter and Bob Greenstein. 2003. “Progressivity and Government Incentives to Save.” Working Paper. Washington, DC: Tax Policy Center.

Rosenberg, Joseph. 2013. “Measuring Income for Distributional Analysis.” Washington, DC: Urban-Brookings Tax Policy Center.

Smith, Karen E.. 2012. “Projection Methods Used in the Dynamic Simulation of Income Model (DYNASIM3). Research Report. Washington, DC: Urban Institute.

Smith, Karen E., Melissa Favreault, and David Cashin. 2005. *Modeling Income in the Near Term 4.* Washington, DC: The Urban Institute.

Smith, Karen E., Melissa M. Favreault, Caroline Ratcliffe, Barbara Butrica, Eric Toder, and Jon Bakija. 2007. *Modeling Income in the Near Term 5.* Project Report for SSA. Washington, DC: The Urban Institute

Smith, Karen E., Eric Toder, and Howard M. Iams. 2004. “Lifetime Distributional Effects of Social Security Retirement Benefits.” *Social Security Bulletin* 65-1.

Social Security Board of Trustees. 2013. *The 2013 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*. Washington, DC: Board of Trustees.

Steuerle, Eugene, Adam Carasso, and Lee Cohen. 2003. “How Progressive is Social Security When Old Age and Disability Insurance are Treated as a Whole?” Policy Brief. Washington, DC: Urban Institute.

Steuerle, Eugene, and Stephanie Rennane. 2011. “Social Security and Medicare Taxes and Benefits Over a Lifetime.” Washington, DC: Urban Institute

Toder, Eric J., Benjamin H. Harris and Katherine Lim. 2011. “Distributional Effects of Tax Expenditures in the United States.” In *Tax Expenditures; State of the Art*, edited by Lisa Phillips, Neil Brooks, and Jinyan Li, 4:2–4:35. Toronto, ON: Canadian Tax Foundation.

Ways and Means. 2004. “Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means (Green Book)” Washington, DC: U.S. House of Representatives.

