ISSUE BRIEF NO. 6

SOCIAL SECURITY REFORM: WORK INCENTIVES

INTRODUCTION

This sixth and final Treasury issue brief on Social Security reform discusses Social Security's effect on work incentives and the implications for reform. Social Security discourages work effort in much the same way as does an ordinary tax on labor income. As was demonstrated in Treasury's first three issue briefs, an individual's lifetime contribution to Social Security has two components: the difference between the value of lifetime taxes and lifetime benefits—lifetime net taxes—and the difference between gross taxes and net taxes—effectively "forced saving" that determines benefit levels. For current and future workers, lifetime net taxes finance the excess of benefits over taxes that have been paid or are promised to earlier generations, an amount estimated to exceed $13.6 trillion; and benefits are financed entirely by forced saving. The net tax component of Social Security contributions discourages work effort in the same way as an ordinary tax—workers pay more in taxes than they expect to receive in lifetime Social Security benefits, and this effectively reduces the return to work. The forced saving component of Social Security contributions would be expected to have little effect on work effort provided that workers understand that this part of Social Security taxes will be returned as future benefits, and provided there is a mechanism in place to ensure that the forced savings are truly set aside to help pay future benefits (as opposed to giving rise to increased current non-Social Security government spending or lower non-Social Security taxes than would be the case without Social Security).

Two key goals for Social Security reform are to raise more than $13.6 trillion in net taxes from current and future workers fairly and with as little effect as possible on work incentives. This net tax will be assessed under any permanently solvent Social Security system, and will involve some combination of increased revenue and lower benefits relative to what is scheduled under current law. When designing Social Security's net taxes, maintaining work incentives is important because it is economically wasteful for people to work less in an attempt to avoid Social Security's net taxes—the reduced work effort results in less economic activity, higher net tax rates, and no less net tax revenue, as in the end $13.6 trillion in net taxes must be assessed. Social Security is said to be "efficient" to the extent that the program does not discourage work effort.

Undertaking Social Security reform necessarily entails a subjective choice that balances the competing goals of fairness and efficiency. Most people believe that fairness requires that the tax structure be progressive in the sense that net tax rates increase with the level of earnings – nearly all proposals for Social Security reform involve a progressive net tax. But there is a tradeoff between fairness and efficiency, because progressive net tax structures are generally less efficient than proportional or regressive net tax structures—the adverse impact on efficiency comes about because a higher net tax rate on higher incomes discourages work effect by more than a net tax rate that is equal at all income levels.

The forced saving component of Social Security contributions also adversely affects work effort if workers do not understand (or do not believe) that this portion of their contributions will be returned to them as future benefits. As discussed in Treasury's third Social Security brief, the forced savings component of

Social Security would have little or no impact on work effort if workers realize that those contributions will be returned to them as future benefits. Hence, Social Security reform would usefully make Social Security's forced saving more transparent to workers—to make clear to workers the relationship between today's earnings and future benefits.

Even with such transparency, Social Security's forced savings could still discourage work effort if near-term Social Security revenues in excess of benefits paid are not truly set aside to build up the resources to pay future benefits, but instead give rise to more spending or lower taxes in the non-Social Security budget. This could be the case today, for example, to the extent that Social Security surpluses obscure the underlying fiscal situation and facilitate increased spending or tax cuts in the rest of the federal budget. As discussed in Treasury's fourth Social Security Brief, if these near-term surpluses result in additional near-term government spending, the additional spending must ultimately be financed with either higher future non-Social Security taxes or smaller future non-Social Security spending. Work effort would be discouraged to the extent that the finance source is higher future taxes.

A given level of progressivity can be achieved in many different ways, and some are better for work incentives than others. A goal of Social Security reform, therefore, is to maximize work incentives for the chosen level of progressivity. In this regard, this brief makes the following key points:

- The current Social Security system imposes net tax rates on earnings that vary by age in a manner that encourages early retirement. Policies that would rectify this problem are discussed.
- Social Security's net tax rate on an additional dollar of earnings is generally smaller than the payroll tax rate because benefits generally accrue as people work more (that is, part of Social Security contributions are forced savings). Because the Social Security benefit computation is complex, however, it is likely that many people underestimate the extent to which Social Security benefits increase with work effort. Such a misunderstanding would naturally lead a worker to overestimate Social Security's net tax rates and thus choose to work less than they would if they were better informed. Ways to make the relationship between work and Social Security benefits more transparent are discussed.
- Many people appear to interpret the earliest age that benefits can be collected (the "early retirement age", currently 62) as an officially-sanctioned suggested retirement age and are influenced by that suggestion. This is true despite the fact that the Social Security net tax structure gives no true economic incentive for workers with reasonably prudent nest eggs to retire at that specific age. Increasing the early retirement age would not affect the retirement incentives of these workers, but would likely encourage additional work effort through the suggestion effect.
- Increasing the "normal retirement age" is equivalent to a proportional reduction in benefits and should therefore have the same effect on retirement incentives as the equivalent benefit cut. As with the early retirement age, however, many people seem to interpret the normal retirement age as a suggested retirement age. Such people's retirement decisions would be more responsive to an increase in the normal retirement age than to the equivalent proportional benefit cut.
- For couples with one spouse earning substantially more than the other spouse, the current special benefits for spouses and survivors increase work incentives of the high earner and reduce work incentives of the low earner. The net result is probably less work effort on the whole because the low earner tends to be more sensitive to taxes than the high earner when deciding how much to work. A potential remedy for this problem is discussed.

