

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

Policy Report No. 337

by Liqun Liu and Andrew J. Rettenmaier

November 2011

Entitlement reform has dominated the ongoing debate over reducing the federal government's persistent deficits and mounting debt. Together Medicare and Social Security account for a third of current federal spending and will continue to grow as a share of both the economy and federal spending in coming years. Since the inception of Medicare and Social Security, numerous reforms have been proposed. This study focuses on Social Security reform, examining four types of reform that represent the range of most commonly mentioned options.

Executive Summary

The Budget Control Act of 2011 created the Joint Select Committee on Deficit Reduction, the so-called super-committee, and gave it the task of cutting spending or increasing taxes in order to reduce the deficit by \$1.5 trillion over 10 years. Reductions in spending, including tax expenditures, are preferable to tax increases; otherwise, the country will remain on the path of an ever-expanding government sector. In the case of Social Security, expenditure reductions are also preferable to tax increases, given that Medicare, the other elderly entitlement program, is also exerting upward pressure on spending. Together Medicare and Social Security account for a third of current federal spending and will continue to grow as a share of both the economy and federal spending in coming years.

This study compares the implications of maintaining Social Security's current benefit schedule with three changes that would reduce spending in different ways and one that would raise revenues immediately. The study analyzes the extent to which each provision would reduce the program's long-run deficits, affect spending, and change the distribution of benefits and taxes. Social Security's accumulated trust fund balances will not cover projected long-term deficits under current law, with unchanged tax rates and benefit schedules.

Based on estimates from the 2011 Social Security Trustees Report, the current payroll tax rate — which is 12.4 percentage-points of taxable payroll — would have to be raised immediately and permanently by 2.1 percentage-points to pay current-law benefits under both the Old Age and Survivors Insurance (OASI) and the Disability Insurance (DI) programs for the next 75 years. In order to eliminate Social Security's long-run unfunded obligations in perpetuity, without benefit reductions, a solvency tax, or immediate and permanent payroll tax hike, of 3.6 percentage-points would be required.

This study's analysis of the current program and each of the four alternatives was derived from estimates provided by the Social



Dallas Headquarters:
12770 Coit Road, Suite 800
Dallas, TX 75251
972.386.6272
Fax: 972.386.0924

www.ncpa.org

Washington Office:
601 Pennsylvania Avenue NW,
Suite 900, South Building
Washington, DC 20004
202.220.3082
Fax: 202.220.3096

ISBN #1-56808-216-9
www.ncpa.org/pub/st337

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

Security Administration's Office of the Actuary. However, unlike the Actuary's estimates, Old Age and Survivors Insurance (OASI), which is mostly retirement benefits, is considered in isolation, and the changes, and how they would affect workers with differing lifetime earnings, are calculated independently. Furthermore, each proposed change would have a different effect on the system's long-run shortfalls. These shortfalls, or unfunded obligations, are expressed in present values — the amount of money necessary to fill the funding gap between expenses and tax revenues valued today using the government borrowing rate. The rate used in this study is a real 2.9 percent — the long-run assumption used in the 2011 Trustees Report. Each provision solves the system's long-run shortfall to varying degrees; therefore, in order to place all on equal footing, for each proposed change a solvency tax rate required to eliminate the unfunded obligations of OASI was calculated, assuming the tax was effective in 2011.

Retaining Current Law Benefits. Under current law, the net present value of unfunded Social Security obligations for retiree benefits into the indefinite future is \$16.1 trillion. Thus, retaining current law benefits requires the largest solvency tax increase — 3.2 percent of taxable payroll. It also results in the second largest program in terms of long-run spending, and produces a generally progressive program in which the lifetime net tax rate of the lowest earnings groups are lower than those with higher earnings.

Progressive Price Indexing. The first change considered would introduce progressive price indexing of initial retiree benefit payments, in which the initial benefits of workers at the taxable maximum would be based on price-indexed rather than wage-indexed earnings.

- Progressive price indexing would substantially reduce the long-run funding gap to \$3.2 trillion.
- Thus, it would only require a modest solvency tax increase equal to 0.6 percent of taxable payroll.
- In terms of long-run spending, it would result in the second smallest program, about 82 percent of the size of the current program.

It also would make the already progressive lifetime taxes more progressive compared to a solvent program that retains the current law benefit formula.

Changing the Benefit Formula. The second change considered would alter the benefit formula such that the rates at which all workers' indexed wages are replaced by benefits would decline relative to current law, with higher earning workers' replacement rates declining the most. This change would essentially eliminate the long-run funding gap and require no additional solvency tax. It also would produce the most dramatic reduction in spending on benefits, equal to 23 percent of long-run spending under the current benefit formula. In addition, it would retain the progressive nature of the benefit formula, but reduce the degree of progressivity relative to the current formula.

Raising the Retirement Age. The third provision would increase the full retirement age throughout the projection period — more rapidly at first and then more gradually in each year beyond 2032. Raising the retirement age would reduce Social Security's unfunded obligations for retiree benefits (OASI) to \$6.3 trillion and require a solvency tax of 1.3 percent of taxable payroll. It would result in the third-largest program, with about 87 percent of the current law spending. Moreover, though the distribution of net taxes would still be progressive, of the four potential changes considered it would reduce the degree of progressivity the most relative to current law.

Eliminating the Taxable Maximum. The final provision considered would eliminate the taxable maximum and credit all earnings in the calculation of the benefits. This provision would reduce Social Security's unfunded obligation for retiree benefits to \$8.3 trillion and require a 1.3 percent payroll tax increase. It would result in the largest program in terms of long-run spending, and would increase the progressivity of the program.

Proponents of increasing the taxable maximum will note that it would raise revenues immediately, enhance the program's progressivity and extend the life of the Social Security Trust Fund. Because this provision would raise revenues immediately and expenditures later, some will find it an option worth consideration by the Budget Control Act's super-committee. However, it would increase the long-run commitments of the federal government, further exacerbating the problems underlying the current fiscal crisis.

The other three provisions produce modest cost savings over the next 10 years that could be credited

toward the Committee's short-run deficit reduction goal. Most of the cost savings resulting from the other reforms occur after the 10-year window, so unfortunately, the horizon of the Budget Control Act is too short to engender thoughtful discussion of long-run Social Security reforms.

The current program and the changes considered in the study

all require benefit cuts and/or tax increases to reduce Social Security's unfunded obligations. A change that would improve the financial retirement security of future generations of workers would move to a system that includes individually owned accounts funded by savings. Such a change would require additional savings during a transition period,

but would ultimately reduce future retirees' reliance on the current transfer-based system and in the long run reduce the tax rate required to meet Social Security's obligations. This kind of change can be coupled with several of the provisions analyzed to produce a program in which benefits are partially prepaid.

About the Authors

Liqun Liu is a Research Scientist at the Private Enterprise Research Center. He joined the Center after earning his Ph.D. in Economics (Texas A&M University, 1998). Originally from China, he also received a B.S. and M.S. in Applied Mathematics from Huazhong University of Science and Technology. Dr. Liu's primary research interests are elderly entitlement reform, costs of public funds, the social discount rate, and medical cost-effectiveness analysis. He has published in the *European Economic Review*, *National Tax Journal*, *Journal of Theoretical and Institutional Economics*, *Economic Inquiry*, *Southern Economic Journal*, and *Journal of Public Economics*, among other economics journals.

Dr. Andrew J. Rettenmaier is the Executive Associate Director at the Private Enterprise Research Center at Texas A&M University. His primary research areas are labor economics and public policy economics with an emphasis on Medicare and Social Security. Dr. Rettenmaier and the Center's director, Thomas R. Saving, presented their Medicare reform proposal to U.S. Senate Subcommittees and to the National Bipartisan Commission on the Future of Medicare. Their proposal has also been featured in the *Wall Street Journal*, *New England Journal of Medicine*, *Houston Chronicle* and *Dallas Morning News*.

Dr. Rettenmaier is the coprincipal investigator on several research grants and also serves as the editor of the Center's two newsletters, *PERC Perspectives on Policy* and *PERC Perspectives*. He is coauthor of a book on Medicare, *The Economics of Medicare Reform* (Kalamazoo, Mich.: W.E. Upjohn Institute for Employment Research, 2000) and an editor of *Medicare Reform: Issues and Answers* (University of Chicago Press, 1999). He is also coauthor of *Diagnosis and Treatment of Medicare* (Washington, D.C.: American Enterprise Institute Press, 2007). Dr. Rettenmaier is a senior fellow with the National Center for Policy Analysis.

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

Introduction

Entitlement reform has dominated the ongoing debate over reducing the federal government's persistent deficits and mounting debt. Together Medicare and Social Security account for a third of current federal spending and will continue to grow as a share of both the economy and federal spending in coming years. Since the inception of Medicare and Social Security, numerous reforms have been proposed. This study focuses on Social Security reform, examining

four types of reform that represent the range of most commonly mentioned options.

The Office of the Actuary of the Social Security Administration routinely scores reform proposals and evaluations of more than 120 different provisions are available on its webpage.¹ The scores include aggregate income and cost as percentages of payroll for the next 75 years and are based on the 2010 Trustees Report. The scores also summarize how the provisions affect the program's 75-year actuarial balance — the degree to

which payroll taxes must be raised (or reduced) to attain financial balance over the next 75 years.

This study examines four representative reforms and assumes each is enacted independently of the others. Limiting the analysis to these four provisions and treating them individually, rather than in conjunction, abstracts from proposals that include multiple provisions, but allows for the examination of the separate changes in terms of their lifetime impact on benefits and taxes.

Four Reforms

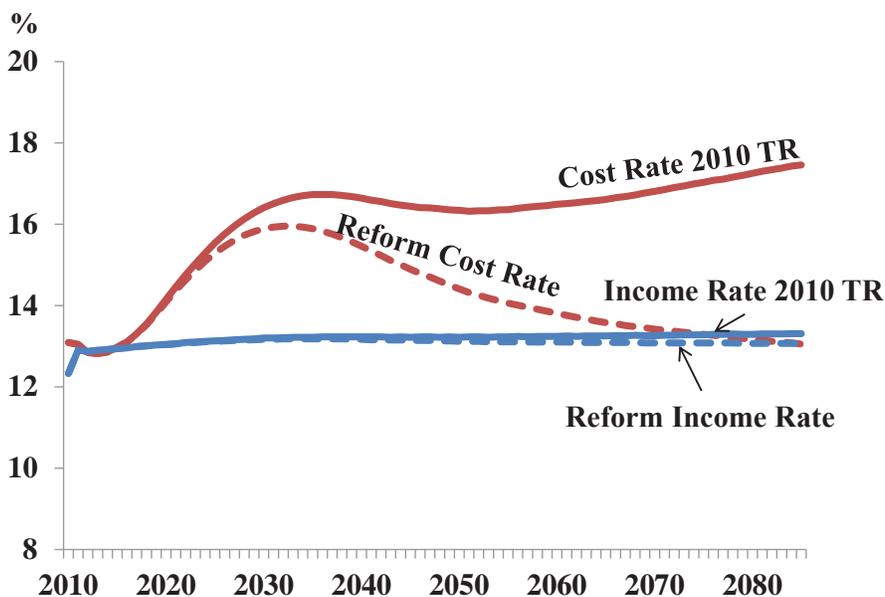
The analysis starts with official estimates of the impact of the reforms on system revenues and expenditures by the Social Security Office of the Actuary.² All of the estimates are based on the 2010 Trustees Report assumptions and are compared to the continuation of the current program.³

Progressive Price Indexing. Progressive price indexing would increase the progressivity of the benefit formula by tying benefit growth at the top of the taxable earnings distribution to price growth rather than wage growth. Typically in such a reform workers at the lower end of the distribution continue to be awarded benefits based on the current benefit formula.