Tables and Charts

Figure 1. *Marginal Tax Rates in 2014 by Simulation*

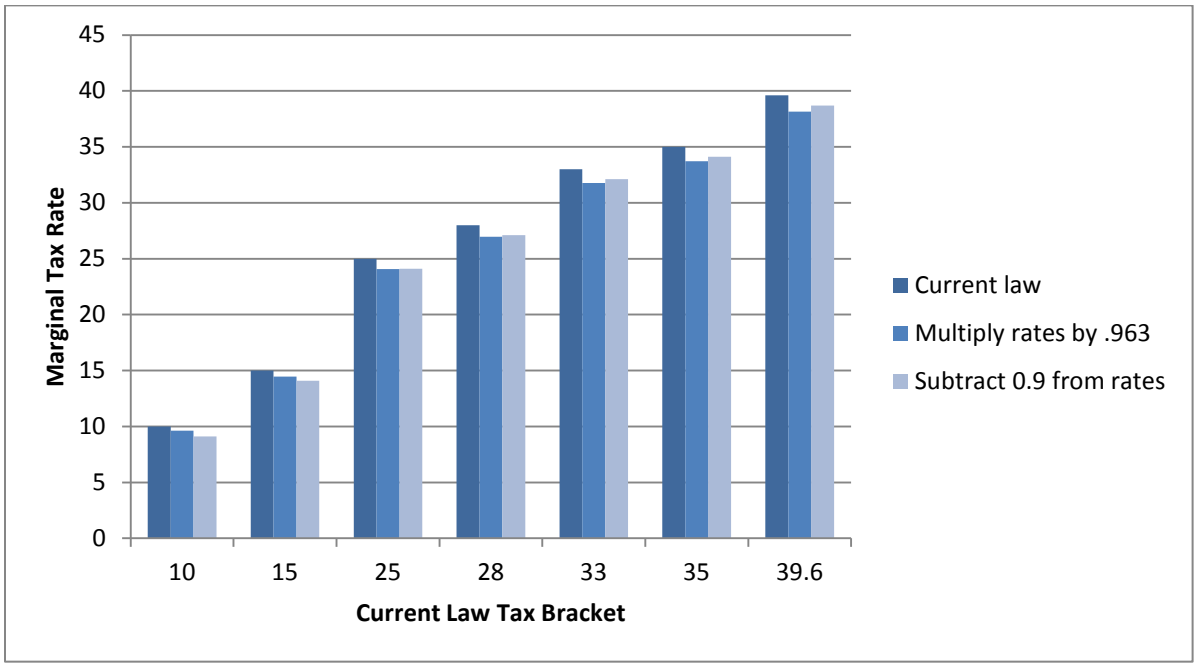

Figure 2. *Net Combined Effects of Social Security and Retirement Savings Incentives as a Share of Lifetime Earnings for the Bottom Quintile of Lifetime Earners by Simulation*

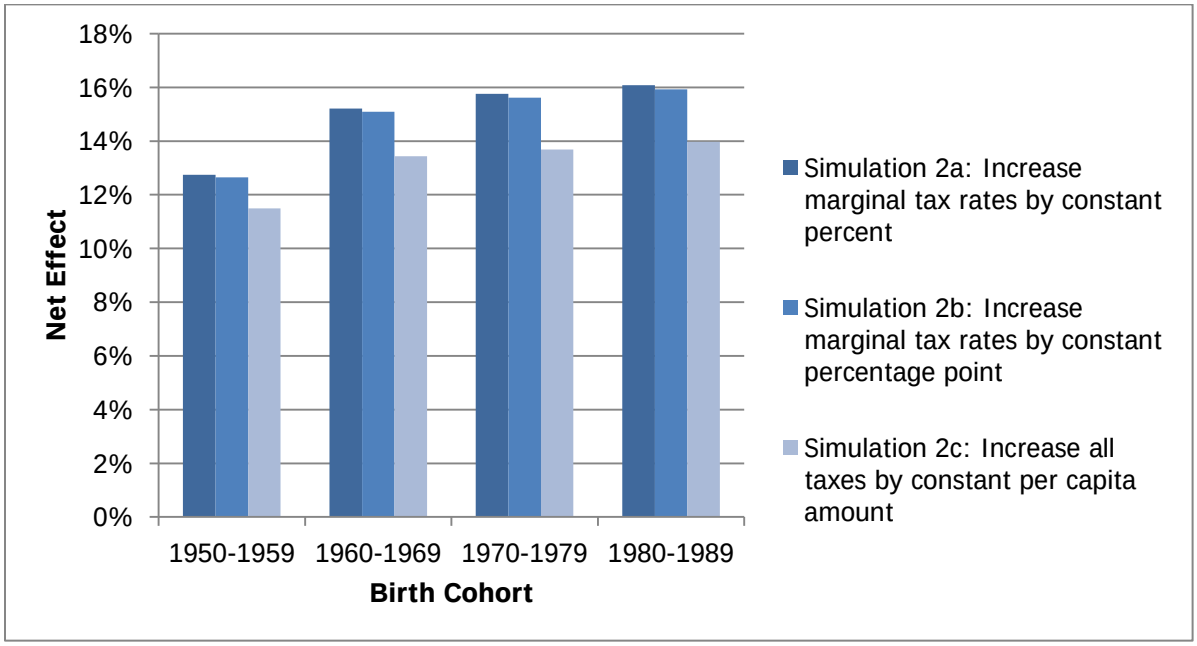

Figure 3. *Net Combined Effects of Social Security and Retirement Savings Incentives as a Share of Lifetime Earnings for the Top 5 Percent of Lifetime Earners by Simulation*