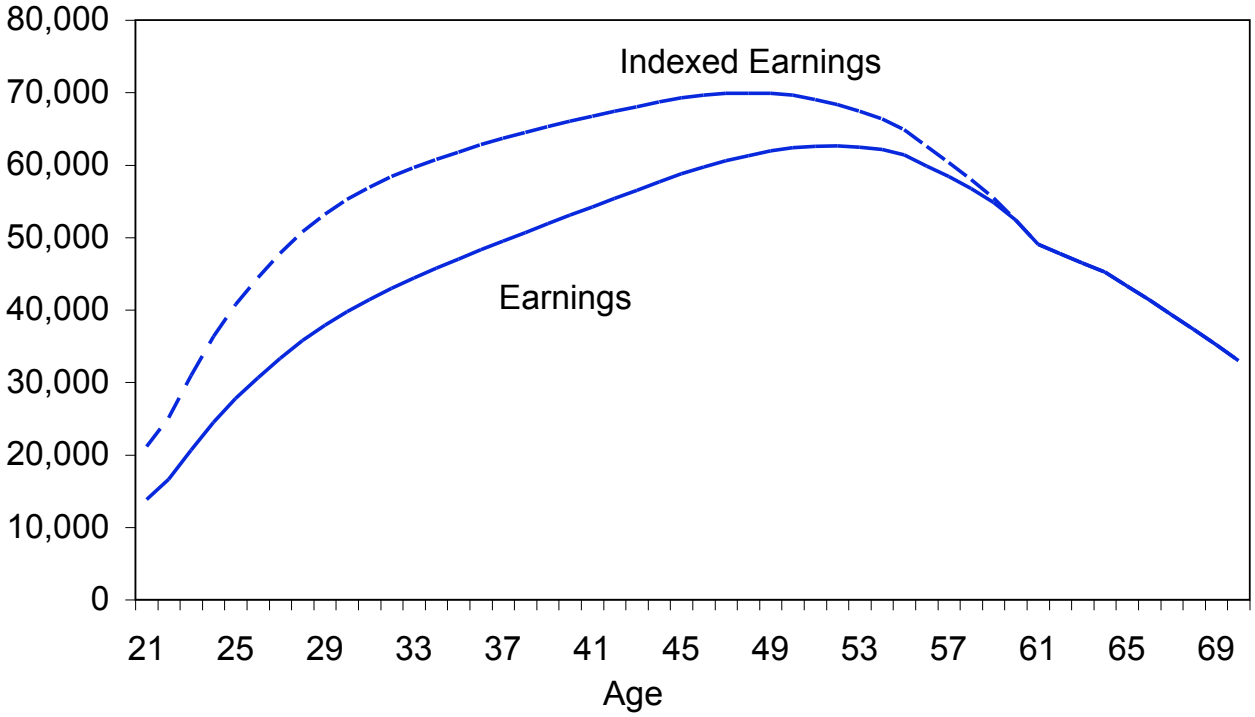
The next section reviews how Social Security affects work incentives; later sections discuss policy implications.

HOW SOCIAL SECURITY'S NET TAXES AFFECT WORK INCENTIVES

The impact of Social Security's net taxes on work effort will be illustrated with reference to an average woman ("Jane") born in 1990 who collects benefits as a single person. As it is certain that Social Security will be a permanently solvent system eventually, making the example plausible requires an assumption of how the system will be reformed. For this purpose, it is assumed that the illustrative reform analyzed in Treasury's third Social Security brief—Plan X—will be put in place. Plan X reduces benefits proportionately from current-law scheduled levels so that real benefits received by successive birth cohorts remain about constant on average between 2008 and 2036, and sets benefits after 2036 so that they grow as they would under current law except for small annual proportionate reductions that offset the effect of increasing longevity on the present value of benefits received. (Treasury does not endorse Plan X—it is used only for illustrative purposes.) In addition, interest rates, prices, wages, and mortality are assumed to evolve as projected in the 2005 Trustees Report.

Jane is assumed to be a representative earner with medium earnings. Figure 1 shows the assumed time profile of Jane's real wages by age assuming she does not retire until age 70. (Also shown in the figure are "indexed real wages" that are used to compute benefits, which are discussed below.) The real earnings profile is an inverted U shape: earnings start at $21,000 at age 21 and grow steadily to $63,000 at age 52, and then commence a steady decline to $33,000 at age 70. If Jane retires earlier than age 70, then her real wage profile is the same as in Figure 1 except it falls to zero starting the year after she retires. For the sake of this illustration, it will be assumed that Jane retires and begins collecting Social Security benefits at age 67, the so-called "normal retirement age" for the 1990 birth cohort. (The normal retirement age and possible revisions to it are discussed below.) In that case, the expected present values as of age 21 of Jane's pre-tax wages, her payroll taxes, and her retirement benefits are $1,140,290, $120,684, and $64,725, respectively. (Both disability benefits and taxes are excluded from the calculations; consequently the payroll tax rate used here is 10.6 percent.) The net value of Social Security to Jane is, therefore, the difference between the value of her benefits and her taxes, which is -$56,139 or -4.9 percent of her lifetime wages. That is, Jane's lifetime net tax rate is 4.9 percent, and Social Security raises as much net revenue from Jane as would a 4.9 percent tax on wages in every year of her working life.

Figure 1: Earnings and Indexed Earnings for Medium Earner, 1990 Birth Cohort



TWO CHANNELS OF INFLUENCE ON WORK EFFORT: LIFETIME WEALTH EFFECT AND MARGINAL WORK REWARD EFFECT

Social Security's net tax affects Jane's work effort through two channels: by reducing Jane's lifetime wealth, and by reducing both the reward for working an additional hour in a given year and the reward for working an additional year before retiring. The reward for an additional hour of work or an additional year of work is a marginal reward because it is the reward for changing work effort, not the reward for all work effort.