There are several variants of progressive price indexing reform. The version used in this study retains the benefit formula

Figure I

Social Security Reform: Progressive Price Indexing



Source: Social Security Administration Office of the Actuary, <http://www.ssa.gov/OACT/solvency/provisions/index.html>, Provision B1.2.

Summary of provision from Office of the Actuary:

Progressive price indexing of the Primary Insurance Amount formula factors beginning with individuals newly eligible for Old Age and Survivors Insurance and the Disability Insurance benefits in 2017. Create new bend point at the 30th percentile of earners. Maintain current-law benefits for earners at the 30th percentile and below and reduce upper two formula factors (32% and 15%) such that maximum worker benefit grows by inflation rather than the growth in average wages.

Source: <http://www.ssa.gov/OACT/solvency/provisions/benefitlevel.html>.

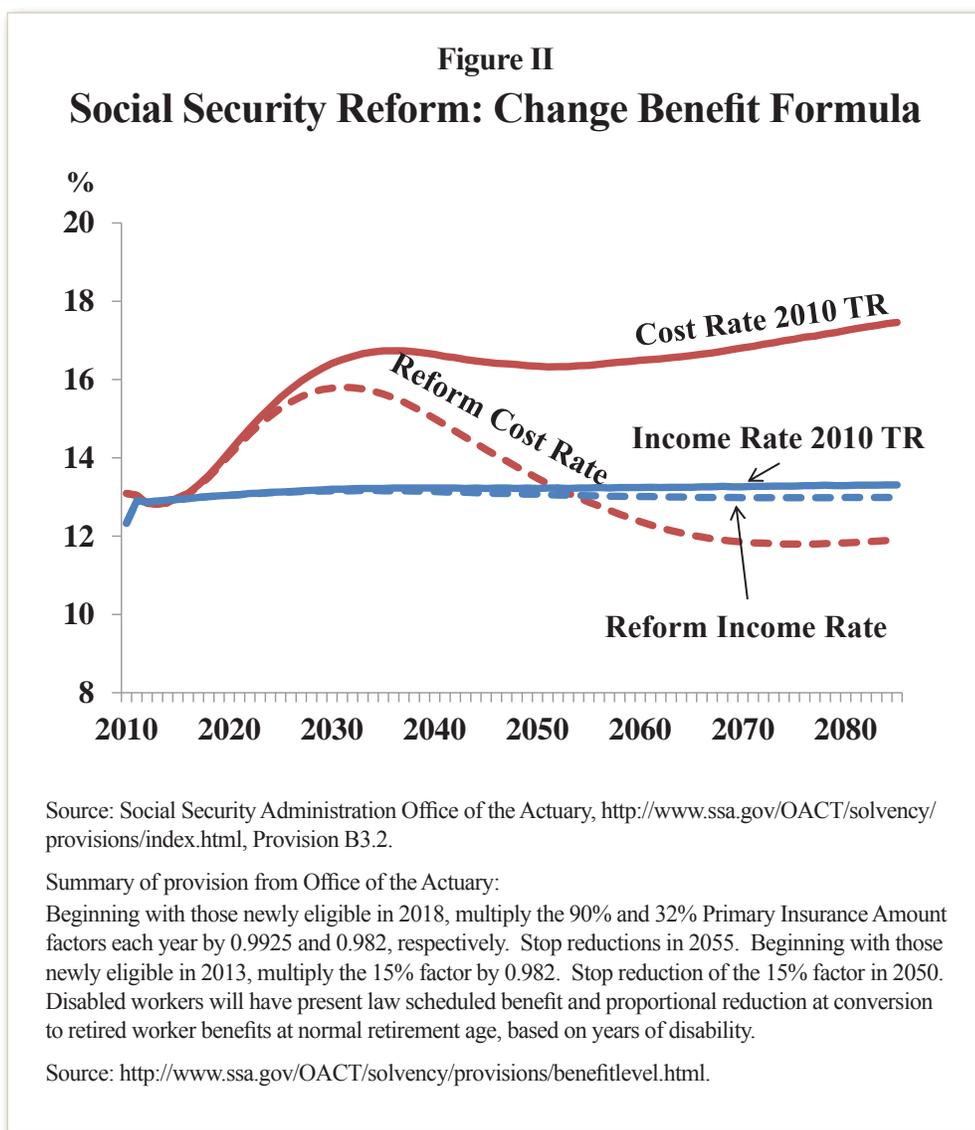
for workers below the 30th percentile in the lifetime earnings distribution, but all others receive lower benefits than currently scheduled. Ultimately, the benefits of workers at the taxable maximum grow with inflation rather than with wage growth. In the long-run revenues match expenditures. [See Figure I.]

Change the Benefit Formula.

Changing the benefit formula would potentially have effects similar to progressive price indexing in terms of solvency and the distribution of the benefit reductions. To differentiate this category of reform, the version analyzed would reduce all of the benefit formula factors, and therefore reduces benefits for all workers relative to current law, but to a greater degree for higher earners. As explained in the sidebar, “How Social Security Benefits Are Calculated,” the benefit formula translates workers’ average wage-indexed earnings into their Primary Insurance Amounts (PIA) using factors that produce declining replacement rates as the average wage rises.

The change in the benefit formula reduces the upper and middle PIA factors by the same rate and the lower factor by a lower rate. Ultimately, the first factor in the PIA formula is reduced from 90 percent to 67 percent, and the second and third factors of 32 percent and 15 percent are halved.

Benefits for all future retirees are reduced relative to current law, but higher earners experi-



ence a larger reduction. This reform produces the greatest cost reduction of the four provisions considered. By 2054 expenditures are less than revenues and no additional tax is required to attain long-run solvency. [See Figure II.]

Raise the Retirement Age.

Rising life expectancies are often used to justify raising the retirement age. However, there is evidence that the increase in average life expectancy may be due to more rapid gains among

high-income workers than among low-income workers. Thus, an across-the-board increase in the retirement age will disproportionately reduce lifetime benefits for low-income workers relative to current law.

Over the past 50 years, life expectancy at age 65 has increased by 5.5 years for newly retired men and by 3.3 years for women. This provision accelerates the increase in the normal retirement age relative to current law and

How Social Security Benefits Are Calculated

Social Security retirement benefits are calculated by averaging a worker's past earnings, adjusted for wage growth. The average is then converted to a monthly insurance amount such that the rate at which it replaces past earnings is higher for workers with low lifetime earnings than it is for workers with high lifetime earnings. Final monthly benefits are contingent on the age at which a worker first claims benefits.

How Earnings Are Indexed. The first step in calculating a worker's benefit is converting past earnings into wage-indexed earnings. The wage indexing factor is set to one for 60 years of age and above. For ages prior to 60, the index factor is equal to the Social Security average wage index in the year that the worker is 60 years old divided by the average wage in each prior year. Thus, the index factor applied to wages earned earlier in the worker's career generally increase given nominal wage growth. Because wages rise more rapidly than inflation, the index factors exceed factors based on price level changes alone. These wage index factors are then multiplied times the worker's actual earnings to determine his or her indexed earnings.

The top 35 years of wage-indexed earnings are then summed and divided by 420 — the number of months in 35 years — to arrive at the worker's Average Indexed Monthly Earnings (AIME).

How the Bend Points Are Used to Form Earnings Ranges. The benefit formula converts the AIME amount into the Primary Insurance Amount (PIA) that replaces the AIME in a progressive manner over three earnings ranges. Two bend points, updated each year with past wage growth, define the bounds of the three ranges. The applicable bend points are determined in the year in which a worker turns age 62. For example, the first and second bend points for workers turning 62 years old this year are \$749 and \$4,517, respectively. The PIA is equal to 90 percent of AIME falling in the first range, between zero earnings and the first bend point, added to 32 percent of AIME falling between the first and second bend point, added to 15 percent of AIME above the second bend point.

Once the PIA is calculated, it is then adjusted for price level changes using the Consumer Price Index for Urban Wage Earners and Clerical Workers in the years after the worker turns age 62. It is also adjusted for any additional annual earnings if they exceed the 35 year average.