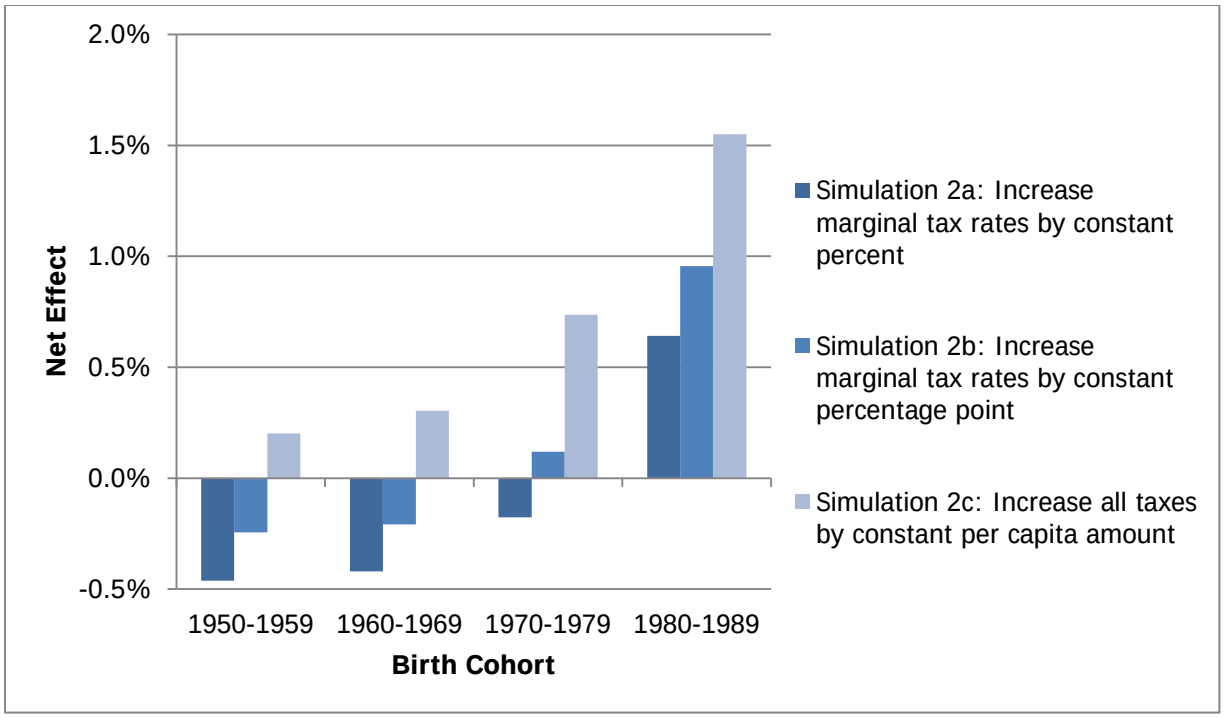

Figure 4. *Net Combined Effects of Social Security and Retirement Savings Incentives as a Share of Lifetime Earnings for the 1980-1989 Cohort Group by Simulation and Lifetime Earnings Group*