Social Security's first effect on work effort—the lifetime wealth effect—is straightforward: Social Security reduces Jane's lifetime wealth by $56,139, the expected difference between the value of Jane's lifetime taxes and her lifetime benefits. This causes Jane to work more to make up for some of the loss.

Social Security's second effect on work effort—the change in the reward for working more—causes Jane to work less. This effect can be isolated by imagining the combined effect on Jane's work effort of Social Security and an unconditional $56,139 gift such as an inheritance. Social Security and the unconditional gift together have no effect on Jane's lifetime wealth. There is an impact, however, on Jane's incentives to work, because working more causes Jane's lifetime payroll taxes to increase by more than her lifetime benefits increase—that is, additional work increases Social Security net lifetime taxes. Hence, Social Security reduces the marginal rewards for work, and this causes Jane's work effort to decline.

Theory alone cannot determine which of Social Security's two effects on work effort—the lifetime wealth effect or the marginal-rewards-to-work effect—is stronger. Overall, it is possible that Social Security

causes work to increase or decrease. When choosing among Social Security reform plans that are permanently solvent, however, differences in work incentives stem entirely from differences in the marginal rewards to work. This is because the wealth effects of Social Security reform are the same for any plan that makes the system solvent, as all such plans must collect a net tax (the difference between the value of taxes and the value of benefits) of about $13.6 trillion from current and future workers. Reform plans that make Social Security permanently solvent entail the same total wealth effect on work effort and therefore differ only with regard to the extent to which they reduce the marginal rewards to work. For this reason, the remainder of this brief focuses on how Social Security reform affects the marginal rewards to work.[1]

SOCIAL SECURITY'S EFFECT ON THE MARGINAL REWARDS FOR ADDITIONAL WORK

Returning to the example of Jane and Plan X, a solvent Social Security system raises as much revenue from Jane as would a 4.9 percent tax on her wages. But Social Security's effect on Jane's marginal rewards to work is much different than that of a 4.9 percent tax on wages because Social Security's net taxes have a much more complex structure than does a simple proportional tax. Social Security's net tax on a given year's earnings is equal to gross payroll taxes less the accrual of Social Security benefits. The payroll tax component of Social Security's net taxes—10.6 percent of taxable earnings—is simple. What makes Social Security's net tax structure complex is the accrual of benefits.

HOW BENEFITS ARE CALCULATED

As discussed in Treasury's third Social Security brief, Plan X simply reduces future benefits proportionately from current-law levels, so that Jane's initial benefits under Plan X are determined in the same three steps as they are under current law. First, a special average of Jane's taxable wages while working—called average indexed monthly earnings or AIME—is calculated. Second, a progressive formula is used to convert the AIME to the primary insurance amount (PIA). And third, initial benefits are determined by adjusting the PIA for retirement before or after the normal retirement age and adjusting for price inflation between age 62 and the time Jane begins collecting benefits.

The AIME is computed as the average of the highest 35 years of indexed covered earnings divided by 12. Indexed covered earnings prior to age 60 are actual earnings scaled up in accordance with the growth of economy-wide average earnings between the time the wages are earned and the time the worker turns 60. For example, Jane's age-40 real earnings are $53,071 and economy-wide average real earnings when Jane is age 60 are 24 percent higher than when she is age 40 (20 years growth at an assumed 1.1 percent annual rate), so her age-40 indexed covered earnings are $66,051 ($53,071 x 1.24). This adjustment scales up wages from early in a person's life to what the person's earnings might have been had the level of wages in the overall economy been at the level they are at age 60. After age 60, earnings are not indexed for the purposes of the AIME calculation; in those years, indexed earnings are equal to actual earnings.

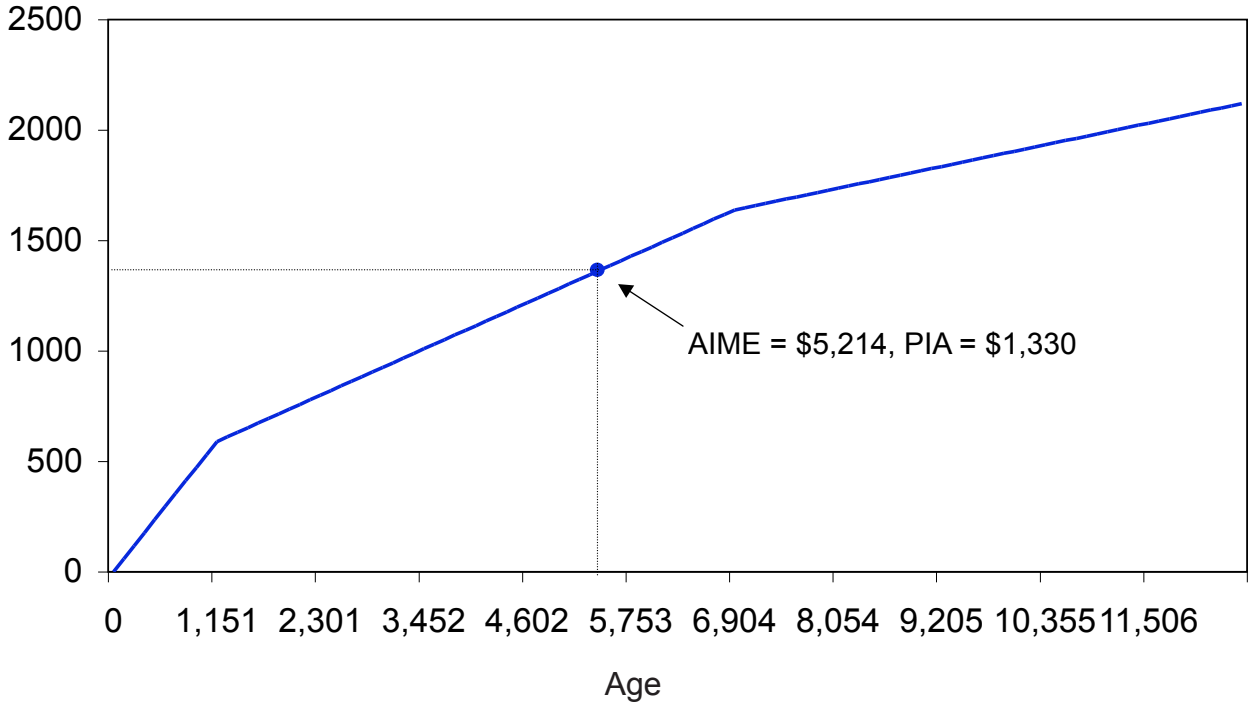
1 While Social Security's overall wealth effect on work effort is fixed in size, its timing is not. Social Security's wealth effects on work effort will vary over time in accordance with how Social Security's reform burden is distributed across generations. When comparing two permanently solvent reform plans, the one that puts a relatively large burden on early birth cohorts will have a relatively larger wealth effect on work effort in the near term, and a relatively smaller effect in the longer term.