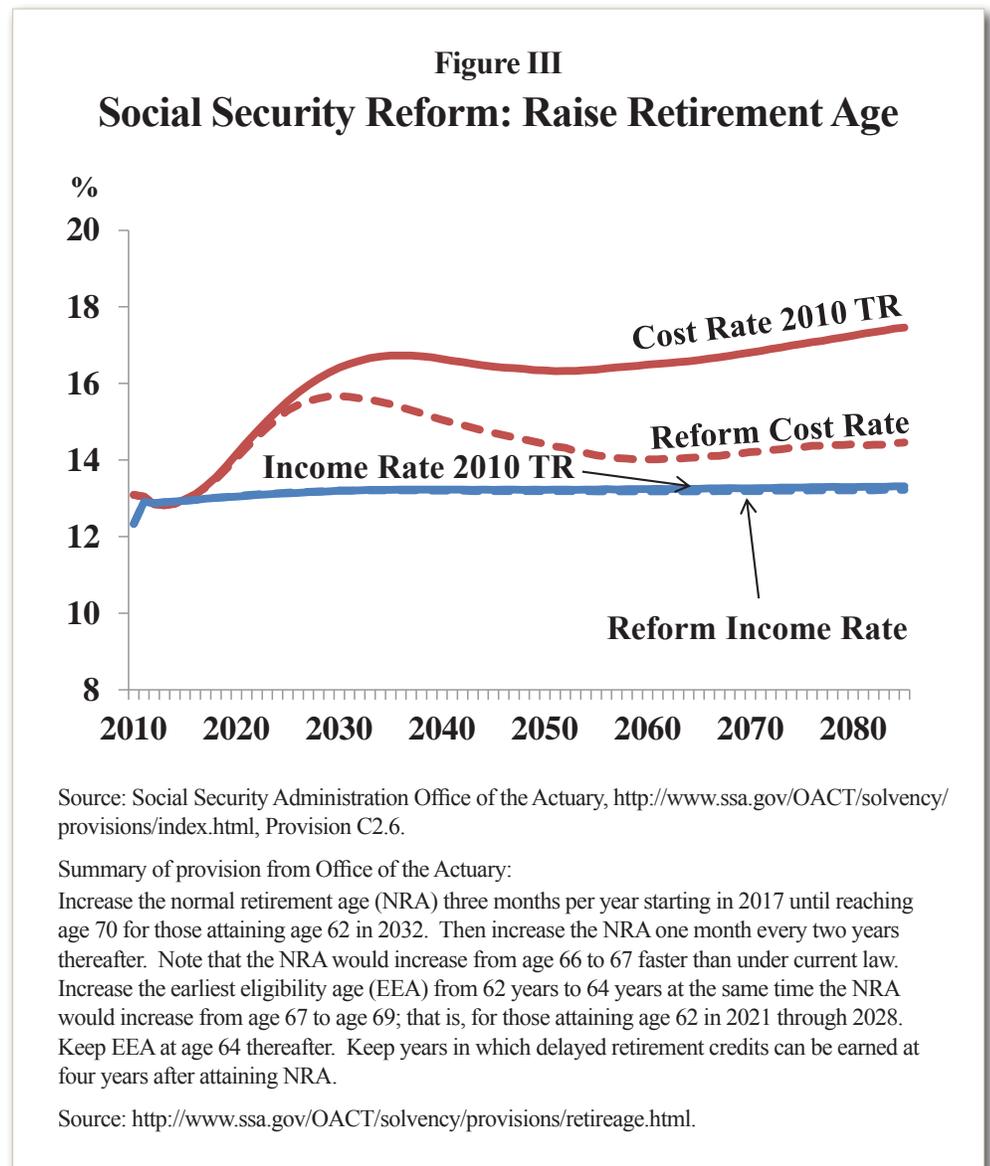
How the Normal Retirement Age Is Changing. Finally, the monthly benefit a worker receives is equal to the full PIA if the worker begins claiming benefits at the normal retirement age. The current normal retirement age is 66 years and will remain at age 66 for workers born in 1943 to 1954. Under current law, the normal retirement age then rises two months for each subsequent birth year until it stops at age 67 for workers born in 1960.

The monthly benefit is reduced relative to the PIA for workers who begin claiming benefits before the normal retirement age and is increased relative to PIA for workers who initially claim benefits after they reach the normal retirement age. Currently, workers who initially claim benefits at 62 years of age receive 75 percent of their PIA while those whose initial claim is at age 70 receive 132 percent of their PIA.

continues to increase it by one month every two years after it reaches age 70 for those born in 1960. Across the board increases would especially reduce the lifetime benefits for workers with lower expected conditional life expectancies — workers who are expected to have fewer years of life remaining, if they reach retirement age. For example, conditional life expectancy at age 65 for very high earning men is estimated to be almost 20 percent higher than for those with medium earnings, while the conditional life expectancy for very low earners is about 7 percent lower than for medium earners.⁴ The funding gap would grow to 1.24 percent of taxable payroll by 2085. [See Figure III.]

Eliminate the Taxable Maximum. The annual wage income of an individual who is subjected to Social Security taxes is capped at a maximum, \$106,800 in 2010, that is adjusted annually with the national average wage index. Eliminating the taxable maximum increases revenues immediately, but results in higher future benefits. Some versions of this proposal eliminate the cap on taxable earnings for taxing purposes but ignore the additional taxes paid on earnings above the maximum in calculating benefits. (Other versions raise the taxable maximum but do not altogether eliminate it.) That would be a pure tax above the taxable maximum.

The provision analyzed here, however, credits all earnings to workers in the calculation of



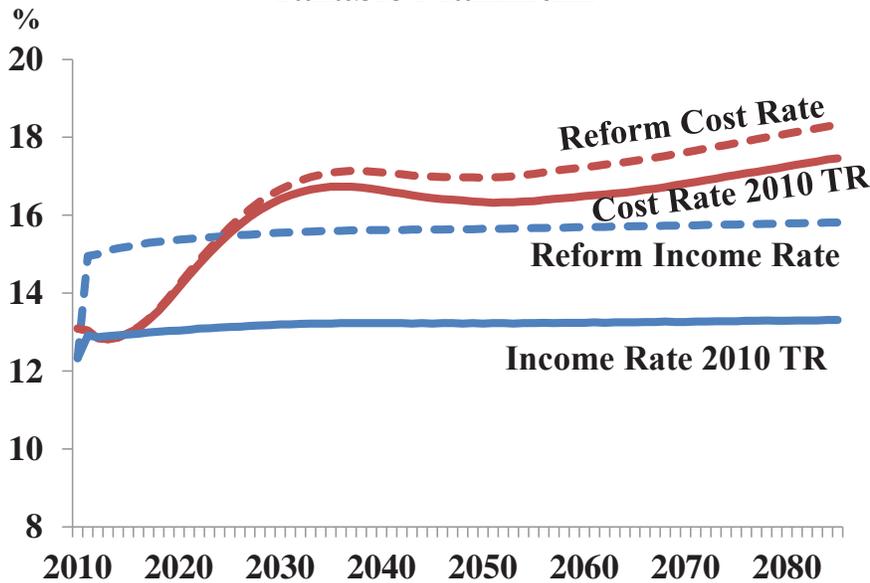
their benefits. Thus, the total size of the program in terms of long-run spending grows rather than contracts relative to current law. Some people find this reform attractive because it produces surpluses in the short run and appears to be a ready source of funding for general expenditures until 2025. In the long-run, however, it causes the annual funding gap to grow and in 2085 the gap is 2.5 percent of taxable payroll. [See Figure IV.]

Comparing Social Security Reforms to the Current System

The ratio of workers to retirees has been sharply reduced due to rising life expectancies and falling birth rates. The Social Security status quo — with unchanged tax rates and benefit schedules — is financially insolvent in the long run, and the accumulated trust fund balances will not cover

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

Figure IV
Social Security Reform: Eliminate Taxable Maximum



Source: Social Security Administration Office of the Actuary, <http://www.ssa.gov/OACT/solvency/provisions/index.html>, Provision E2.2.

Summary from Office of the Actuary:

Beginning in 2011, make all earnings subject to the payroll tax and credit them for benefit purposes.

Source: <http://www.ssa.gov/OACT/solvency/provisions/payrolltax.html>.

projected long-term deficits. To make the program financially solvent without benefit reductions, the payroll tax rate would have to be raised 2.1 percentage-points to pay current-law benefits under both the Old Age and Survivors Insurance (OASI) and the Disability Insurance (DI) programs for the next 75 years. The tax rate would have to be raised by 3.6 percentage-points to make it viable in perpetuity, based on estimates from the 2011 Social Security Trustees Report.⁵ However, payroll tax rates at such a high level would inhibit future economic growth.

Each of the reforms addresses the projected deficits through a combination of reducing benefit growth and increasing tax revenues. The best way to evaluate how the reforms affect benefits and taxes differently through time is to compare the tax rates necessary to make the system solvent in perpetuity. Importantly, for comparability, a solvency tax must be computed that makes each reform, and the current law, solvent indefinitely.

Present Value of Unfunded Obligations. The scope of the provisions considered is limited

to the Old Age and Survivors Insurance portion of Social Security, which is primarily retirement benefits and is currently funded by a 10.60 percent tax on taxable wages. Table I shows estimates of the present value of this tax income, and the benefit payments and the funding shortfalls associated with each of the four provisions, as well as the baseline program. Present values are calculated using the discount rate assumptions from the 2011 Social Security Trustees Report. The inclusion of the Old Age and Survivors Insurance Trust Fund as a dedicated funding source is necessary given that comparisons of how well different workers fare under each reform starts with workers born in 1945. These workers have paid taxes during their working years, and since 1984 these taxes have produced substantial surpluses that have been credited to the trust fund. Further, a trust fund approach is required in order to identify the timing of the incidence of the new taxes on higher-income workers associated with eliminating the taxable maximum.⁶

The results, as shown in Table I:

- Changing the benefit formula would essentially eliminate the unfunded obligation.
- Progressive price indexing would reduce the unfunded obligation to \$3.2 trillion, while raising the retirement age would result in an unfunded obligation of \$6.3 trillion.
- Eliminating the taxable maximum would have the second

highest unfunded obligation at \$8.3 trillion.

- By contrast, the current OASI program has the highest unfunded obligation of \$16.1 trillion.

Unfunded Obligations as Percentage of Gross Domestic Product. The next panel in Table I presents the unfunded obligations as percentages of the present value of gross domestic product (GDP) over the infinite horizon. As expected, the provision to eliminate the taxable maximum and credit earnings for future benefit calculation would produce the largest program with benefits equal to 5.39 percent of GDP, and changing the benefit formula would result in the smallest program.

“The solvency tax is the immediate, permanent tax hike required to fully fund Social Security.”

Solvency Tax. The solvency tax rate represents the true cost of the program and must be taken into account in calculating how various measures affect different demographic groups. The final panel in Table I presents the solvency tax rates that must be collected under each provision:

- Changing the benefit formula would actually allow for a very small tax reduction of

0.01 percentage-points, while the progressive price indexing provision would require a modest 0.64 percentage-point solvency tax.

- The solvency tax for the proposal that raises the retirement age would be 1.26 percent.
- The solvency tax rate would be 1.32 percent if the taxable maximum were eliminated.
- Maintaining current law benefits would require a tax increase of 3.22 percent for a total tax rate of 13.82 percent of Social Security taxable payroll.

It is assumed that the solvency taxes are imposed beginning in 2011, and combined with the current tax rates indicate the size of a tax-financed Social Security program. The size of a program has efficiency implications in both the labor market and the capital market. The larger the size of a program financed by payroll taxes, the higher the tax rate falling on labor earnings. The size of a pay-as-you-go program also indicates the implicit debt in the program, which crowds out savings and investments and creates efficiency losses in the capital market.

Net Lifetime Benefits and Taxes of Representative Workers

The primary goal of this study is to illustrate how the provisions

change lifetime net benefits and net taxes for male and female workers who have different lifetime earnings and different birth years. [For a detailed discussion of how the profiles were constructed, see Appendix A, “Methodology.”]

Net present value is often used as a measure of how well one fares in Social Security and other programs. Comparing the net present values for a particular group of individuals in the current program and in a reformed program shows how much members of the group, on average, stand to gain or lose under the proposed reform. Often, calculations of the net present value and similar measures are based on the statutory specifications of the provision alone and ignore its financial sustainability.

The analysis begins by comparing the effects of the different provisions on lifetime taxes and benefits for medium earning, single men and then considers workers at the extremes of the earnings distribution.⁷

Effect on Medium Earners. The effect on lifetime benefits and taxes the four provisions have on medium-earning men born in 1945 to 2011 is shown in Figure V. The top graph presents lifetime benefit payments. Medium-earning single men who retire this year can expect to receive just over \$253,000. Real lifetime benefits under current law grow for future retirees due to longer life spans and real wage growth.