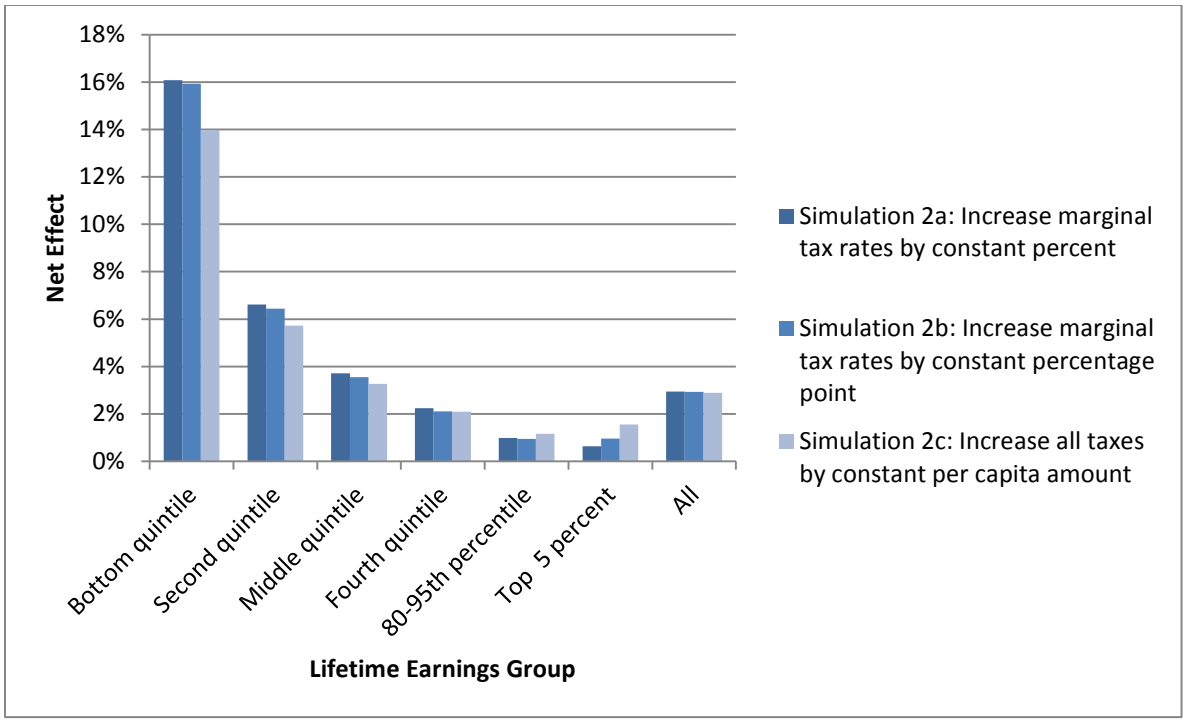

Table 1. *Present Value of Shared Lifetime Earnings and Share of Total Lifetime Earnings by Shared Lifetime Earnings Group and Birth Year (2014 dollars)*

Shared Lifetime Earnings Group	Birth Year			
	1950-1959	1960-1969	1970-1979	1980-1989
	Present Value of Shared Lifetime Earnings			
Bottom quintile	717,992	721,418	809,708	926,497
Second quintile	1,581,514	1,634,860	1,736,202	1,964,797
Middle quintile	2,311,724	2,477,453	2,615,240	2,938,669
Fourth quintile	3,180,949	3,499,915	3,779,553	4,223,266
80-95th percentile	4,585,480	5,130,247	5,845,857	6,415,540
Top 5 percent	8,169,096	9,615,166	14,781,933	16,031,929
All	2,653,247	2,914,741	3,400,199	3,771,618
	Share of Total Lifetime Earnings			
Bottom quintile	5%	5%	5%	5%
Second quintile	12%	11%	10%	10%
Middle quintile	17%	17%	15%	16%
Fourth quintile	24%	24%	22%	22%
80-95th percentile	26%	26%	26%	25%
Top 5 percent	15%	16%	22%	21%
All	100%	100%	100%	100%

Notes
Couples split earnings in years they are married.
Earnings are total earnings including amounts above the taxable maximum and in jobs not covered by Social Security. They include the employer payroll tax contributions and employer DC contributions.
Present value uses a 2 percent real discount rate.
Sample includes all individuals born from 1950 to 1989 who are US resident and survive to age 50.
Employer DC contributions included in earnings are only available beginning in 1992 in DYNASIM.

Table 2. *Present Value of OASDI Benefits as a Share of Lifetime Earnings by Benefit Type, Cohort, and Shared Lifetime Earnings Group*

		Ratio of Present Value of Benefits to Present Value of Shared Lifetime Earnings			
		Birth Year			
	Shared Lifetime Earnings Group	1950-1959	1960-1969	1970-1979	1980-1989
OASDI					
	Bottom quintile	22.9%	25.4%	25.5%	26.2%
	Second quintile	14.3%	15.6%	16.1%	16.7%
	Middle quintile	11.6%	12.5%	13.3%	13.3%
	Fourth quintile	9.6%	10.3%	10.8%	11.1%
	80-95th percentile	7.8%	8.1%	8.2%	8.6%
	Top 5 percent	4.8%	4.7%	3.5%	3.7%
	All	10.0%	10.5%	10.2%	10.6%
OASI					
	Bottom quintile	14.6%	13.5%	13.7%	13.7%
	Second quintile	10.0%	10.8%	11.2%	11.6%
	Middle quintile	9.1%	9.7%	10.3%	10.3%
	Fourth quintile	8.5%	8.6%	9.4%	9.4%
	80-95th percentile	7.3%	7.5%	7.5%	7.7%
	Top 5 percent	4.6%	4.5%	3.2%	3.4%
	All	8.2%	8.3%	8.1%	8.3%
DI					
	Bottom quintile	8.3%	11.9%	11.8%	12.4%
	Second quintile	4.3%	4.8%	5.0%	5.1%
	Middle quintile	2.5%	2.8%	3.0%	3.0%
	Fourth quintile	1.2%	1.7%	1.5%	1.7%
	80-95th percentile	0.5%	0.6%	0.8%	0.9%
	Top 5 percent	0.2%	0.2%	0.2%	0.3%
	All	1.8%	2.2%	2.1%	2.3%