Jane's indexed earnings are shown in Figure 1.[2] The highest 35 years of earnings occur between and including the ages of 27 and 61, and the AIME calculated over those years is $5,214 ($62,567 divided by 12).

In the second step of the benefit calculation, Jane's AIME is used to compute her PIA using the formula depicted in Figure 2 that applies to the 1990 birth cohort only. The PIA formula is the joining of three lines with progressively smaller slopes:

- For AIME between zero and $1,062, the PIA increases by 51 cents for each additional dollar of AIME;
- For AIME between $1,062 and $6,400, the PIA increases by 18 cents for each additional dollar of AIME; and,
- For higher levels of AIME, the PIA increases by 8 cents for each additional dollar of AIME.

Figure 2: Plan X PIA Formula for the 1990 Birth Cohort



The AIME values at which the slope of the PIA formula changes are called "bend points." (As will be discussed below with reference to policy, the declining slopes of the successive segments of the PIA formula cause the current law Social Security program to be progressive.) Plan X applies the same benefit formula as under current law except that each multiplication factor is 43 percent smaller, reflecting the reforms under Plan X that make Social Security financially sustainable.

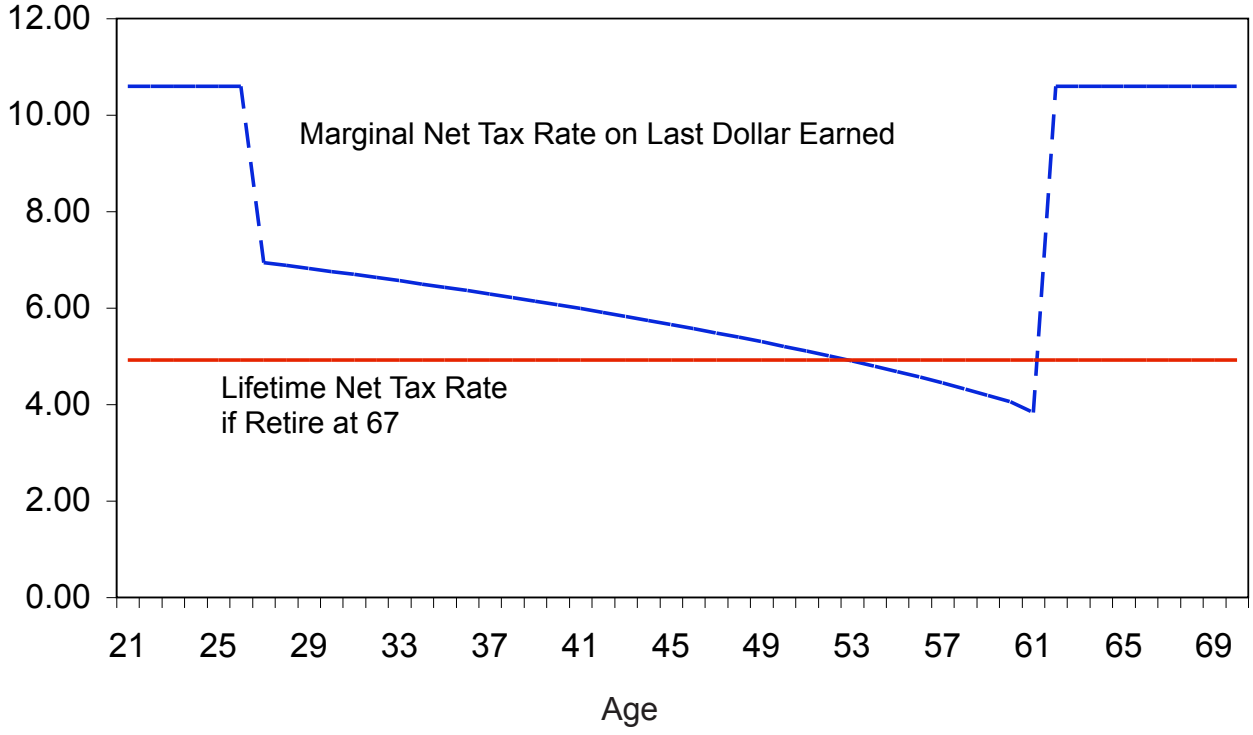
2 To make this example simple while still explaining the essence of Social Security's benefit accruals, Figure 1 assumes that there is no price inflation. It is possible to meaningfully include both real earnings and indexed earnings on the same chart only when there is no price inflation after age 60. Price inflation prior to age 60 has no effect on real benefits, while price inflation after age 60 reduces real benefits by about the amount that the value of a dollar falls between ages 60 and 62. If annual inflation is 3 percent during that time, then the example overstates real benefits by about 6 percent.

