Improving Solvency Using the Social Security Benefit Formula

ISSUE BRIEF

INTRODUCTION

Americans today are living longer and retiring earlier than they were at the end of the great depression, when Social Security was conceived.[1]   In 2008, the oldest members of the baby boom generation[2] cohort, born in 1946, will turn 62 and become eligible for Social Security early retirement benefits. Over the next 18 years, through 2026, a total of close to 76 million baby boomers will move from full-time work to some form of retirement[3] and Social Security beneficiary status.

The Social Security program, however, is not in long-term actuarial balance.[4] This means that if nothing is changed, the program will be unable to pay promised benefits on time and in full as of 2042. In order to respond to the challenge of the baby boom and later beneficiaries, the long-term financing gap needs to be closed; determining the most effective way to accomplish this will require some innovative and thoughtful approaches.

This Issue Brief explores the option of altering various components of the benefit calculation formula. In particular, it examines how changing the rates and the dollar amounts (called "bend points") defined in the current law benefit formula would affect various groups of beneficiaries, and ultimately how such changes could affect or help preserve the goals of Social Security.

Status of the Trust Funds. According to the 2003 Social Security Trustees' Report, the difference between the income and cost rates for the Old-Age and Survivors Insurance and Disability Insurance (OASDI) trust funds over the next 75 years is a deficit of 1.92 percent of taxable payroll (Board of Trustees, 2003). In practical terms, this means that to eliminate the deficit, payroll taxes would have to be raised by 1.92 percent, benefits would have to be reduced by a commensurate amount, or a combination of these approaches would be needed.

The Social Security actuaries project that by 2018, the cost of the program will exceed its income, and a portion of the trust funds' annual interest earnings will have to be combined with tax revenue[5] to pay benefits. Beginning in 2028, outgo will exceed income including interest, and a portion of the trust funds' assets will need to be redeemed. If no action is taken, the actuaries project that the OASDI trust funds will be exhausted by 2042. After that, FICA taxes and taxes on benefits will provide the only income to the system, and they will be sufficient to pay only 73 percent of program costs (Social Security Board of Trustees, 2003).

Options for Achieving Actuarial Balance. There are three standard approaches to eliminating the actuarial deficit without altering the basic design of the current system: (1) raise revenues; (2) lower benefits; and/or (3) increase the rate of return on trust fund investments by investing in securities that earn a higher return than the trust funds' current investment in Treasury securities.

Options for raising revenues include: covering newly hired state and local workers; increasing income taxes on Social Security benefits; raising the taxable maximum amount (the wage base);[6] and increasing the payroll tax.

Among the options for lowering benefits are: revising the Consumer Price Index (CPI); eliminating the hiatus in the scheduled increase in the normal retirement age and/or indexing full retirement age to life expectancy; increasing the early retirement age to 64 or 65 and indexing it (for example to longevity) along with raising the full retirement age; and increasing the number of years of work counted in the initial benefit calculation from 35 to 38 or 40.[7]

Another way to lower benefits, and the focus of this paper, is to modify the formula for calculating the initial Social Security benefit by adjusting the dollar amounts (known as bend points) and rates of the current formula. This option can be adjusted and applied with great flexibility.

There is considerable debate about the wide range of options for closing Social Security's financing gap. Each has its supporters and its detractors. Each elicits hard-to-answer questions, such as: Would low-income workers be protected? Are specific vulnerable populations such as widows and disabled workers considered? Does this cut so much from higher-income workers' benefits that they will not support the program? Is the direct relationship between contributions and benefits retained?[8]

The Social Security Benefit Formula. Technically, Social Security's initial benefit calculation is unlike that of other pension or retirement savings plans.[9] It applies three separate rates (90 percent, 32 percent, and 15 percent) to three segments of a worker's average indexed monthly earnings (AIME).[10] As a result, the final calculation of a worker's initial benefit amount considers not only the individual's lifetime earnings, but also the ratio of those earnings to the national average wage.

This formula represents two important goals that are basic to Social Security: adequacy and equity.

Adequacy reflects the belief that Social Security should provide a base of financial protection, regardless of earnings or income during their working years, for all workers and their families when the worker retires, becomes disabled, or dies. The adequacy objective is accomplished through Social Security's benefit calculation that provides higher replacement rates[11] for lower-wage workers than for higher-wage workers. This formula recognizes that lower-wage workers need to spend more of their income on basic needs and are generally less able to save and invest than higher-income workers.

Equity reflects the belief that people should receive a fair return or value from Social Security that is proportional to their contributions. Thus, the formula takes into account a worker's time in the workforce and level of contributions.

DESCRIPTION OF THE BENEFIT FORMULA
The Formula. Currently, workers' Social Security benefits—either retirement or disability—are related to their time and earnings in covered

employment and the age at which they leave the labor force. The Social Security benefit formula uses these variables to calculate the Primary Insurance Amount (PIA)—the number upon which most initial Social Security benefits are based. The PIA formula is a multi-step calculation.