Notes:
Social Security Benefits are net of income taxes paid on Social Security benefits.
Couples split benefits in years they are married.
Analysis assumes benefits will be paid as scheduled.
Earnings are total earnings including amounts above the taxable maximum and in jobs not covered by Social Security. They include the employer payroll tax contributions and employer DC contributions.
Present value uses a 2 percent real discount rate.
Sample includes all individuals born from 1950 to 1989 who are US resident and survive to age 50.

Table 3. *Present Value of OASDI Taxes as a Share of Lifetime Earnings by Cohort and Shared Lifetime Earnings Group ($2014)*

	Birth Year			
Shared Lifetime Earnings Group	1950-1959	1960-1969	1970-1979	1980-1989
Bottom quintile	10.3%	10.2%	10.2%	10.4%
Second quintile	10.3%	10.6%	10.5%	10.5%
Middle quintile	10.1%	10.6%	10.6%	10.6%
Fourth quintile	9.8%	10.4%	10.4%	10.4%
80-95th percentile	9.2%	9.7%	9.7%	9.8%
Top 5 percent	6.6%	6.7%	5.1%	5.2%
All	9.3%	9.6%	9.1%	9.2%

Notes:
Couples split OASDI taxes in years they are married.
OASDI taxes include both the employer and employee share.
Earnings are total earnings including amounts above the taxable maximum and in jobs not covered by Social Security. They include the employer payroll tax contributions and employer DC contributions.
Present value uses a 2 percent real discount rate.
Sample includes all individuals born from 1950 to 1989 who are US resident and survive to age 50.

Table 4. *Present Value of Net OASDI Benefits (OASDI Benefits - OASDI Taxes) as a Share of Lifetime Earnings by Cohort and Shared Lifetime Earnings Group*

	Ratio of Present Value of Net OASDI Benefits to Present Value of Shared Lifetime Earnings			
	Birth Year			
Shared Lifetime Earnings Group	1950-1959	1960-1969	1970-1979	1980-1989
Bottom quintile	12.65%	15.19%	15.34%	15.77%
Second quintile	4.06%	4.96%	5.64%	6.16%
Middle quintile	1.42%	1.85%	2.74%	2.69%
Fourth quintile	-0.19%	-0.12%	0.45%	0.70%
80-95th percentile	-1.44%	-1.57%	-1.45%	-1.16%
Top 5 percent	-1.72%	-1.91%	-1.64%	-1.47%
All	0.73%	0.87%	1.10%	1.39%

Notes:
Social Security Benefits are net of income taxes paid on Social Security benefits.
Couples split earnings, taxes, and benefits in years they are married.
OASDI taxes include both the employer and employee share.
Analysis assumes benefits will be paid as scheduled.
Earnings are total earnings including amounts above the taxable maximum and in jobs not covered by Social Security. They include the employer payroll tax contributions and employer DC contributions.
Present value uses a 2 percent real discount rate.
Sample includes all individuals born from 1950 to 1989 who are US resident and survive to age 50.

Table 5. *Revenue Effects of Retirement Saving Incentives*

Option	Description
Baseline 1	Current law federal income tax and retirement saving preference.
Baseline 2	Eliminate tax preference for DC and DB plans. All DC contributions (employer plus employee) are taxable in the year they are paid. All DB accruals are taxable in the year they are accrued.
Simulation 2a	Reduce marginal tax rates by a constant percent (.10, .15. .25, .28, .33, .35, .396)*0.963
Simulation 2b	Reduce marginal tax rates by a constant percentage point (.10, .15. .25, .28, .33, .35, .396)-0.009
Simulation 2c	Reduce all taxes by a constant per capita amount ($200/person age 15 and older regardless of income or employment status)

Notes

Simulation keeps the current law treatment of payroll taxes--DB contributions and employer DC contributions excluded, employee DC contributions included.