The Figure 2 benefit formula indicates that Jane's $5,214 AIME translates to a $1,330 PIA and the last dollar of AIME boosts Jane's PIA by $0.18. Jane begins to collect benefits at the normal retirement age (age 67 for the 1990 birth cohort), so her actual benefit equals the PIA adjusted for price inflation between ages 62 and 67. As price inflation is assumed zero in this example, both her real and her nominal benefit is $1,330 per month. At the time Jane is age 21, the expected present value of a real annuity of $1,330 per month starting at age 67 is $64,725.

MARGINAL REWARDS FOR ADDITIONAL EARNINGS WHILE WORKING

Social Security's effect on the reward for working more hours in a particular year is determined by the marginal net tax rate on the last dollar earned. In the case of a simple 4.9 percent proportional tax on earnings in all years, this marginal net tax rate is 4.9 percent in all years. In contrast, Social Security's marginal net tax rate on Jane's last dollar earned has the very different profile that is shown in Figure 3. This marginal net tax rate is 10.6 percent—the full payroll tax rate—for ages 21-26 and 62-70. This is because those years' earnings do not count toward benefits. Only the 35 years for which indexed earnings are highest count toward benefits, and in this case those earnings occur from age 27 to 61. The marginal net tax rate on the last dollar earned declines with age for the years with earnings that count toward benefits; relative to the lifetime net tax rate, this marginal net tax rate is higher prior to age 49 and is lower in later years. If Jane retires at 67, then the marginal net tax rate on the last dollar earned averages 6.8 percent over her working life, nearly half again as large as Jane's lifetime net tax rate of 4.9 percent.

Figure 3: Marginal Net Tax Rate On Last Dollar Eaned Under Plan X for Medium Female Earner, 1990 Birth Cohort



Two features of Figure 3 discussed below with reference to policy are:

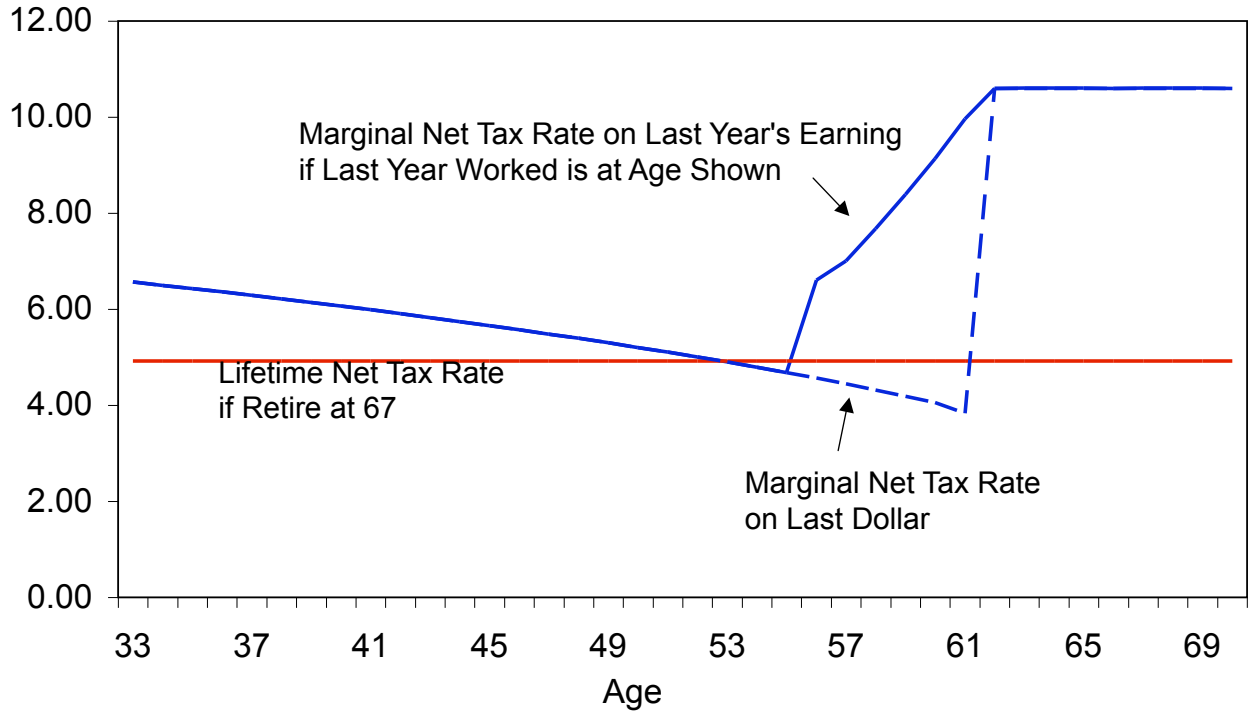
- The progressive nature of the Social Security benefit formula results in Jane's marginal net tax rate on the last dollar earned being larger on average than her lifetime net tax rate.

- A dollar earned early in life tends to result in smaller benefit accruals than a dollar earned late in life, which explains why the marginal net tax rate on the last dollar earned tends to decline with age.

MARGINAL REWARDS FOR ADDITIONAL YEARS OF WORK

Social Security affects the marginal reward for an additional year of work through the marginal net tax rate on earnings in the last year worked. This is the additional net tax that is paid as a result of working an additional year (payroll taxes less benefit accruals) divided by the additional wages earned in that year. As with the marginal net tax rate on the last dollar earned, the marginal net tax rate on the last year of work is generally higher than it would be under a proportional tax on earnings that generates the same net tax revenue. This is shown in Figure 4 for the case of Jane.