• First, a worker's Average Indexed Monthly Earnings (AIME) is calculated.[12] To compute the AIME, the worker's 35 highest earning years are indexed to historical growth in economy-wide average wage levels.[13] (Thus, earnings from various times in the worker's career are adjusted to reflect the changes in general wage levels across his/her work life.)

• Next, the worker's Primary Insurance Amount (PIA) is calculated by applying three separate rates—90 percent, 32 percent, and 15 percent—to different portions of the AIME. In this formula, the rates do not change from year to year.

For those who first became eligible in 2001,[14] the PIA was calculated using the following formula:

• 90% of the first $561 of their AIME, plus
• 32% of the amount between $561 and $3,381 (i.e. 32% of the next $2,820), plus
• 15% of the AIME above $3,381.

The dollar amounts in this formula create "kinks," or "bend points," in the bands of earnings. These bend points are adjusted annually based on wage growth.[15] All workers have earnings in the first band; most workers have earnings in the second band; and fewer have earnings in the third band (see figure 1).
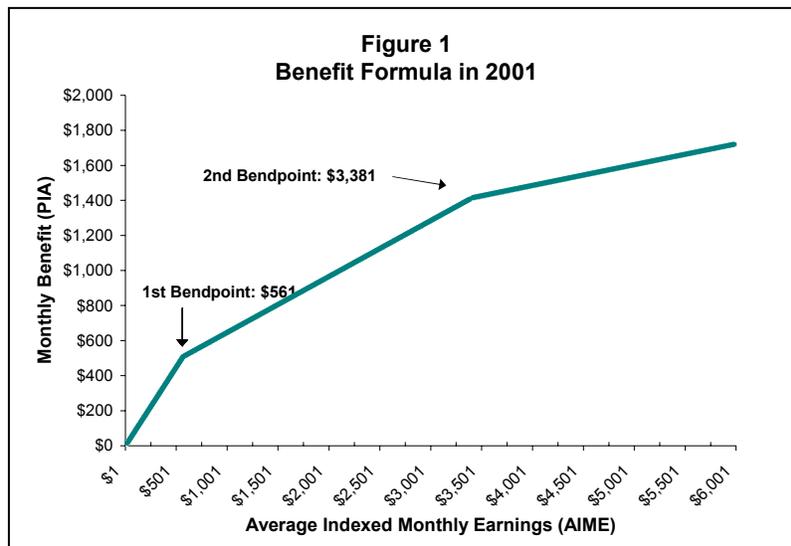
If, for example, a worker had an AIME of $3,500 in 2001, the PIA would be:

90% of $561	=	$504.90
+ 32% of next $2,820	=	902.40
+ 15% above $3,381	=	17.80
($3,500 - $3,381 = 119.00)		

PIA	=	$1,425.10

Progressivity and Replacement Rates. Many students of the Social Security system correctly note that the Social Security tax (FICA and SECA)[16] is

Figure 1
Benefit Formula in 2001

2nd Bendpoint: $3,381

1st Bendpoint: $561

Monthly Benefit (PIA)

Average Indexed Monthly Earnings (AIME)

regressive, because the 12.4 percent[17] tax applies only to earnings up to a "taxable maximum" amount of $87,000 in 2003, and does not apply to income over this taxable maximum or to other sources of income.

The benefit formula is progressive, however. By applying the progressive rates of 90 percent, 32 percent, and 15 percent to the AIME, the benefit formula ensures that low-income workers will receive proportionately more from their FICA contributions than will middle- or high-income earners.

The weighting reflects the assumption on the part of those who designed the formula that workers with higher earnings are more likely to have private pension income and accumulated savings than are low- and moderate-income workers, who have less opportunity to save and invest.

Today, Social Security benefits replace about 60 percent of earnings for a worker with low lifetime earnings, about 42 percent of earnings for a worker with lifetime earnings equal to the national average, and about 26 percent for high-wage workers.[18]

PROPOSALS THAT USED THE BENEFIT FORMULA AS A COMPONENT
Using the benefit formula as a component in a plan to achieve long-term solvency is not a new idea. Two of the three plans offered by the 1994–1996 Advisory Council on Social Security (ACSS) made changes to the benefit formula.

The ACSS' "Individual Accounts" Plan proposed retaining the standard calculation for the two bend points (dollar amounts), maintaining the first

formula rate at 90 percent, but gradually lowering the second and third rates from 32 percent and 15 percent to 22.4 percent and 10.5 percent respectively.[19]

This change, proposed to take place over the years between 1998 and 2030, would ultimately have held harmless very low-income earners (because the first bend point would not change) and reduced basic benefits by 8 percent for low earners, by 17 percent for average earners, and by 20 percent for high earners. (The benefit formula rates have a cumulative effect on total benefits, with the result that various income groups will see differing changes to their benefits.)