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

The lifetime benefit estimates associated with the provision that lifts the taxable maximum are the same as under current

law for medium workers, but progressive price indexing begins to reduce relative lifetime benefits as it is phased in starting in 2017.

Consider:

- Under progressive price indexing, a medium-earning male worker turning 21 years

Table I
Estimated OASI Unfunded Obligations and Solvency Taxes

Reform Number	Description	Tax Income	Benefit Payments	Funding Shortfall	Trust Fund	Unfunded Obligation
<i>Billions of 2011 Dollars</i>						
Baseline	Current Law Benefits	\$57,267	\$75,820	\$18,552	\$2,429	\$16,123
B1.2	Progressive Price Indexing	\$56,188	\$61,840	\$5,652	\$2,429	\$3,223
B3.2	Change the Benefit Formula	\$56,217	\$58,589	\$2,372	\$2,429	-\$57
C2.6	Raise the Retirement Age	\$56,952	\$65,678	\$8,727	\$2,429	\$6,298
E2.2	Eliminate the Taxable Maximum	\$67,657	\$78,398	\$10,741	\$2,429	\$8,312
<i>Percentage of Gross Domestic Product</i>						
Baseline	Current Law Benefits	3.93%	5.21%	1.27%	0.17%	1.11%
B1.2	Progressive Price Indexing	3.86%	4.25%	0.39%	0.17%	0.22%
B3.2	Change the Benefit Formula	3.86%	4.03%	0.16%	0.17%	0.00%
C2.6	Raise the Retirement Age	3.91%	4.51%	0.60%	0.17%	0.43%
E2.2	Eliminate the Taxable Maximum	4.65%	5.39%	0.74%	0.17%	0.57%
<i>Percentage of Taxable Payroll</i>						
Baseline	Current Law Benefits	11.43%	15.13%	3.70%	0.48%	3.22%
B1.2	Progressive Price Indexing	11.21%	12.34%	1.13%	0.48%	0.64%
B3.2	Change the Benefit Formula	11.22%	11.69%	0.47%	0.48%	-0.01%
C2.6	Raise the Retirement Age	11.36%	13.10%	1.74%	0.48%	1.26%
E2.2	Eliminate the Taxable Maximum*	13.50%	15.64%	2.14%	0.48%	1.66%
E2.2	Eliminate the Taxable Maximum**	10.73%	12.44%	1.70%	0.39%	1.32%

*As a percent of current law Social Security taxable payroll.

**As a percentage of Medicare's Hospital Insurance taxable payroll; that is, the taxable maximum is eliminated.

Source: Authors' calculations.

old in 2011 would receive about 15 percent less in lifetime benefits compared to the current program.

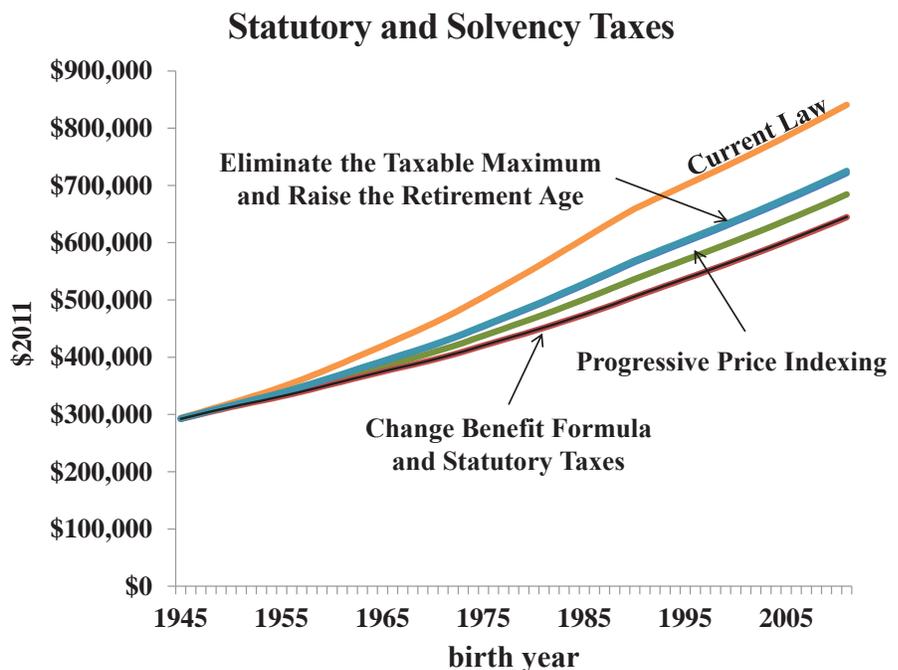
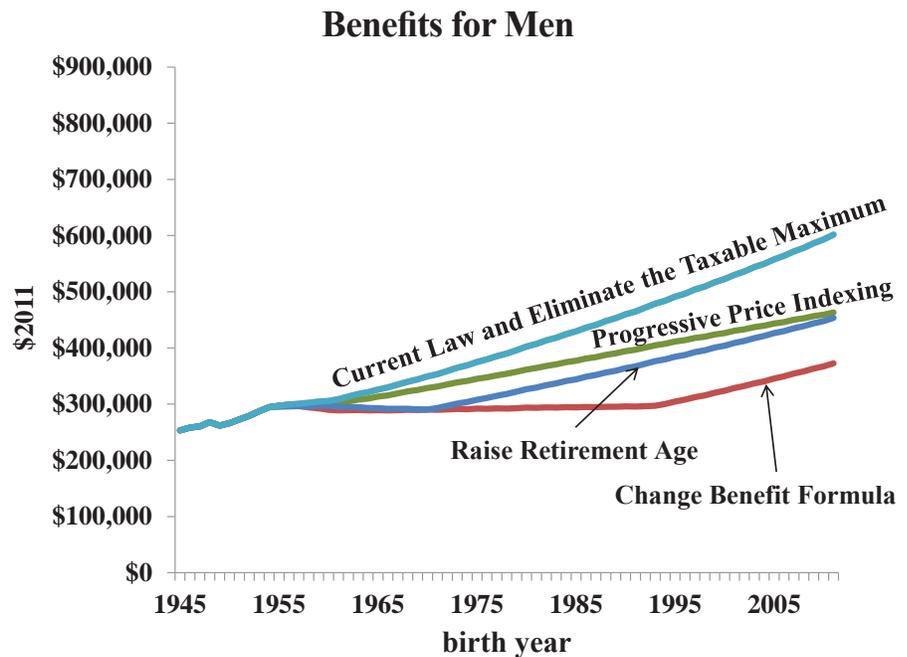
- Today's newborns would receive 23 percent less.

Raising the retirement age would reduce lifetime benefits by about the same amount as progressive price indexing in the long-run. Changing the benefit formula would result in the largest reduction in benefits compared to current law. Indeed, the benefits for medium-earning, single male workers entering the labor force this year would be 36 percent less.

The bottom graph in Figure V presents the accumulated value of statutory and solvency taxes for medium workers at age 66.⁸ The lowest line in the graph represents the present value of statutory payroll taxes as well as the total statutory and solvency taxes associated with changing the benefit formula, given that this provision results in a small though negligible tax reduction. For medium workers, continuation of the current law requires the largest solvency tax. In fact, for today's new entrant in the labor force, retaining the current law benefit schedule will result in \$505,972 in accumulated statutory tax payments and another \$153,558 in solvency taxes, or 43 percent more than the benefits he will receive.

Eliminating the taxable maximum and raising the retirement age would require approximately the same total taxes from the medium earner, while progressive

Figure V
Lifetime Social Security Benefits and Taxes for Medium Earners



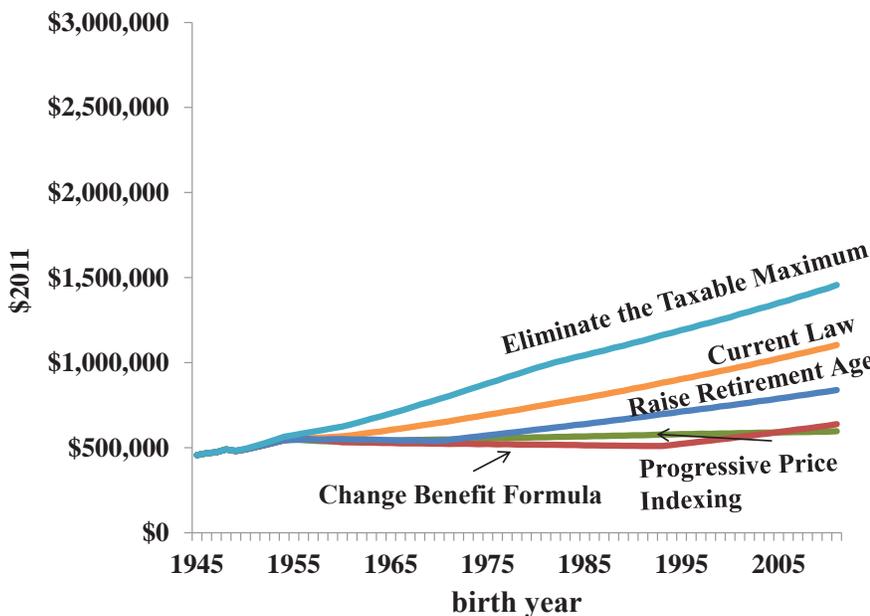
Source: Authors' estimates.

Assumptions: 2.9 percent real discount rate, income adjusted life expectancy, present values at age 66, and retire at the normal retirement age. See text for further details.

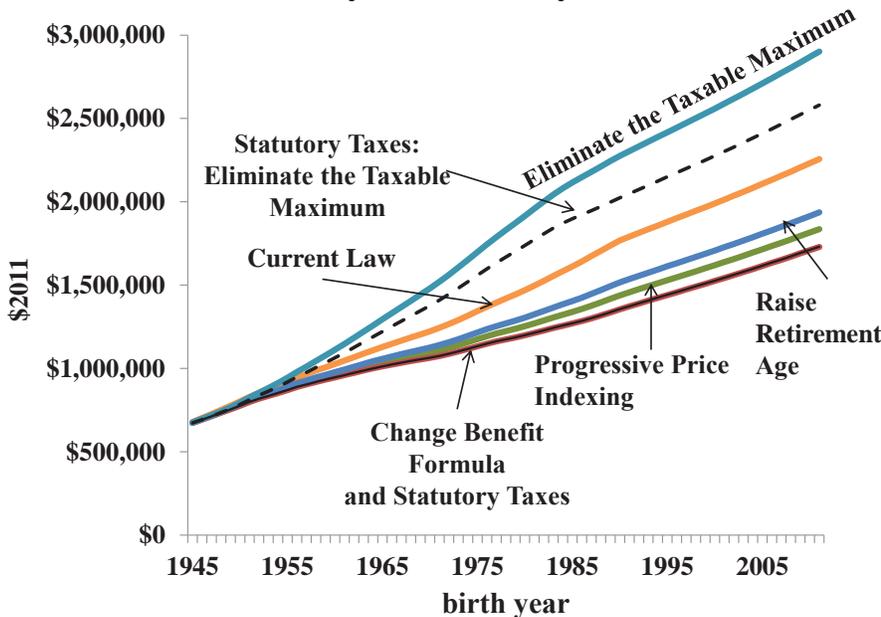
How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

**Figure VI
Lifetime Social Security Benefits and Taxes for Very High Earners**

Benefits for Men



Statutory and Solvency Taxes



Source: Authors' estimates.