Figure 4: Marginal Net Tax Rate On Last Year of Work Under Plan X, Medium Female Earner, 1990 Birth Cohort



Relative to the marginal net tax rate on the last dollar earned, Social Security's marginal net tax rate on the last year of earnings is higher between the ages of 56 and 61 and is the same in other years. Before age 56, each additional year of earnings counts fully toward benefits because 35 years of work have not yet been completed, which implies that the marginal net tax rate on the last dollar of earnings is the same as the marginal net tax rate on the last year of earnings. After age 55, however, each additional year of work replaces the earnings from a year earlier in life in the benefit computation (which only uses the top 35 years of earnings), and the last year's earnings boost benefits only to the extent that they contribute more to benefits than does the year that was displaced in the benefit computation. For

example, as of age 55 the highest 35 years of indexed earnings are the years between and including ages 21 to 55, and the lowest year of annual indexed earnings ($25,144) occurs at age 21. If an additional year is worked, then indexed earnings at age 56—$60,359—displace the age-21 earnings in the AIME computation. Hence, work at age 56 results in $60,359 more indexed earnings, but only $35,215 of those earnings serve to increase the AIME (age-65 earnings of $60,359 less the age-21 earnings of $25,144 that are replaced). As a result, the marginal net tax rate on all age-56 earnings (6.6 percent) exceeds the marginal net tax rate on the last dollar of age-56 earnings (4.6 percent). Policies to reduce late-life marginal net tax rates on the last year of work are discussed in the next section.

POLICY ISSUES

The following sections discuss how specific policy changes to the Social Security system affect work incentives and the fairness of the system.

THE TRADEOFF BETWEEN WORK INCENTIVES (EFFICIENCY) AND PROGRESSIVITY

If fairness requires a progressive net tax structure, as most people believe, then there is a tradeoff between Social Security's fairness and its efficiency. This is true because progressive tax structures are generally less efficient than proportional or regressive tax structures. This section demonstrates this point with reference to Jane.

Figure 2 shows the progressive nature of Plan X— the PIA formula has a diminishing slope as the AIME increases, which means that the net tax rate increases with the AIME. For example, if Mary is exactly like Jane except that she earns twice as much in every year, then Mary would have an AIME twice as large as Jane's but would have a PIA only 1.46 times as high. This means that Mary pays twice as much tax as Jane but only receives 46 percent more benefits; as a result, her lifetime net tax rate (6.5 percent) is higher than Jane's (4.9 percent). (In this example, both Mary's and Jane's earnings are below maximum taxable earnings in all years.)

The progressivity of the PIA formula explains why Jane's marginal net tax rate on the last dollar earned tends to be larger than her lifetime net tax rate. Jane's lifetime net tax rate depends on how large her PIA is relative to her AIME; in Figure 2, Jane's PIA is 26 percent as large as her AIME. But if Jane earns more so as to increase her AIME, her PIA increases only 18 percent as much as does her AIME (the slope of the PIA formula at Jane's AIME amount). Because additional earnings increase Jane's PIA less at the margin than they do on average, Jane's marginal net tax rates on the last dollar earned are greater than her lifetime net tax rate.

It is possible to find a flatter PIA formula that would increase Jane's work incentives while raising the same amount of net tax revenue from her—but the result would be a less progressive system. For example, a flat PIA formula that preserves Jane's real benefit and her lifetime net tax rate at her current level of earnings would have only one linear segment with a slope of 0.26, as is shown in Figure 5. Relative to Plan X, the flat PIA formula gives less credit for Jane's first $1,151 of AIME but more credit for the last $4,603 of AIME, and on average gives the same amount of credit for each dollar of AIME. But because the amount of credit given for additional AIME is larger at the margin under the flat PIA formula ($0.26) than under Plan X ($0.18), the marginal net tax rates on Jane's last dollar earned shown in Figure 6 are much lower. In fact, the average marginal net tax rate on the last dollar earned is about equal to Jane's lifetime net tax rate in this case.[3]

3 In this case, a special weighted average of the marginal net tax rate on the last dollar earned is exactly equal to the lifetime net tax rate. The weights in this average are the shares of the expected present value of lifetime earnings that occur in each year.

Figure 5: Plan X PIA Formula for the 1990 Birth Cohort Compared to Proportional PIA Formula