The ACSS' "Personal Security Accounts" Plan included an individual account component designed to replace a part of what a worker would have received from Social Security's defined benefit. This proposal made significant changes to the benefit calculation and its redistributive formula. It created a flat "tier 1" benefit ($410 in 1996) for a full-time worklife (35 years). This amount was intended to be the equivalent of approximately 47 percent of the benefit paid to an average earner retiring in 1996.[20]

Members of Congress, concerned about solvency, also turned to the benefit formula for a part of the solution. The "Social Security Solvency Act of 1999" (S.21, introduced by Senator Daniel Patrick Moynihan, D-NY) proposed to return the full retirement age to 65.[21] To finance this, among other measures, the plan decreased the PIA by 1.2 percent annually between 2000 and 2017 and by 0.3 percent annually after 2017.[22]

Senators Judd Gregg (R-NH), John Breaux (D-LA), Charles Grassley (R-IA), Bob Kerrey (D-NE), Chuck Robb (D-VA), Craig Thomas (R-WY), and Fred Thompson (D-TN) offered the "Bipartisan Social Security Reform Plan" (S.1383). In addition to redirecting 2 percent of taxable payroll to individual accounts, this proposal used the PIA formula as a vehicle to increase the age for full retirement. The plan accelerated the already scheduled increase in the normal retirement age,[23] which would have had the effect of reducing the PIA by 1.2 percent annually between 2012 and 2017 and by 0.3 percent annually after 2017.

In order to protect low earners, this plan inserted an additional bend point between the current first and second bend points. The new second point would have been set at 197.5 percent of the first bend point. (For example, in 2000 the first bend point was $531, so the new second bend point would have been set at $1,049, and the former second, now the third, bend point would have been $2,671.)

The cost of the new middle bend point would have been offset by the reduction in the PIA of average and high-income earners, phased in from 2006 through 2015. This would have been accomplished by reducing the top two rates (32 percent and 15 percent) by 1.5 percent per year (i.e., multiply the top two rates by 0.985 in each successive year) during 2006 through 2010. For 2011 through 2030, the top two rates would have been further reduced by 2 percent per year (i.e., they would have been multiplied by 0.98 in each successive year).

Most recently, the President's Commission to Strengthen Social Security (CSSS) offered three proposals; two of the three reduced benefits by altering the benefit formula (President's Commission, 2001).

The CSSS' Plan 2 changed the relationship between initial benefits and rising living standards by indexing the bend points to price increases rather than wage increases. This approach maintained the purchasing power of benefits from one generation of beneficiaries to the next; however, the ratio of initial benefits to pre-retirement earnings would have fallen for each successive generation. CSSS Plan 3 used two approaches: It gradually reduced the third rate from 15 to 10 percent, and it allowed initial Social Security benefits to grow at a rate expected to be "half-way between wage indexing and price indexing."

Advocates have also examined changing the benefit formula. Several alternatives are discussed and reported in, *Strengthening Social Security for Women: A Report from the Working Conference on Women and Social Security* (Hartmann and Hill, 1999). A compromise among several of the proposals established a replacement rate of 100 percent for the first $6,060 earned, but introduced a new benefit replacement rate of 45 percent for income between $6,060 and $9,600. The phase out begins at $9,600 and ends at $15,871. At $15,871, the benefit calculation would be returned to the existing formula of a 32 percent replacement rate (up to $36,516, at which point the worker would receive 15 percent up to the current limit).

ADVANTAGES OF ADJUSTING THE BENEFIT FORMULA

There are several advantages to using adjustments to the benefit formula for the purpose of reducing benefits and achieving long-term solvency.

1.   Designated income categories or bands can be protected and the percent of pre-retirement/disability income replaced by Social Security benefits can be fine-tuned.

2.   Additional points and rates can be added to make even finer adjustments. For example, a point set to raise annual benefits below or close to the poverty threshold could be added with an accompanying rate. (See example below.)

3.   Changes do not have to create a "notch,"[24] because both rates and dollar points can be adjusted gradually over a 5- or 10-ten year period.

EXAMPLES OF CHANGES TO THE BENEFIT FORMULA

The following examples illustrate how changes to the benefit formula affect different income groups and Social Security's actuarial balance. Each example reduces Social Security's actuarial deficit by 25 percent, but each achieves savings in a different way.[25]

Many more options are possible, and the examples given here should not be taken as policy recommendations. Some of the examples given here were chosen to illustrate how changing the benefit formula may involve difficult trade-offs, in terms of which income groups experience benefit cuts.[26]

The results presented here were generated using SSASIM, a Social Security policy simulation model.[27] For this study, 2001 is used as the baseline for Social Security data, the trust funds' actuarial balance, and the poverty level. In 2001, Social Security's actuarial deficit was 1.86 percent of taxable payroll, under intermediate assumptions covering the next 75 years. The poverty line for age 65 and over was $8,494, or $708 per month, in 2001 (Social Security Administration, 2002).[28] In each simulation presented below, the policy change is assumed to be implemented in 2004.

Example 1: Changing the Bend Points. Reducing the first bend point from $561 to $494, while changing nothing else in the current law benefit formula, would reduce Social Security's actuarial deficit by 25 percent. All beneficiaries with career average annual earnings above $5,928 ($494 x 12) would be affected by this change—both high and relatively low earners would experience benefit cuts. Because the benefits of so many people would be cut, it is possible to make relatively small reductions in the first bend point and still see a large reduction in the actuarial deficit.