Assumptions: 2.9 percent real discount rate, income adjusted life expectancy, present values at age 66, and retire at the normal retirement age. See text for further details.

price indexing would have the second lowest total tax burden. Regardless of the provision or birth year considered, medium earners would receive less in benefits than they pay in taxes.

Effect on Very High Earners.

Figure VI presents lifetime benefits and taxes for very high earning men.⁹ The top graph indicates that these workers would receive about the same real benefits across birth years under the progressive price indexing reform and the reform that would change the benefit formula. While the benefits for medium workers were the same under current law and the change that eliminates the taxable maximum, benefits for these workers from eliminating the taxable maximum would be higher, given that the higher earnings are credited in the benefit calculation. Raising the retirement age would produce the intermediate lifetime benefit schedule.

The bottom graph again presents the statutory and solvency taxes, but in this case the statutory taxes under the provision that would eliminate the taxable maximum would be 50 percent higher than under current law for today's new labor force entrants. (These lifetime taxes are depicted with the dashed black line.) Combined with the necessary solvency taxes, lifetime taxes under this provision would be more than double the benefits new labor force entrants would receive. Under the other provisions, the total lifetime tax burdens are

related to the size of the solvency taxes. As with the medium earners, lifetime taxes would be greater than lifetime benefits, but the net tax burden would be larger both in absolute terms and relative to lifetime earnings.

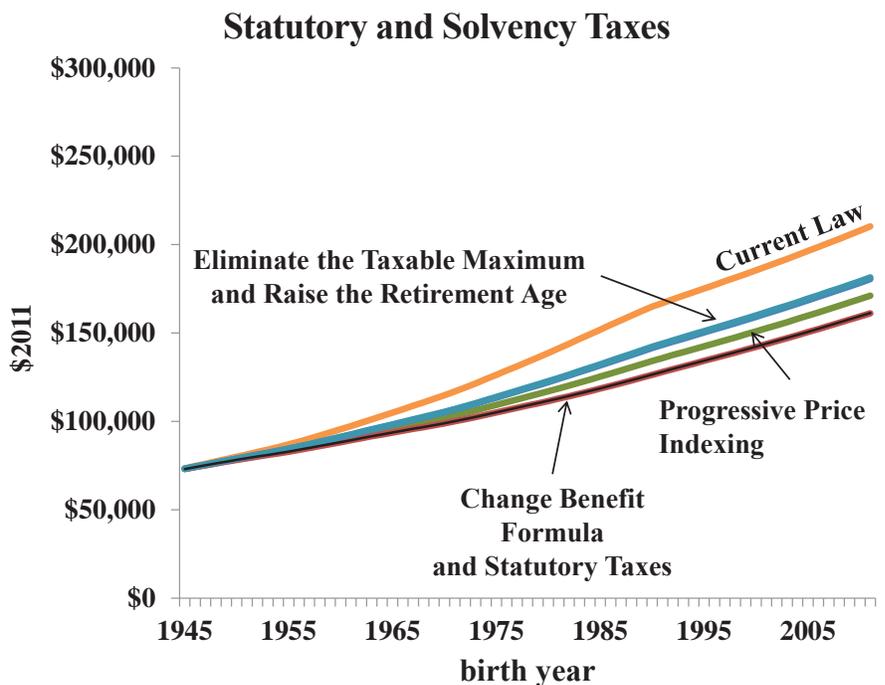
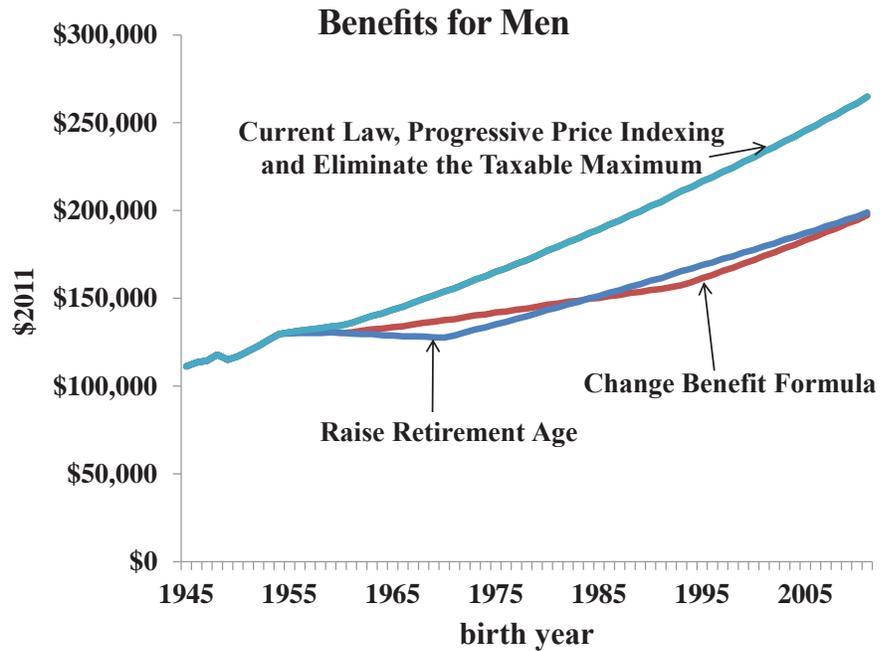
Effect on Very Low Earners.

Benefits and taxes for workers at the low end of the earnings distribution are compared in Figure VII. The two graphs show that lifetime benefits for workers with very low earnings would be the same under current law, progressive price indexing and elimination of the taxable maximum. Changing the benefit formula and raising the retirement age would produce similar reductions in lifetime benefits for very low earning men across the birth years considered.

On the tax side, the relative tax burdens by provision are in the same order as for medium earners. Comparing taxes to benefits, workers with very low earnings would be net beneficiaries of Social Security in that they would receive more in benefits than they pay in taxes, even under the reforms that have the greatest effect on their benefits.¹⁰

Net Lifetime Benefits. The difference between lifetime benefits and taxes depicted in Figures V, VI and VII produce the net benefits received under the four reforms and current law. Table II presents the net lifetime benefits for single men and women born in 1945, 1965, 1985 and 2005, based on the five earnings profiles.

**Figure VII
Lifetime Social Security Benefits and Taxes Very Low Earners**



Source: Authors' estimates.

Assumptions: 2.9 percent real discount rate, income adjusted life expectancy, present values at age 66, and retire at the normal retirement age. See text for further details.

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

Several patterns emerge in the net lifetime benefits estimates. In general, very low- and low-earning men and women are net beneficiaries of the current program, as indicated by their positive net benefits. These earnings groups and medium earners would be as well- or better-off under progressive

price indexing and elimination of the taxable maximum, but would be worse-off under the benefit formula change and the retirement age hike compared to current law. In a sense, the former two reforms would increase the progressivity of the program while the latter two would reduce its progressivity. Of the two

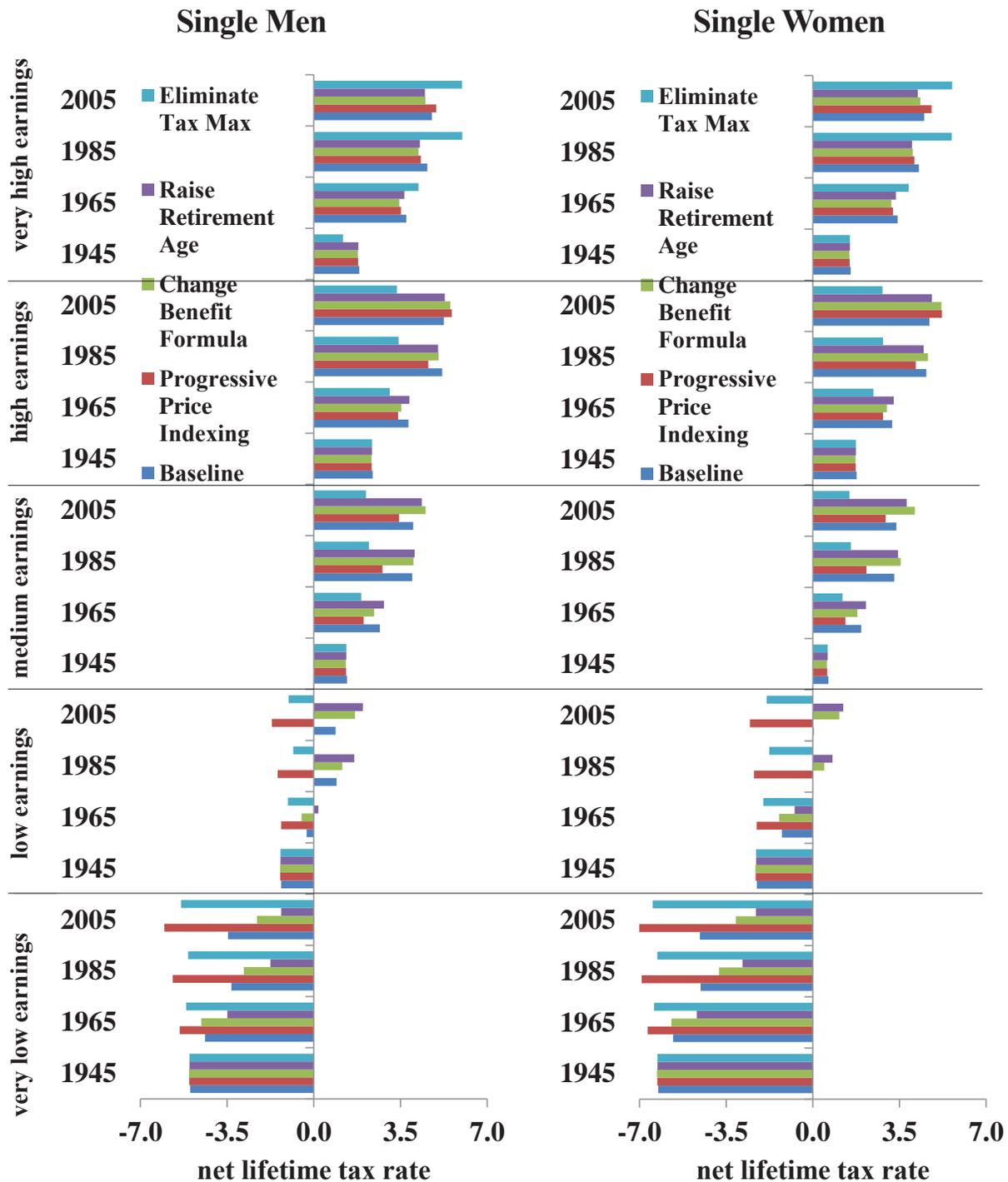
progressive reforms, progressive price indexing would be more progressive in that lower earning groups would fare the best with this reform because of its lower solvency tax. Also, the positive net benefits would be higher for women than for men with the same earnings patterns while the net taxes would be less. This result