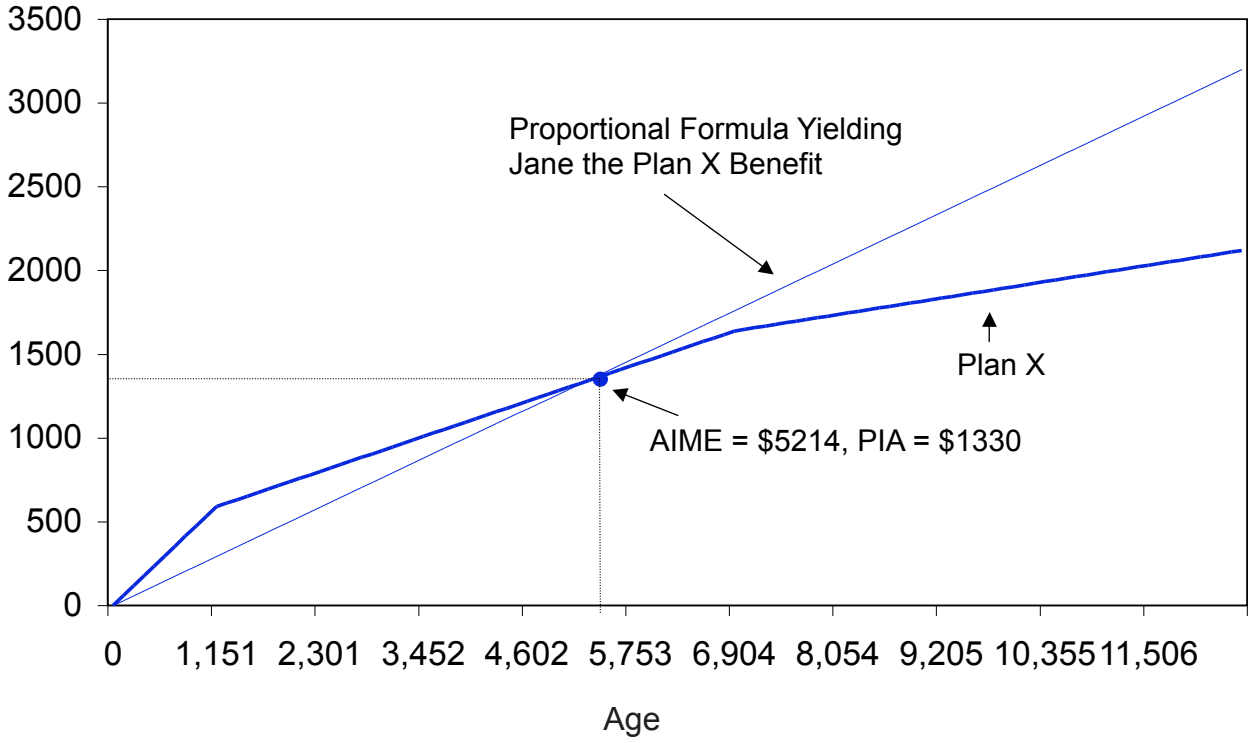
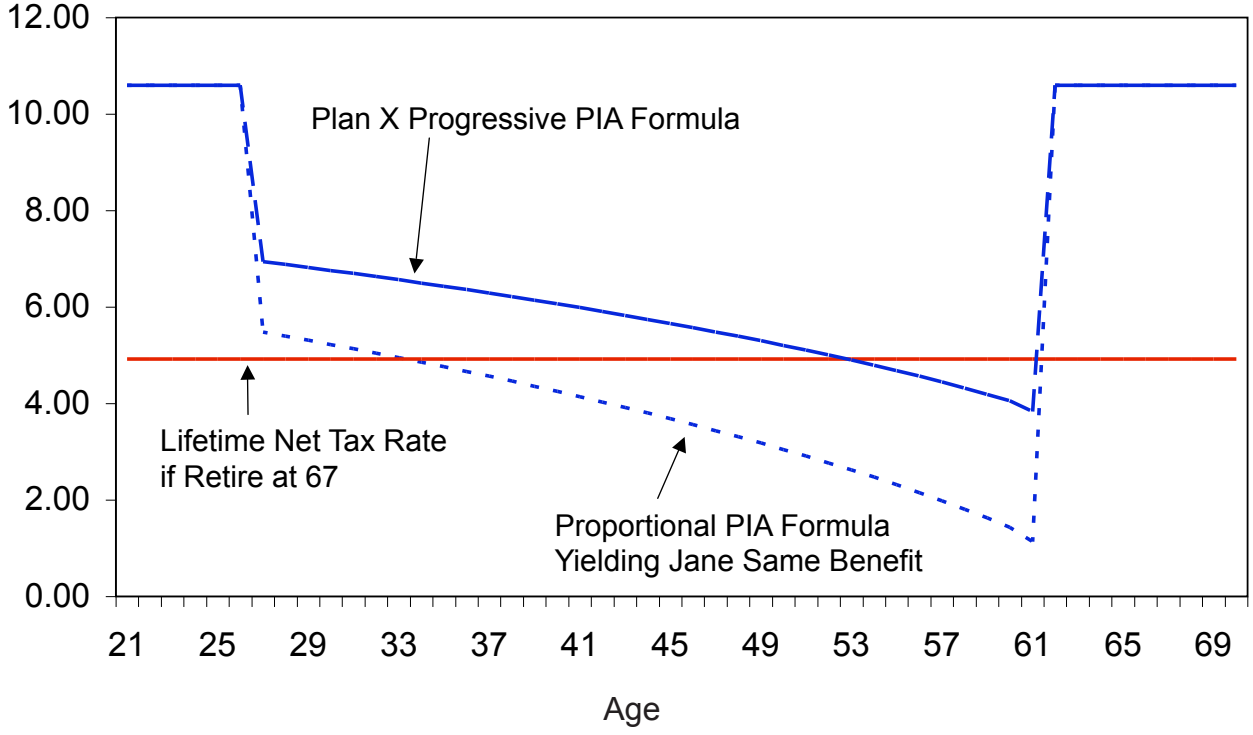


Figure 6: Marginal Net Tax Rate on Last Dollar Earned for Medium Female Earner, 1990 Birth Cohort



To the extent that Jane works more with the flat PIA formula than with the progressive formula, net tax revenue would be higher and the financial status of the system would be improved. Jane would be better off in this situation since she has chosen to work more; she could have chosen not to work more and have been no worse off than under the progressive formula. Hence, the flat PIA formula is more efficient than the progressive formula.