This type of change can have undesirable distributional effects, however. The percentage cut to relatively low earners' benefits is larger than the percentage cut to average or high earners' benefits. This can be seen in figure 2, where the reduction in monthly benefits—as measured by the distance between the current law and illustrative policy lines—is a constant dollar amount of $38.86 per month for everyone with an AIME above $561.[29] Yet this constant dollar reduction in benefits represents a larger share of the low earner's benefit than of the benefit

Figure 2
Lower the First Bendpoint
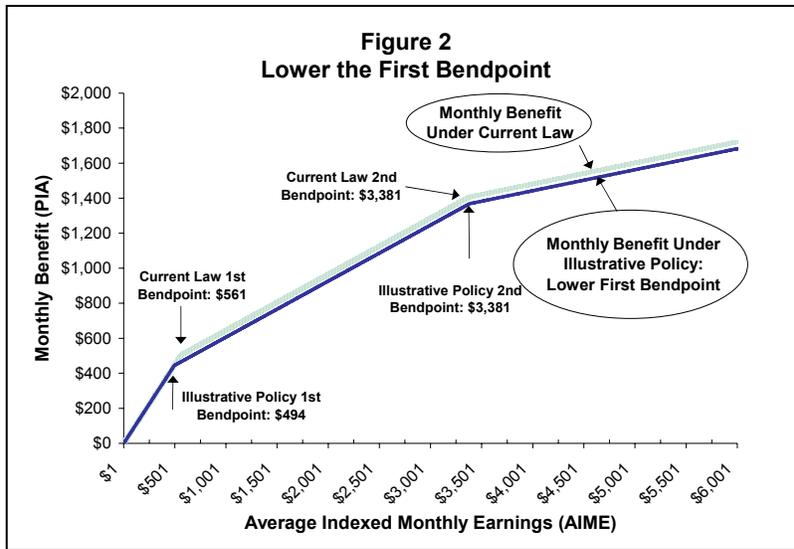
of the average or high earner. Someone retiring in 2001 with average yearly earnings of $10,000 (adjusted for inflation) would see a benefit reduction of 7 percent relative to current law. By contrast, someone with career average earnings of $33,000[30] would experience only a 3 percent reduction in benefits, and for the highest earners (at the taxable maximum amount of $80,400), the percent cut would be only 2 percent.

Thus, while lowering the bottom bend point would help to improve Social Security's financial position, this approach also has some drawbacks. It could reduce Social Security's progressivity, and it could also reduce the base of retirement income that Social Security has traditionally provided to low earners.

If, instead, the top bend point were reduced, a much deeper reduction would be necessary to achieve the same 25 percent reduction in Social Security's actuarial deficit (see figure 3), because fewer people fall into the top income categories. The top (second) bend point would need to be reduced from $3,381 to $2,350 in order to achieve the same 25

percent improvement in Social Security's solvency.

Although this scheme does a better job than the previous example of protecting the very lowest earners, the distribution of benefit cuts, in percent terms, is still not progressive. In this example, people with career average annual earnings of up to about $28,200 ($2,350 x 12) would not experience any benefit reduction. An individual who earned the national "average" wage ($32,922 in 2001) over his or her entire career would experience a nearly 6 percent cut in benefits. The steepest benefit cuts, in percent terms, would fall on people who earned about $41,000 per year on average over their careers: this group would see a benefit reduction of about 12 percent. Yet those who earned the taxable maximum (about $80,400 in 2001) throughout their careers would see a reduction of only about 9 percent.

The reason for this disparity in cuts across incomes is the same as in the previous example: for AIMEs above $3,381, the dollar amount of the benefit cut is constant; as a result, the lines in figure 3 are parallel above this amount.

Figure 3
**Lower the Top Bendpoint**
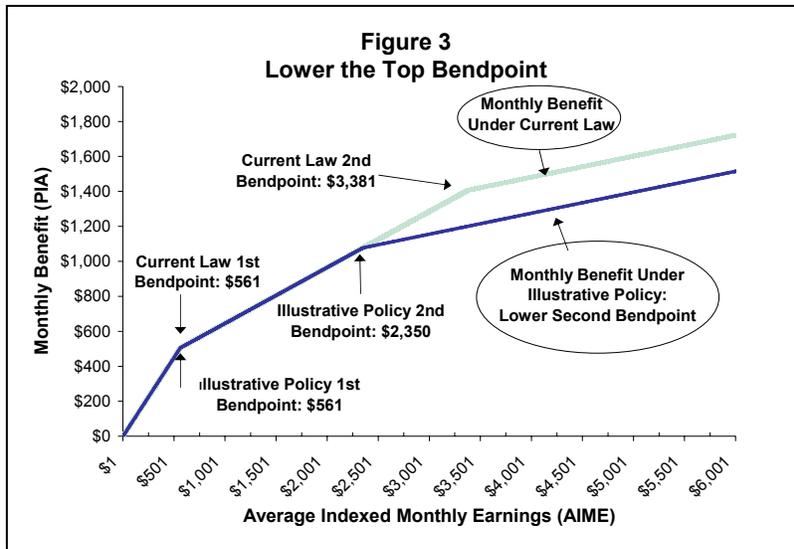
A given dollar amount in cuts would weigh more heavily, in percentage terms, on the benefits of the average earner than on those of the high earner.