Table II
Net Lifetime Benefits Single Men and Women at 66 Years of Age (2011 dollars)

Birth Year	Single Men					Single Women				
	Current Benefits	Progressive Price Indexing	Change Benefit Formula	Raise Retirement Age	Eliminate Taxable Max	Current Benefits	Progressive Price Indexing	Change Benefit Formula	Raise Retirement Age	Eliminate Taxable Max
<i>very low scaled earnings</i>										
1945	\$37,781	\$38,099	\$38,179	\$38,023	\$38,015	\$47,262	\$47,579	\$47,660	\$47,504	\$47,496
1965	\$38,597	\$47,578	\$39,916	\$30,682	\$45,220	\$49,634	\$58,615	\$50,189	\$41,223	\$56,257
1985	\$37,207	\$63,784	\$31,624	\$19,554	\$56,807	\$50,777	\$77,354	\$42,402	\$31,848	\$70,377
2005	\$49,200	\$85,789	\$32,606	\$18,671	\$76,184	\$64,887	\$101,477	\$44,302	\$32,679	\$91,871
<i>low scaled earnings</i>										
1945	\$17,871	\$18,442	\$18,587	\$18,306	\$18,292	\$30,854	\$31,424	\$31,569	\$31,288	\$31,275
1965	\$4,625	\$20,791	\$7,792	-\$2,848	\$16,547	\$19,737	\$35,903	\$21,567	\$11,621	\$31,659
1985	-\$18,484	\$29,342	-\$23,158	-\$32,874	\$16,786	\$112	\$47,938	-\$9,279	-\$16,007	\$35,382
2005	-\$22,456	\$43,376	-\$42,385	-\$50,574	\$26,093	-\$907	\$64,926	-\$27,510	-\$31,354	\$47,643
<i>medium scaled earnings</i>										
1945	-\$40,651	-\$39,384	-\$39,061	-\$39,686	-\$39,716	-\$18,947	-\$17,680	-\$17,358	-\$17,982	-\$18,013
1965	-\$93,684	-\$70,426	-\$85,443	-\$99,485	-\$67,192	-\$68,437	-\$46,161	-\$63,048	-\$75,335	-\$41,946
1985	-\$178,004	-\$124,121	-\$179,947	-\$182,331	-\$99,619	-\$146,952	-\$96,858	-\$158,673	-\$154,069	-\$68,567
2005	-\$227,691	-\$195,517	-\$256,292	-\$247,637	-\$119,792	-\$191,709	-\$166,898	-\$233,996	-\$215,396	-\$83,810
<i>high scaled earnings</i>										
1945	-\$115,362	-\$113,334	-\$112,818	-\$113,818	-\$113,867	-\$85,671	-\$83,643	-\$83,127	-\$84,126	-\$84,175
1965	-\$214,406	-\$191,038	-\$198,207	-\$216,666	-\$172,019	-\$179,835	-\$159,046	-\$167,863	-\$183,489	-\$137,448
1985	-\$370,809	-\$330,898	-\$360,830	-\$359,527	-\$245,393	-\$328,435	-\$297,695	-\$332,784	-\$320,750	-\$203,019
2005	-\$477,205	-\$506,415	-\$500,887	-\$480,700	-\$304,562	-\$428,240	-\$473,991	-\$471,855	-\$436,539	-\$255,597
<i>very high scaled earnings</i>										
1945	-\$222,459	-\$217,390	-\$216,101	-\$218,598	-\$218,721	-\$185,588	-\$180,519	-\$179,230	-\$181,727	-\$181,850
1965	-\$524,060	-\$494,392	-\$484,488	-\$513,138	-\$592,903	-\$480,113	-\$455,049	-\$446,143	-\$470,719	-\$541,905
1985	-\$820,452	-\$773,387	-\$756,224	-\$765,824	-\$1,073,054	-\$766,863	-\$735,074	-\$721,444	-\$716,274	-\$1,002,473
2005	-\$1,082,569	-\$1,124,264	-\$1,022,488	-\$1,018,651	-\$1,358,690	-\$1,020,872	-\$1,088,711	-\$986,818	-\$962,300	-\$1,277,344

Source: Authors' calculations.

Figure VIII
Net Lifetime Tax Rates by Birth Year and Earnings



Source: Authors' estimates.

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

Table III
Average Net Benefits and Net Tax Rates for Married Couples

Birth Year	Average Net Benefit					Net Tax Rate				
	Current Benefits	Progressive Price Indexing	Change Benefit Formula	Raise Retirement Age	Eliminate Taxable Max	Current Benefits	Progressive Price Indexing	Change Benefit Formula	Raise Retirement Age	Eliminate Taxable Max
<i>very low earning women married to low earning men</i>										
1945	\$33,489	\$33,933	\$34,046	\$33,827	\$33,816	-3.16%	3.20%	-3.21%	-3.19%	-3.19%
1965	\$28,139	\$40,712	\$29,847	\$20,179	\$37,411	-2.29%	3.31%	-2.43%	-1.64%	-3.04%
1985	\$17,343	\$54,544	\$10,329	\$636	\$44,778	-1.11%	-3.48%	-0.66%	-0.04%	-2.86%
2005	\$22,491	\$73,702	\$1,610	-\$7,709	\$60,258	-1.13%	-3.70%	-0.08%	0.39%	-3.03%
<i>low earning women married to low earning men</i>										
1945	\$24,363	\$24,933	\$25,078	\$24,797	\$24,783	-1.79%	-1.83%	-1.84%	-1.82%	-1.82%
1965	\$12,181	\$28,347	\$14,679	\$4,386	\$24,103	-0.77%	-1.79%	-0.93%	-0.28%	-1.52%
1985	-\$9,186	\$38,640	-\$16,218	-\$24,441	\$26,084	0.46%	-1.92%	0.80%	1.21%	-1.29%
2005	-\$11,682	\$54,151	-\$34,947	-\$40,964	\$36,868	0.46%	-2.12%	1.37%	1.60%	-1.44%
<i>low earning women married to medium earning men</i>										
1945	-\$1,855	-\$936	-\$703	-\$1,155	-\$1,177	0.08%	0.04%	0.03%	0.05%	0.05%
1965	-\$33,561	-\$14,187	-\$29,040	-\$40,612	-\$14,354	1.32%	0.56%	1.14%	1.59%	0.56%
1985	-\$84,837	-\$35,259	-\$92,187	-\$95,309	-\$28,010	2.61%	1.09%	2.84%	2.94%	0.86%
2005	-\$109,759	-\$63,119	-\$139,583	-\$135,232	-\$31,535	2.66%	1.53%	3.39%	3.28%	0.77%
<i>medium earning women married to medium earning men</i>										
1945	-\$29,799	-\$28,532	-\$28,209	-\$28,834	-\$28,864	0.98%	0.94%	0.93%	0.95%	0.95%
1965	-\$81,061	-\$58,294	-\$74,246	-\$87,410	-\$54,569	2.31%	1.66%	2.11%	2.49%	1.55%
1985	-\$162,478	-\$110,489	-\$169,310	-\$168,200	-\$84,093	3.63%	2.47%	3.78%	3.76%	1.88%
2005	-\$209,700	-\$181,207	-\$245,144	-\$231,516	-\$101,801	3.69%	3.19%	4.31%	4.07%	1.79%
<i>medium earning women married to high earning men</i>										
1945	-\$66,075	-\$64,427	-\$64,008	-\$64,820	-\$64,860	1.68%	1.64%	1.63%	1.65%	1.65%
1965	-\$140,307	-\$117,690	-\$129,681	-\$145,077	-\$105,869	3.07%	2.58%	2.84%	3.18%	2.32%
1985	-\$257,713	-\$213,301	-\$259,062	-\$255,451	-\$155,812	4.43%	3.66%	4.45%	4.39%	2.68%
2005	-\$334,104	-\$336,863	-\$367,321	-\$346,815	-\$193,833	4.52%	4.56%	4.97%	4.69%	2.62%
<i>high earning women married to high earning men</i>										
1945	-\$100,517	-\$98,488	-\$97,973	-\$98,972	-\$99,021	2.07%	2.03%	2.02%	2.04%	2.04%
1965	-\$197,120	-\$175,042	-\$183,035	-\$200,077	-\$154,734	3.51%	3.11%	3.26%	3.56%	2.75%
1985	-\$349,622	-\$314,296	-\$346,807	-\$340,138	-\$224,206	4.88%	4.39%	4.84%	4.75%	3.13%
2005	-\$452,722	-\$490,203	-\$486,371	-\$458,620	-\$280,079	4.98%	5.39%	5.35%	5.04%	3.08%
<i>high earning women married to very high earning men</i>										
1945	-\$158,571	-\$155,023	-\$154,120	-\$155,868	-\$155,954	1.87%	1.83%	1.82%	1.84%	2.65%
1965	-\$351,947	-\$326,719	-\$326,175	-\$348,314	-\$365,176	3.58%	3.32%	3.32%	3.54%	4.84%
1985	-\$574,444	-\$535,542	-\$544,504	-\$543,288	-\$638,037	4.58%	4.27%	4.34%	4.33%	6.66%
2005	-\$755,405	-\$799,128	-\$747,172	-\$727,595	-\$807,144	4.75%	5.02%	4.69%	4.57%	6.63%

Source: Authors' calculations.

is due to the longer conditional life expectancies for women.

Comparing net taxes for the workers in the two highest earnings categories helps to further differentiate the effects of the reforms that appear to be most progressive. Consider the lifetime taxes for high-earning male workers born in 2005:

- With the reform that eliminates the taxable maximum, these workers would fare the best relative to the other provisions, paying a net tax of \$304,562.
- With progressive price indexing, they would pay \$506,415 more in taxes than they receive in benefits.
- These high earning workers would fare relatively better under elimination of the taxable maximum because the burden of the reform is shifted to very high income workers with earnings above the projected taxable maximum.

The relative size of net benefits across workers with different earnings indicates the direction and magnitude of the transfers within the generation, but it does not indicate the size of net taxes relative to the workers' own incomes.

Net Lifetime Tax Rates.

The negative of the ratio of net benefits to lifetime earnings identifies the net lifetime tax rate associated with Social Security. The net tax rates for single men and women are presented in

Figure VIII and summarized in the Appendix Table.