Table 6. *Federal Income Tax Revenue Loss Relative to Baseline 2 by Simulation and Year ($billions of 2014 dollars)*

Year	Baseline 1 Current Law saving preference	Simulation 2a Reduce marginal tax rates by constant percent r=0.963	Simulation 2b Reduce marginal tax rates by constant percentage point r=0.009	Simulation 2c Reduce all taxes by constant per capita amount r=200
1992-2001	581	350	340	360
2002-2011	559	373	433	447
2012-2021	769	498	535	542
2022-2031	780	641	668	679
2032-2041	742	752	781	809
2042-2051	761	882	913	950
2052-2061	748	1032	1066	1101
2062-2071	799	1183	1226	1275
2072-2081	894	1375	1427	1479
2082-2091	800	1499	1560	1617
1992-2091	7433	8586	8949	9259

Table 7. *Present Value of Lifetime Benefits of Retirement Saving Incentives as a Share of Lifetime Earning by Lifetime Earnings Group*

	Birth Year			
Shared Lifetime Earnings Group	1950-1959	1960-1969	1970-1979	1980-1989
Bottom quintile	0.23%	0.18%	0.61%	0.49%
Second quintile	0.48%	0.46%	0.83%	0.71%
Middle quintile	0.71%	1.00%	1.18%	1.37%
Fourth quintile	1.21%	1.50%	1.89%	1.95%
80-95th percentile	1.72%	2.29%	2.62%	2.69%
Top 5 percent	2.06%	2.38%	2.52%	3.17%
All	1.25%	1.59%	1.93%	2.11%

Notes
This is equal to the present value of income from assets plus bequests under baseline 1 (current law) minus the present value of income from assets plus bequests under baseline 2 (eliminate the tax preference) divided by the present value of lifetime earnings.
Present value uses a 2 percent real discount rate.
Sample includes all individuals born from 1950 to 1989 who are US resident and survive to age 50.

Table 8. *Present Value of lifetime Taxes to Pay for Retirement Saving Incentives as a Share of Lifetime Earning by Lifetime Earnings Group*

		Birth Year			
Option	Shared Lifetime Earnings Group	1950-1959	1960-1969	1970-1979	1980-1989
Simulation 2a: Increase marginal tax rates by constant percent					
	Bottom quintile	0.14%	0.16%	0.19%	0.19%
	Second quintile	0.18%	0.23%	0.26%	0.27%
	Middle quintile	0.24%	0.30%	0.33%	0.34%
	Fourth quintile	0.30%	0.37%	0.41%	0.42%
	80-95th percentile	0.42%	0.50%	0.54%	0.55%
	Top 5 percent	0.80%	0.89%	1.06%	1.06%
	All	0.38%	0.45%	0.55%	0.55%
Simulation 2b: Increase marginal tax rates by constant percentage point					
	Bottom quintile	0.23%	0.28%	0.33%	0.33%
	Second quintile	0.28%	0.37%	0.42%	0.44%
	Middle quintile	0.33%	0.44%	0.49%	0.50%
	Fourth quintile	0.37%	0.48%	0.53%	0.54%
	80-95th percentile	0.42%	0.52%	0.58%	0.59%
	Top 5 percent	0.59%	0.68%	0.76%	0.75%
	All	0.39%	0.49%	0.57%	0.57%
Simulation 2c: Increase all taxes by constant per capita amount					
	Bottom quintile	1.38%	1.93%	2.26%	2.28%
	Second quintile	0.64%	0.90%	1.13%	1.15%
	Middle quintile	0.46%	0.61%	0.78%	0.79%
	Fourth quintile	0.34%	0.44%	0.55%	0.56%
	80-95th percentile	0.25%	0.31%	0.36%	0.38%
	Top 5 percent	0.14%	0.17%	0.14%	0.15%
	All	0.40%	0.52%	0.59%	0.61%

Notes
Couples split taxes in years they are married.
Table includes the present value of shared federal income tax from 1992 until 2087.
Present value uses a 2 percent real discount rate.
Sample includes all individuals born from 1950 to 1989 who are US resident and survive to age 50.