Under this scheme, workers who earn close to or more than the national average wage bear all of the costs of reform. The fact that this approach shields from benefit cuts anyone with career average earnings up to $28,350 may (or may not) be seen as a drawback. The risk of undermining the support of higher income groups for the Social Security system is real, and it should be kept in mind when considering these plans. An example that follows will demonstrate that it is possible to spread the costs of reform more broadly, while at the same time raising benefit levels that fall below the poverty line.

Example 2: Changing the Rates. A second way to change the benefit formula is to reduce the percent rates. For example, a 25 percent improvement in Social Security's actuarial balance can be achieved by lowering the first rate from 90 percent to 84.6 percent and changing nothing else in the benefit formula (see figure 4). This plan would reduce everyone's benefits, even those of the very lowest earners, because the bottom rate would be applied to the first few hundred dollars of everyone's AIME in the benefit calculation. As with the previous examples, however, this proposal to reduce the first rate would also reduce low career earners' benefits by a greater percentage than high earners' benefits, because, again, a given dollar benefit cut represents a larger share of the lower earner's current law benefit than it does for the average or high earner.

The examples given above illustrate the problems with reducing benefits for certain segments of the population. When the bottom bendpoint or rate is reduced, then the burden of reform falls chiefly on low-earners, for whom the cut to benefits is proportionately deeper than for middle- and high-earners. On the other hand, when only the top bendpoint or rate is cut, the benefit cuts may be so deep, and so marked, that they undermine the support of higher earners for the Social Security system.

Figure 4
Lower the First Rate
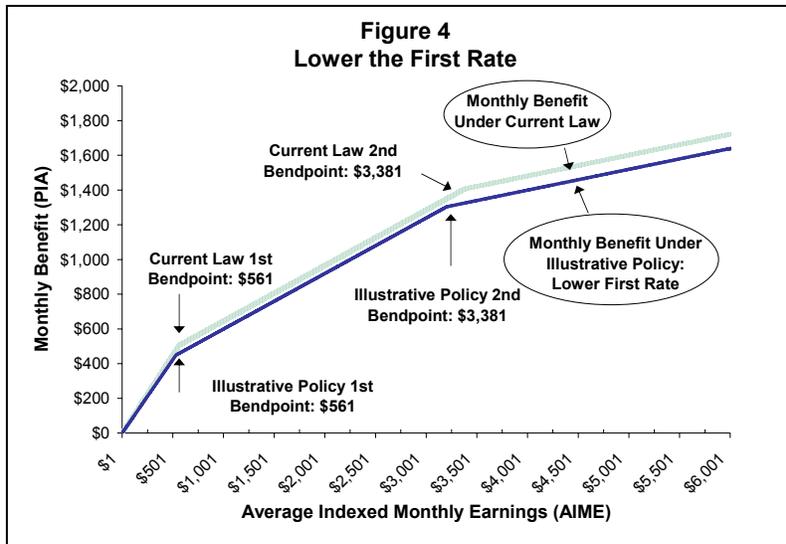
Example 3: Add a Third, Middle Bend Point and a Fourth Rate. The solution may lie in adding a third bend point, and an accompanying fourth rate, to make the benefit formula more flexible and spread the impact of the trade-offs involved in adjusting the benefit formula. In particular, one possible goal of a new bend point (and rate) could be to protect workers who have low career earnings. At the same time, this new bend point (and rate) could make it possible to spread benefit cuts more evenly among medium and high earners, while holding low earners harmless.

For example, a new, third bend point could be introduced at $725 (see table 1). The bottom bendpoint could be raised slightly from $561 to $580 – which would provide a modest amount of additional protection for the very lowest earners.

A new middle rate of 50 percent is added to the formula. The top two rates are reduced from 32 to 25 percent, and from 15 to 12 percent. This package closes 25 percent of Social Security's actuarial deficit.

This plan shields the lowest earners—those with AIMEs under $580 (career average earnings of $6,960)—from benefit cuts (see figure 5). Moreover, this plan increases the monthly benefit received by a vulnerable group of individuals who have had low earnings throughout their careers.