Consider first the net taxes for workers if the current program is continued and made solvent. Focusing on outcomes for workers born in 1985, who are 26 today, it can also be seen how the solvency taxes and provisions affect workers in different earnings categories. As expected from Table II, very low income workers would receive net benefits, so their net taxes are negative. In addition:

- The lifetime net benefits from Social Security for very low earning men born in 1985 under the current program are equal to 3.3 percent of lifetime income and for women are 4.5 percent.
- Very high earning men born in 1985 pay taxes of 4.6 percent of income.
- Lifetime tax rates are actually higher for high earning men, at 5.2 percent of income, and high earning women pay 4.6 percent in a solvent system.

Over most of the earnings distribution the program is progressive in a lifetime context.¹¹

Turning to comparisons across the different proposals, eliminating the taxable maximum and progressive price indexing would make the program more progressive than currently in terms of lifetime net benefits as a percentage of income. This result is driven by the fact that solvency taxes, paid in the form of additional payroll taxes, are lower under reforms that reduce

the size of the program or impose the burden of the reform on higher income workers. For medium and high earners, eliminating the taxable maximum would reduce their tax rates the most and produce the highest net tax for the very high earners.

“Social Security would remain progressive under any of these reforms.”

Results for Married Couples. Table III summarizes net benefits and tax rates for representative married couples with several combinations of lifetime earnings. In the cases in which the lifetime earnings are higher for the husband than for the wife, the wife receives the higher survivor benefit over the period she lives longer than her husband. The first five columns present the average lifetime net benefits for the couples under the different proposals and the final five columns present net tax rates.

The benefits and taxes are all similar to those for singles, but it is again important to note that progressive price indexing and eliminating the taxable maximum would enhance the progressivity of an already progressive system by increasing the net transfers to low earning individuals and families.

Further, eliminating the taxable maximum puts most of the

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

burden of reform on very high earners. The contrast between the outcomes for the couples in which both have high earnings to the one in which the wife has high and the husband has very high earnings again illustrates how eliminating the taxable maximum increases the lifetime burden of the program in the latter couple while lowering the burden on the former couple, relative to other reforms. But again, the highest earning couple has lower lifetime tax rates under the other reforms than does the high earning couple.

Conclusion

Unlike any other recent period, the current budget crisis and slow economic recovery have focused attention on reforming both elderly entitlement programs simultaneously. In the current policy and economic environment, the Social Security reforms being discussed have largely worked within the parameters of the current program by reducing expenditures and/or raising taxes rather than introducing a personal account component. The range of the benefit reduction and tax increases are captured in the four provisions analyzed.

The recent debt ceiling debate indicates that all policy options are under consideration, including reducing tax expenditures and reforming entitlement programs. Across the entire federal government, expenditure reductions, including tax expenditures, are preferable to conventional tax increases. In the case of Social Se-

curity, expenditure reductions are preferable to tax increases given that the other elderly entitlement program, Medicare, is also exerting upward pressure on spending.

Unfortunately, the time horizon of the Budget Control Act is too short to engender thoughtful discussion of long-run Social Security reforms. However, given the mounting pressures on the federal budget due to expected growth in Medicare and Social Security reform of both programs will remain an active area of policy discussions.

The current program and the changes considered in the study all require benefit cuts and/or tax increases to reduce Social Security's unfunded obligations. Several of the provisions, including raising the retirement age and progressive indexing, can be part of a reform that includes individually-owned accounts funded by savings. Funding the accounts would require additional savings during a transition period, but in the end the reformed program would provide retirement benefits that are partially prepaid.

Appendix A Methodology

The earnings profiles are for representative workers with very low, low, medium, high and very high earnings born in 1945 to 2011 (new retirees to newborns).¹² The scaled earnings series have been summarized annually since 2001 in an Actuarial Note produced by the Office of the Actuary.¹³

The Actuarial Note provides scale factors for very low, low, medium and high earnings series. Annual earnings are derived by multiplying age specific factors for ages 21 to 64 by the Social Security average wage, producing cross-sectional and ultimately cohort age-earnings profiles.

This study modifies the series of factors by extending them to the age of 70, given that one of the provisions raises the retirement age. The analysis also produces a "very high" series that is four times the medium series for each birth year. This latter series is necessary to evaluate the taxes and benefits for very high earning workers under each provision, particularly the provision that eliminates the taxable maximum.¹⁴ Together, the series allow for the calculation of lifetime statutory and solvency taxes for workers with different life-cycle earnings.

The series are also used to calculate initial benefit payments under each reform, assuming that workers begin collecting benefits at the normal retirement age. This age increases in the case of the provision that raises the retirement age. The initial annual benefit is then combined with conditional life expectancies at each potential normal retirement age. Life expectancies are adjusted by birth year, sex and lifetime earnings to account for longer life expectancies for higher earning workers.¹⁵ Representative workers are assumed to earn the specified earnings in each year between the ages of 21 and 70, and pay provision-specific statutory and

solvency taxes in each year. The taxes are valued at the age of 66 for all birth years and for all provisions. For consistency with the estimates of the unfunded obligations and the resulting solvency taxes presented in Table I, tax payments associated with

each earnings profile accumulate at a real rate of 2.9 percent — the long-run assumption used in the 2011 Trustees Report. For comparability across birth years, the present values are adjusted to 2011 dollars. The representative workers, by hypothetical earnings

series, are also assumed to begin receiving provision-specific benefits at the provision-specific normal retirement age and collect benefits up to the income-adjusted life expectancy. The present values of the benefits are also evaluated at the age of 66.

Appendix Table
Net Lifetime Tax Rates for Single Men and Women

Birth Year	Single Men					Single Women				
	Current Benefits	Progressive Price Indexing	Change Benefit Formula	Raise Retirement Age	Eliminate Taxable Max	Current Benefits	Progressive Price Indexing	Change Benefit Formula	Raise Retirement Age	Eliminate Taxable Max
<i>very low scaled earnings</i>										
1945	-4.99%	-5.03%	-5.04%	-5.02%	-5.02%	-6.24%	-6.28%	-6.29%	-6.27%	-6.27%
1965	-4.39%	-5.42%	-4.54%	-3.49%	-5.15%	-5.65%	-6.67%	-5.71%	-4.69%	-6.40%
1985	-3.32%	-5.70%	-2.82%	-1.75%	-5.07%	-4.53%	-6.91%	-3.79%	-2.84%	-6.28%
2005	-3.46%	-6.04%	-2.29%	-1.31%	-5.36%	-4.56%	-7.14%	-3.12%	-2.30%	-6.46%
<i>low scaled earnings</i>										
1945	-1.31%	-1.35%	-1.36%	-1.34%	-1.34%	-2.26%	-2.31%	-2.32%	-2.30%	-2.29%
1965	-0.29%	-1.32%	-0.49%	0.18%	-1.05%	-1.25%	-2.27%	-1.36%	-0.74%	-2.00%
1985	0.92%	-1.46%	1.15%	1.63%	-0.83%	-0.01%	-2.38%	0.46%	0.79%	-1.76%
2005	0.88%	-1.70%	1.66%	1.98%	-1.02%	0.04%	-2.54%	1.08%	1.23%	-1.86%
<i>medium scaled earnings</i>										
1945	1.34%	1.30%	1.29%	1.31%	1.31%	0.63%	0.58%	0.57%	0.59%	0.59%
1965	2.67%	2.00%	2.43%	2.83%	1.91%	1.95%	1.31%	1.79%	2.14%	1.19%
1985	3.97%	2.77%	4.02%	4.07%	2.22%	3.28%	2.16%	3.54%	3.44%	1.53%
2005	4.01%	3.44%	4.51%	4.36%	2.11%	3.37%	2.94%	4.12%	3.79%	1.47%
<i>high scaled earnings</i>										
1945	2.38%	2.34%	2.33%	2.35%	2.35%	1.77%	1.73%	1.72%	1.74%	1.74%
1965	3.81%	3.40%	3.53%	3.85%	3.06%	3.20%	2.83%	2.99%	3.26%	2.45%
1985	5.17%	4.62%	5.04%	5.02%	3.42%	4.58%	4.15%	4.64%	4.48%	2.83%
2005	5.25%	5.57%	5.51%	5.29%	3.35%	4.71%	5.21%	5.19%	4.80%	2.81%
<i>very high scaled earnings</i>										
1945	1.84%	1.79%	1.78%	1.80%	1.81%	1.53%	1.49%	1.48%	1.50%	1.50%
1965	3.73%	3.52%	3.45%	3.65%	4.22%	3.42%	3.24%	3.17%	3.35%	3.86%
1985	4.58%	4.32%	4.22%	4.28%	5.99%	4.28%	4.10%	4.03%	4.00%	5.60%
2005	4.76%	4.94%	4.50%	4.48%	5.98%	4.49%	4.79%	4.34%	4.23%	5.62%

Source: Authors' calculations.

**How Reforms Would Affect Social Security’s Funding Shortfalls,
Total Spending, and Distribution of Benefits and Taxes**

Endnotes

1. See <http://www.ssa.gov/OACT/solvency/provisions/index.html> for a full list of the provisions scored by the Office of the Actuary, Social Security Administration.
2. The Social Security Advisory Board recently released “Social Security: Why Action Should be Taken Soon,” December 2010, which also utilizes the Actuaries’ scores.
3. The four reforms analyzed here are Provision B1.2 (progressive price indexing), Provision B3.2 (change the benefit formula), Provision C2.6 (raise the retirement age), and Provision E2.2 (eliminate the taxable maximum).
4. See the Appendix for additional discussion of how life expectancy is adjusted by income.
5. These estimates are based on the combined Old Age and Survivors Insurance program and are presented in Table IV.B6, 2011 Social Security Trustees Report, page 66. However, given that the provisions compared primarily address retirement benefits, the analysis is limited to the Old Age and Survivors Insurance portion of the program.
6. Estimating the infinite horizon unfunded obligations begins with long-run estimates of gross domestic product and current law OASDI and DI revenues and expenditures series as percentages of GDP as presented in the 2011 Trustees Reports. These estimates produce the benchmark series based on current law and the estimates beyond the 75-year horizon are calibrated to arrive at the same aggregate estimates of the present value of GDP, Social Security taxable payroll and Hospital Insurance taxable payroll (which has no taxable maximum) that are reported in the 2011 Social Security and Medicare Trustees Reports. Long-run estimates of the DI program are removed to yield the infinite horizon estimate for current law OASI. The DI program’s annual percentages of OASDI are assumed to hold for all reforms. The long range estimates for each of the proposals are derived by extending the revenue and expenditure series presented in Figures I through IV as percentages of GDP. These projections are then used to estimate infinite horizon revenues, expenditures and unfunded obligations.
7. The results for single men do not include survivors benefits awarded to dependents when the participant dies prior to retirement, but are representative of workers who collect retirement benefits exclusively on their own earnings records.
8. The annual incidence of the solvency taxes are the same as for the statutory payroll tax. Here the incidence of the funding shortfall is explicit and is treated the same across provisions. The range of provisions considered necessitates a standardized treatment. However, the realized tax incidence across generations and within generations would be different under different evaluation methodologies. For example, Diamond and Orszag in, “Saving Social Security: the Diamond-Orszag Plan,” *Economists’ Voice*, Vol.2, Issue 1, 2005, suggest three ways of financing Social Security’s legacy debt. Their proposal includes expanding Social Security to cover newly hired state and local government workers, creating a legacy tax on earnings above the taxable maximum, and creating a universal legacy charge through lower benefits and higher taxes for beneficiaries becoming eligible in 2023 and later. Our choice of imposing an immediate tax increase brings forward the financing of the provision-specific unfunded obligations and collects the revenues through the payroll tax. The choice of the standardized treatment of the solvency tax in the present analysis arose from comparison of individual provisions that are not part of a larger reform plan that may specify multiple changes to both benefits and taxes. Ultimately, our baseline case is most similar to provision E1.1 (<http://www.ssa.gov/OACT/solvency/provisions/payrolltax.html>, Provision E1.1) with the exception that here the solvency tax is estimated for the infinite horizon rather than for 75 years.