Table 9. *Present Value of Net Benefits of Retirement Saving Incentives as a Share of Lifetime Earning by Lifetime Earnings Group*

		Birth Year			
Option	Shared Lifetime Earnings Group	1950-1959	1960-1969	1970-1979	1980-1989
Simulation 2a: Increase marginal tax rates by constant percent					
	Bottom quintile	0.1%	0.0%	0.4%	0.3%
	Second quintile	0.3%	0.2%	0.6%	0.4%
	Middle quintile	0.5%	0.7%	0.9%	1.0%
	Fourth quintile	0.9%	1.1%	1.5%	1.5%
	80-95th percentile	1.3%	1.8%	2.1%	2.1%
	Top 5 percent	1.3%	1.5%	1.5%	2.1%
	All	0.9%	1.1%	1.4%	1.6%
Simulation 2b: Increase marginal tax rates by constant percentage point					
	Bottom quintile	0.0%	-0.1%	0.3%	0.2%
	Second quintile	0.2%	0.1%	0.4%	0.3%
	Middle quintile	0.4%	0.6%	0.7%	0.9%
	Fourth quintile	0.8%	1.0%	1.4%	1.4%
	80-95th percentile	1.3%	1.8%	2.0%	2.1%
	Top 5 percent	1.5%	1.7%	1.8%	2.4%
	All	0.9%	1.1%	1.4%	1.5%
Simulation 2c: Increase all taxes by constant per capita amount					
	Bottom quintile	-1.2%	-1.8%	-1.7%	-1.8%
	Second quintile	-0.2%	-0.4%	-0.3%	-0.4%
	Middle quintile	0.3%	0.4%	0.4%	0.6%
	Fourth quintile	0.9%	1.1%	1.3%	1.4%
	80-95th percentile	1.5%	2.0%	2.3%	2.3%
	Top 5 percent	1.9%	2.2%	2.4%	3.0%
	All	0.8%	1.1%	1.3%	1.5%

Notes

Net Benefit is the change in present value of retirement income minus the change in present value of lifetime federal income tax.

Couples split earnings, taxes, and benefits in years they are married.

Retirement income is limited to years after retirement or Social Security claiming age.

Table 10. *Net Combined Effects of Social Security and Retirement Saving Incentives as a Share of Lifetime Earnings by Cohort and Lifetime Earning by Lifetime Earnings Group*

		Birth Year			
Option	Shared Lifetime Earnings Group	1950-1959	1960-1969	1970-1979	1980-1989
Simulation 2a:Increase marginal tax rates by constant percent					
	Bottom quintile	12.74%	15.21%	15.76%	16.08%
	Second quintile	4.35%	5.18%	6.20%	6.61%
	Middle quintile	1.89%	2.56%	3.59%	3.72%
	Fourth quintile	0.71%	1.01%	1.93%	2.24%
	80-95th percentile	-0.14%	0.22%	0.62%	0.99%
	Top 5 percent	-0.46%	-0.42%	-0.18%	0.64%
	All	1.60%	2.00%	2.49%	2.95%
Simulation 2b: Increase marginal tax rates by constant percentage point					
	Bottom quintile	12.65%	15.09%	15.62%	15.93%
	Second quintile	4.25%	5.04%	6.04%	6.44%
	Middle quintile	1.79%	2.42%	3.43%	3.56%
	Fourth quintile	0.64%	0.91%	1.81%	2.11%
	80-95th percentile	-0.15%	0.20%	0.59%	0.95%
	Top 5 percent	-0.24%	-0.21%	0.12%	0.96%
	All	1.58%	1.96%	2.47%	2.93%
Simulation 2c: Increase all taxes by constant per capita amount					
	Bottom quintile	11.50%	13.44%	13.69%	13.98%
	Second quintile	3.89%	4.51%	5.33%	5.73%
	Middle quintile	1.67%	2.25%	3.15%	3.27%
	Fourth quintile	0.67%	0.94%	1.79%	2.09%
	80-95th percentile	0.03%	0.41%	0.81%	1.16%
	Top 5 percent	0.20%	0.30%	0.74%	1.55%
	All	1.58%	1.94%	2.45%	2.89%

Notes

Net Benefit is the present value of OASDI benefits minus present value of OASDI taxes plus the present value of increased retirement income minus the present value of increase in federal income tax.