Specifically, this plan targets benefit increases to people who would receive sub-poverty benefits under current law. (The poverty level was $8,494, or $708 monthly, in 2001.) Receiving an annual Social Security benefit equivalent to the poverty line (or higher) would require having had career average earnings of

Table 1 Illustrative Plan with Third Bend Point Closes 25 Percent of Financing Gap		
	Current Law 2001	*Add Third Bend Point*
Bend point 1	$561	$580
Bend point 2	$3381	$725
Bend point 3		$3381
Rate 1	90%	90%
Rate 2	32%	50%
Rate 3	15%	25%
Rate 4		12%

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Figure 5
Add Middle Bendpoint
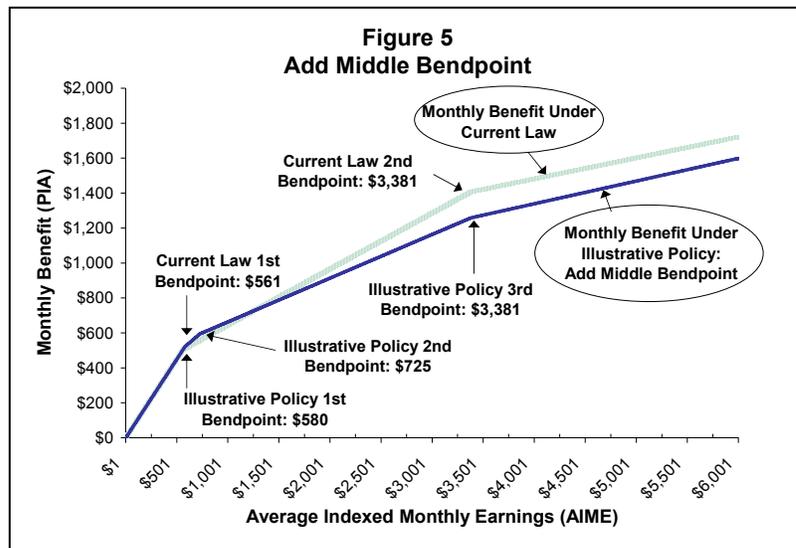
about $14,500 (or higher), for people who retired in 2001 under the existing benefit formula. Thus, this illustrative plan is designed to increase the monthly benefits of anyone with career average earnings of between $6,700 and $15,000.[31]

The largest benefit increases would affect people with career average earnings of about $9,000; this group would see a monthly benefit increase of about $35, and a yearly benefit increase of about $424, representing a 6 percent increase in benefits relative to current law. The dollar amount of the increase gradually tapers off with higher earnings, because the effect of the new bend point at $725 is gradually offset by the drop in the replacement rate on the segment of AIME that lies above $725.

Thus, for many new beneficiaries, the percent increase would be modest: a few percent, and in some cases, less than 1 percent. In 2001, about 882,000 new beneficiaries would have enjoyed higher monthly benefits under this illustrative policy.[32, 33]

Note that this plan would not guarantee a poverty-level benefit for all beneficiaries; rather, it would bring certain vulnerable groups closer to the poverty line. Nor does this plan offer benefit increases to those at the very bottom of the income scale, with AIMEs below the 2001 current law level of $561 (career average earnings below $6,732). This is because it is difficult to address the benefit level of the lowest career earners through the benefit formula.

Even increasing the lowest rate to 100 percent for earners with AIMEs below $561 would still result in very low benefits to this group, while potentially providing a windfall to higher earners (unless offsetting changes were made to the top bendpoint and/or rate). Concerns over the benefit level for the lowest earners might be better addressed by policies such as providing a minimum benefit to earners with 20 or 30 years of work history.

After career average earnings reach about $15,000, the benefit increase on the lower segment of AIME is completely offset, and benefits begin to

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decline relative to current law. In figure 5, this is the point where the lines cross over at an AIME of $1,250 ($1,250 * 12 = career average earnings of $15,000). This plan is progressive: the percent cut in benefits deepens as earnings rise, unlike the plans described above that would have caused average earners to experience deeper cuts, in percent terms, than high earners. Monthly benefits would fall by about 5 percent for people with an AIME of $1,917 (career average earnings of $23,000), and by about 9 percent for people with an AIME of $2,833 (career average earnings of $34,000). For the highest earners, at the taxable maximum of $80,400 in 2000, the cut to monthly benefits would be about 11 percent.[34]

The 11 percent cut to high earners' benefits is significant, but it is not as deep as under some other recent proposals. In one proposal, the cost-of-living adjustment (COLA) to retirement benefits would be cut by 1 percent, which (under the assumption of 3 percent annual inflation) could cause a 17 percent reduction in everyone's benefit (including low earners) after 20 years of retirement. This proposal would resolve 69 percent of the actuarial balance. Another proposal—substituting price indexation for wage indexation in the benefit formula—would over time eliminate Social Security's entire actuarial deficit, but it would also reduce the initial Social Security benefits of both low and high earners by 35 percent by 2040, and by more than 50 percent by 2075, relative to current law (Shelton, Beedon and Baumhackl, 2002).

The strong points of the plan to add a third bendpoint and a fourth rate are the following. First, it solves about one quarter of Social Security's financing problems. Second, this plan shields the lowest earners from benefit cuts, and it even raises some annual benefit levels that fall below the poverty line. Finally, in this plan, care was taken to avoid putting the entire burden of reform on the very highest earners.

CONCLUSIONS. As these examples show, changing the Social Security benefit formula involves certain trade-offs. From a solvency perspective, lowering the bottom bend point or rate gives the most "bang for the buck," because the ensuing benefit cuts would affect everybody. However, this plan may have adverse distributional consequences, because it reduces low earners' benefits by a greater percentage than high earners' benefits. On the other hand, lowering benefits to the very highest earners only would cause this group to bear the entire cost of reform, and could undermine high earners' support for the Social Security system.