How Reforms Would Affect Social Security's Funding Shortfalls, Total Spending, and Distribution of Benefits and Taxes

9. For the present analysis, very high earners have annual earnings equal to four times the annual earnings of medium scaled workers.
10. For estimates of lifetime Social Security taxes and benefits under the current program, see C. Eugene Steuerle and Stephanie Rennane, "Social Security and Medicare Taxes and Benefits Over a Lifetime," Urban Institute, 2011 update. For estimates of several reforms' impacts on the distribution of benefits see "Distributional Effects of Alternative Social Security Reforms: Details Matter," Fact Sheet on Retirement Policy, May 2010, Urban Institute.
11. See Michael Clingman, Kyle Burkhalter, Alice Wade and Chris Chaplain, "Internal Rates of Return Under the OASDI Program for Hypothetical Workers," Actuarial Note No. 2009.5, Office of the Actuary, July 2010, for an examination of the returns of scaled workers under the current program under several assumptions about future benefit and tax schedules. Also see Noah Meyerson and John Sabelhaus, "Is Social Security Progressive?" Congressional Budget Office, Economic and Budget Issue Brief, December 15, 2006, for an examination of the progressivity of the current program. For a comprehensive examination of leading Social Security reform proposals, see also Jagadeesh Gokhale, *Social Security: A Fresh Look at Policy Alternatives* (University of Chicago Press: 2010).
12. The scaled earning profiles developed by the Office of the Actuary that are used in the preparation of Table VI. F10 in the Social Security Trustees Report are used to accomplish this distributional analysis. See the *2011 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Trust Fund*, pages 201-202.
13. See Michael Clingman and Kyle Burkhalter, "Scaled Factors for Hypothetical Earnings Examples Under the 2010 Trustees Report Assumptions," Actuarial Note, Number 2010.3, February 2011.
14. The very high earnings series is capped at the taxable maximum in evaluating all of the provisions except for the provision that eliminates the taxable maximum. In that case, earnings above the taxable maximum beginning in 2011 are counted for taxes and for benefit calculations.
15. The conditional life expectancies were estimated as follows. Life expectancies at age 65 for men and women born in different years are from Table V. A4. 2011 Social Security Trustees Report. These life expectancies were first adjusted for later retirement ages based on cohort life tables by sex that are consistent with the 2007 Trustees Report. This establishes the years of benefit receipt for the representative medium earning males and females. Differential life expectancies by income class and sex are estimated using the experience of the cohorts included in the New Beneficiary Data System (NBDS). These data are available on the Social Security Administration's website <http://www.ssa.gov/policy/docs/microdata/nbds/index.html>. Actual and estimated life expectancies were determined for the NBDS sample respondents. The average life expectancy in income categories similar to those of the scaled workers were then calculated and benchmarked relative to the mean. For example, conditional life expectancy at age 65 for very high earning men was estimated to be almost 20 percent higher than for those with medium earnings, while the conditional life expectancy for very low earners was about 7 percent lower than for medium earners. The estimated factors by income level and by sex were then used to adjust cohort specific average life expectancies. The adjustment factors used here are constant across birth years; however, Hillary Waldron finds that longevity gains among more recent retirees are higher for workers with higher earnings than for workers with lower earnings. See Hillary Waldron, "Trends in Mortality Differentials and Life Expectancy for Male Social Security — Covered Workers, by Socioeconomic Status," *Social Security Bulletin*, Vol. 67, No. 3, 2007.

The NCPA is a nonprofit, nonpartisan organization established in 1983. Its aim is to examine public policies in areas that have a significant impact on the lives of all Americans — retirement, health care, education, taxes, the economy, the environment — and to propose innovative, market-driven solutions. The NCPA seeks to unleash the power of ideas for positive change by identifying, encouraging and aggressively marketing the best scholarly research.

Health Care Policy.

The NCPA is probably best known for developing the concept of Health Savings Accounts (HSAs), previously known as Medical Savings Accounts (MSAs). NCPA President John C. Goodman is widely acknowledged (*Wall Street Journal*, WebMD and the *National Journal*) as the “Father of HSAs.” NCPA research, public education and briefings for members of Congress and the White House staff helped lead Congress to approve a pilot MSA program for small businesses and the self-employed in 1996 and to vote in 1997 to allow Medicare beneficiaries to have MSAs. In 2003, as part of Medicare reform, Congress and the President made HSAs available to all nonseniors, potentially revolutionizing the entire health care industry. HSAs now are potentially available to 250 million nonelderly Americans.

The NCPA outlined the concept of using federal tax credits to encourage private health insurance and helped formulate bipartisan proposals in both the Senate and the House. The NCPA and BlueCross BlueShield of Texas developed a plan to use money that federal, state and local governments now spend on indigent health care to help the poor purchase health insurance. The SPN Medicaid Exchange, an initiative of the NCPA for the State Policy Network, is identifying and sharing the best ideas for health care reform with researchers and policymakers in every state.

**NCPA President
John C. Goodman is called
the “Father of HSAs” by
The Wall Street Journal, WebMD
and the *National Journal*.**

Taxes & Economic Growth.

The NCPA helped shape the pro-growth approach to tax policy during the 1990s. A package of tax cuts designed by the NCPA and the U.S. Chamber of Commerce in 1991 became the core of the Contract with America in 1994. Three of the five proposals (capital gains tax cut, Roth IRA and eliminating the Social Security earnings penalty) became law. A fourth proposal — rolling back the tax on Social Security benefits — passed the House of Representatives in summer 2002. The NCPA’s proposal for an across-the-board tax cut became the centerpiece of President Bush’s tax cut proposals.

NCPA research demonstrates the benefits of shifting the tax burden on work and productive investment to consumption. An NCPA study by Boston University economist Laurence Kotlikoff analyzed three versions of a consumption tax: a flat tax, a value-added tax and a national sales tax. Based on this work, Dr. Goodman wrote a full-page editorial for *Forbes* (“A Kinder, Gentler Flat Tax”) advocating a version of the flat tax that is both progressive and fair.

A major NCPA study, “Wealth, Inheritance and the Estate Tax,” completely undermines the claim by proponents of the estate tax that it prevents the concentration of wealth in the hands of financial dynasties. Actually, the contribution of inheritances to the distribution of wealth in the United States is surprisingly small. Senate Majority Leader Bill Frist (R-TN) and Senator Jon Kyl (R-AZ) distributed a letter to their colleagues about the study. In his letter, Sen. Frist said, “I hope this report will offer you a fresh perspective on the merits of this issue. Now is the time for us to do something about the death tax.”

Retirement Reform.

With a grant from the NCPA, economists at Texas A&M University developed a model to evaluate the future of Social Security and Medicare, working under the direction of Thomas R. Saving, who for years was one of two private-sector trustees of Social Security and Medicare.

The NCPA study, “Ten Steps to Baby Boomer Retirement,” shows that as 77 million baby boomers begin to retire, the nation’s institutions are totally unprepared. Promises made under Social Security, Medicare and Medicaid are inadequately funded. State and local institutions are not doing better — millions of government workers are discovering that their pensions are under-funded and local governments are retrenching on post-retirement health care promises.

Pension Reform.

Pension reforms signed into law include ideas to improve 401(k)s developed and proposed by the NCPA and the Brookings Institution. Among the NCPA/Brookings 401(k) reforms are automatic enrollment of employees into companies’ 401(k) plans, automatic contribution rate increases so that workers’ contributions grow with their wages, and better default investment options for workers who do not make an investment choice.

The NCPA's online Social Security calculator allows visitors to discover their expected taxes and benefits and how much they would have accumulated had their taxes been invested privately.

Environment & Energy.

The NCPA's E-Team is one of the largest collections of energy and environmental policy experts and scientists who believe that sound science, economic prosperity and protecting the environment are compatible. The team seeks to correct misinformation and promote sensible solutions to energy and environment problems. A pathbreaking 2001 NCPA study showed that the costs of the Kyoto agreement to reduce carbon emissions in developed countries would far exceed any benefits.

Educating the next generation.

The NCPA's Debate Central is the most comprehensive online site for free information for 400,000 U.S. high school debaters. In 2006, the site drew more than one million hits per month. Debate Central received the prestigious Templeton Freedom Prize for Student Outreach.

Promoting Ideas.

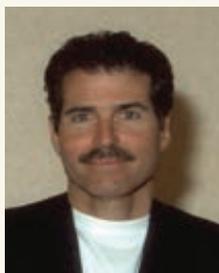
NCPA studies, ideas and experts are quoted frequently in news stories nationwide. Columns written by NCPA scholars appear regularly in national publications such as the *Wall Street Journal*, the *Washington Times*, *USA Today* and many other major-market daily newspapers, as well as on radio talk shows, on television public affairs programs, and in public policy newsletters. According to media figures from *BurrellesLuce*, more than 900,000 people daily read or hear about NCPA ideas and activities somewhere in the United States.

What Others Say About the NCPA



"The NCPA generates more analysis per dollar than any think tank in the country. It does an amazingly good job of going out and finding the right things and talking about them in intelligent ways."

Newt Gingrich, former Speaker of the U.S. House of Representatives



"We know what works. It's what the NCPA talks about: limited government, economic freedom; things like Health Savings Accounts. These things work, allowing people choices. We've seen how this created America."

John Stossel, former co-anchor ABC-TV's *20/20*



"I don't know of any organization in America that produces better ideas with less money than the NCPA."

Phil Gramm, former U.S. Senator



"Thank you . . . for advocating such radical causes as balanced budgets, limited government and tax reform, and to be able to try and bring power back to the people."

Tommy Thompson, former Secretary of Health and Human Services