Adding a new, middle bend point and a rate to accompany it would make some of these negative trade-offs less stark. In particular, adding a middle bend point would help to shield more workers from steep benefit cuts, or make their cuts less severe, compared with proposals for across-the-board benefit cuts, such as COLA reductions or price indexation of the benefit formula.

Benefit formula adjustments could form part of a broader package that eliminates Social Security's actuarial deficit. By themselves, benefit formula adjustments may not be practical. Achieving solvency through the benefit formula alone would require across-the-board benefit cuts so deep that this would not be politically acceptable. Moreover, if the formula were adjusted to protect the

lowest earners, the cuts to the benefits of high earners would be commensurately deeper. Instead, a politically acceptable solution to Social Security's financing problems may lie in a combination of revenue increases and benefit cuts, one of which might be carried out through adjusting the benefit calculation formula.

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ENDNOTES

[1] In 1940, the average remaining life expectancy for a 65-year-old male and a 65-year-old female were 11.9 and 13.4 years, respectively. By 2000, average life expectancies for 65-year-olds had increased to 15.8 for men and 18.9 years for women. The Social Security Administration

actuaries project that by 2020 these numbers will increase to 17.0 years for men and 19.9 years for women. By 2070, average life expectancy will continue to increase and by 2070 it is projected to be 19.9 additional years for men age 65 and 22.7 for women age 65. (Social Security Administration, Board of Trustees, *2003 Annual Report*, Table V.A.3.)

[2] The baby boom generation was born in the years 1946 through 1964.

[3] Some workers are not going straight from working to not working. Phased or partial retirement programs allow workers to ease into retirement.

[4] Long-term actuarial balance measures the program's financial status over 75 years. It is the difference between income and cost of the program stated as a percent of taxable payroll summarized over the valuation period. A negative balance represents the percentage that would have to be added to the current law income rate each year for the next 75 years (or subtracted from costs) to bring the funds into balance.

[5] Both FICA revenues and income tax revenues from the tax on benefits.

[6] The "taxable maximum" refers to the maximum amount of wages that are subject to the 12.4 percent Social Security payroll tax; wages over this amount are not subject to the payroll tax. In 2001, the taxable maximum was $80,400; in 2003, it taxable maximum is $87,000.

[7] This benefit reduction could have a greater effect on women than men because women's work histories are less likely to be continuous. In 1997, the General Accounting Office reported that the median number of years with covered earnings was 36 for men reaching age 62 in 1993 and 25 for women. Fewer than 20 percent of women had 35 years of covered work. (Ross, 1997. Data from an Urban Institute paper for the Social Security Administration indicates that there has been some improvement. The paper suggests that close to 45 percent of baby boom women will have 35 non-zero work years. (Toder et al., 2002.).

[8] This paper does not cover the "individual account" or "invest the trust funds in equities" options.

[9] In fact, there is no benefit formula for defined contribution or savings plans such as IRAs or 401(k)s. The "benefit" is the amount contributed plus earnings on that amount at the time of withdrawal. These plans allow the worker and sometimes the employer, in the case of the

401(k), to contribute to an account. The contributions and account earnings may be partially or fully tax deferred. Defined benefit plan benefits are based on employer contributions. The benefit formula takes into consideration workers' time with the employer and (usually) their highest three to five income-earning years.

[10] The specifics of the benefit calculation are thoroughly discussed in the section of this paper entitled "Description of the Benefit Formula."

[11] The term "replacement rate" typically refers to the percentage of a worker's pre-retirement earnings replaced by Social Security benefits. To avoid confusion with this often-used term, the rates applied to AIME in the benefit calculation will be called "formula rates" in the following discussion.

[12] For those eligible for benefits before 1978, the Average Monthly Wage method of calculation was used. The PIA was calculated using the worker's actual earnings (nominal dollars). The Simplified Old Start method is used to calculate the PIA for workers who meet special requirements for counting earnings from 1936 to before 1950. This method affects a small and declining number of workers.

[13] For Social Security calculations, 40 years is considered a lifetime of work. The benefit formula drops a worker's five lowest earnings years, so that 35 years are used in the final calculation. If a worker does not have 35 years of contributions, a sufficient number of years without earnings are included in the calculation as zeros, to bring the total to 35 years. If a worker has more than 40 years, higher-earning years can be used to replace lower-earning years. Earnings are indexed to changes in the average wage for every year up through the year in which the worker turns 60 (which is referred to as the "indexing year"). There is no indexation of earnings after age 60, which is considered by some to be a "work incentive."

[14] 2001 is used in this section for the purposes of clarity. The simulations in the following sections also use 2001 as a base year.

[15] The bend points are adjusted annually to ensure that replacement rates remain constant year-to-year for workers in the same relative place in the earnings distribution. These adjustments are based upon the annual changes in average wages. New bend points are established by multiplying the bend points in effect in 1979 ($180 and $1,085) by the following quotient: the national average wage

for the second year before the year for which the determination was made, divided by the average wage for 1977. The resulting products rounded to the nearest dollar are the new bend points. Thus, the bend points for 2003 would be calculated as the ratio of the average wage index for 2001 to the average wage index for 1977 (i.e., \$32,921.92/\$9,779.44 = 3.37) times the bend points in 1979, and the results are rounded, giving 2003 bend points of \$606 and \$3,653. To see this worked out, go to http://www.ssa.gov/OACT/COLA/BenForm.html.

[16] The Social Security payroll tax, as authorized by the Federal Insurance Contributions Act (FICA) and the Self-Employment Contributions Act (SECA).

[17] Both employer and employee contribute 6.2 percent each, for a total of 12.4 percent.

[18] The Social Security Administration defines an average earner as someone who has earnings equal to the national average wage index throughout his or her earning years. High earners are defined as having annual earnings over a working lifetime equal to 160 percent of the national average wage index. Low earners are defined as having annual earnings over a working lifetime equal to 45 percent of the national average wage index.

[19] The 32 percent and 15 percent rates in this proposal are reduced for new eligibles by 0.5 percent (i.e., multiplied by 0.995) each year during 1998–2011. Each year from 2012 to 2030, the 32 percent and 15 percent rates are reduced by 1.5 percent (i.e., multiplied by 0.985).

[20] Workers with 10 years of coverage would receive half the tier 1 benefit amount. For those with more than 10 and less than 35 years in the paid labor force, the tier 1 benefit would be prorated. After 1996, the tier 1 benefit would have been indexed based on wage growth before eligibility and by changes in the consumer price index (CPI) thereafter.

[21] The age of eligibility for full retirement benefits has been increased from 65 to 67 as a result of the 1983 amendments to the Social Security Act. The increase takes place in gradual steps. It started in 2000 and will be complete for those born in 1960 and later.

[22] This plan also would increase the number of years counted in the initial benefit calculation from 35 to 38, and it would increase the taxable maximum amount.

[23] The full retirement age would be 67 for all those turning 62 in 2011. The full retirement age would increase to 68 by 2017, and to 70 by 2065.

[24] The term "notch" as used here is a point after which benefits are markedly different (generally lower) from benefits before. A notch is not gradual.

[25] These calculations do not include the effect on trust fund revenues from income taxation of Social Security benefits.

[26] While this paper discusses only workers' benefits, it is important to note that family benefits are also based on the individual worker's benefit amount. Thus, when a low-wage worker's monthly benefit is reduced, his or her dependent or widowed spouse receives an analogous cut.

[27] SSASIM was originally developed under a series of contracts from SSA as part of the 1994-96 Advisory Council's activities, and has been enhanced subsequently with support from AARP's Public Policy Institute, SSA's Office of Policy, the Employee Benefit Research Institute (EBRI), the General Accounting Office (GAO), the International Monetary Fund (IMF), and other organizations.

[28] In 2001, the poverty line for a single worker aged 65 and over was \$8,494, or \$708 per month (see the *Social Security Bulletin, Annual Statistical Supplement, 2002, Table 3.E1.*).

[29] Under the original benefit formula, the segment of AIME between \$494 and \$561 contributes \$60.30 to PIA (\$561 – \$494 = \$67, and \$67 * .90 = \$60.30). Under the example described here, however, a rate of only 32 percent is applied to this segment of AIME, which results in a \$21.44 contribution to PIA. The difference between \$60.30 and \$21.44 is \$38.86, which is the constant cut in benefits under this formula that affects everyone with an AIME higher than \$561.

[30] This is approximately an "average earner" under the SSA's definition—in 2001, the average wage was \$32,922. See footnote 18.

[31] Limiting benefit increases to a benefit that is below the poverty line is possible, but it would require taking the bend points and/or rates to several decimals.

[32] Based on SSA data from 2001. See the *Social Security Bulletin, Annual Statistical Supplement, 2002, Table 6.B4.*

[33] There are many possible ways to incorporate a third bendpoint into the benefit formula. One such alternative, which also achieves a 25

percent improvement in Social Security's actuarial balance, is presented in table 2.

Table 2 Second Illustrative Plan with Third Bend Point Closes 25 Percent of Financing Gap		
	Current Law 2000	*Add Third Bend Point*
Bend point 1	$561	$561
Bend point 2	$3381	$725
Bend point 3		$3381
Rate 1	90%	90%
Rate 2	32%	55%
Rate 3	15%	25%
Rate 4		12%

This formulation differs from that presented in the main body of the text (table 1) in two ways: (1) the bottom bendpoint remains at its current law (2001) level; and (2) the second rate is 55 percent rather than 50 percent. In this example, the deepest benefit cuts, which fall on the highest earners, reach 13 percent.

[34] In dollar terms, monthly benefits would fall by about $46 per month) for people with an AIME of $1,917 (career average earnings of $23,000), and by about $110 per month for people with an AIME of $2,833 (career average earnings of $34,000). For the highest earners, at the taxable maximum of $80,400 in 2001, the cut to monthly benefits would be about $215 per month (11.3% of their monthly benefit).