While a flatter PIA formula would increase work incentives, it would lessen the degree of redistribution within Social Security—the tradeoff noted above. It might be, for example, that Jane is average in the sense that the flat benefit formula in Figure 5 not only raises the same net tax revenue from her as does Plan X, but it also raises the same total net tax revenue as does Plan X. In that case, the flat PIA formula would be a sustainable policy that, relative to Plan X, raises lifetime net taxes for workers with AIME smaller than Jane's, and lowers lifetime net taxes for workers with AIME higher than Jane's. This would be the case even though work incentives are improved for the approximately 70 percent of workers with AIMEs above Plan X's first bend point.[4]

This discussion also applies to the marginal net tax rate on the last year of work. As noted above, this marginal net tax rate is the same as the marginal net tax rate on the last dollar earned up until 35 years of work have been completed, and is higher in later years. A flatter PIA formula would result in this marginal net tax rate being lower in all years that count toward benefits, but at the expense of less progressivity.

To summarize, this discussion shows that the right amount of progressivity requires weighing the competing goals of achieving fairness and maintaining work incentives.

MAKE MARGINAL NET TAX RATES MORE EQUAL AT DIFFERENT AGES

The marginal net tax rate profiles shown in Figures 4 and 6 stand contrary to the practical rule of thumb that an efficient tax system should equalize marginal tax rates on different economic activities so that the tax code does not encourage one activity over another. Specifically, Plan X—like the current Social Security system—taxes work effort at different ages differently.

To see how marginal net tax rates could be equalized for different ages, it is useful to first understand the age pattern of the marginal net tax rate under Plan X. The Plan X benefit formula (and the current law formula) is close to a system that computes the AIME as the hypothetical account balance that would obtain if payroll taxes in the high-35 years were invested at a fixed rate of return. Specifically, this plan would result in the same benefit for everyone as under Plan X if the rate of return credited to the notional account was equal to the annual rate of economy-wide wage growth through age 60 and zero thereafter, if the PIA bend points were all made larger by a factor of 45, and if the PIA multiplication factors were all made smaller by a factor of 1/45. (This calculation assumes the payroll tax rate is 10.6 percent in all years.) The revised AIME in this plan will be called the "notional account balance."

Interpreting the Plan X benefit formula this way explains why the marginal net tax rates have the patterns shown in Figures 4 and 6. The marginal net tax rate on the last dollar earned tends to fall with age for years included in the AIME calculation because the real (inflation-adjusted) rate of return credited to the notional account is less than the risk-free rate of return (assumed to be 2.7 percent). Prior to age 60,

4 For new benefit awards to 62-year-olds in 2002, about 30 percent had AIMEs below the current-law first bend point. For those workers, the PIA increases $0.51 for each additional dollar of AIME under Plan X, and marginal net tax rates are therefore smaller under Plan X than with the flat PIA formula.

the real return credited to the notional account is 1.1 percent—the annual growth in real economy-wide average wages—which is smaller than the risk-free return of 2.7 percent. As a result, a real dollar paid into the system at age 40, for example, counts 1.011 times as much toward benefits as does a real dollar paid into the system at age 41 (because a dollar in the "notional account" grows 1.1 percent per year -- i.e., is multiplied by 1.011), while the value of a real dollar at age 40 has a value 1.027 times the value of a real dollar at age 41 (because a dollar invested in a risk-free asset grows 2.7 percent per year -- i.e., is multiplied by 1.027). The portion of a dollar paid into the system that is a net tax is therefore larger the earlier in life the dollar is paid in. This is even more the case after age 60 when the real return credited to the notional account is zero.[5] For example, $100 of taxes paid at age 40 are worth the same as $102.70 of taxes paid at age 41 if the real risk-free rate of return is 2.7 percent. If real economy-wide average wages grow at 1.1 percent per year, the notional account balance at age 60 is increased by $124.46 by $100 of taxes paid at age 40 ($100 x 1.01120), and is increased by $126.43 by $102.70 of taxes paid at age 41 ($102.70 x 1.01119). Hence, taxes paid at age 41 yield a higher return in the form of benefits than taxes paid at age 40.

The notional account interpretation of Plan X also explains the years for which marginal net tax rates are equal to the full payroll tax rate of 10.6 percent. Those are years for which payroll taxes are not credited to the notional account.

These observations indicate that the only way to make Social Security's marginal net tax rates equal at all ages is to base benefits effectively on a notional account balance that would obtain if all payroll taxes—not just those in the high-35 years—were invested at the risk-free rate of return. In principle this could be done without changing the overall level of benefits. For example, Jane's benefits would be unchanged in such a plan if her notional account balance were entered into a PIA formula like the Plan X formula except that the PIA bend points are larger by a factor of 81 and the PIA multiplication factors are smaller by a factor of 1/81. In that case, Jane's notional account balance at age 67 would be $421,440, (equal to 81 times her AIME), and it can be verified that her benefit is the same as it is under Plan X.[6]

Under this plan, Jane's marginal net tax rate on the last dollar earned would be the same in all years—6.6 percent—and in every year would equal the marginal net tax rate on the last year of earnings. This pattern is compared with the Plan X patterns in Figures 7 and 8. On average, the notional accounts system results in the same marginal net tax rates on the last dollar earned as does Plan X, but those rates are constant across different ages rather than varying as under Plan X. The notional accounts system results in modestly higher marginal net tax rates on the last dollar earned between the ages of 33 and 61, and lower rates in other years (Figure 7). With regard to retirement incentives, the notional account system is clearly superior to Plan X. It results in substantially lower marginal net tax rates on the last year of work if the last year of work is after age 56—the years that most matter for retirement incentives (Figure 8).

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5 With regard to this feature, Plan X and current law are akin to (but not exactly like) a notional accounts system that pays a return less than the risk-free return and allows the participant to keep the entire balance. Compared to earning a risk-free return, a dollar invested at a below-market return is a worse deal for the participant the longer the period of time the dollar is invested.

6 Under the revised benefit formula, Jane's benefit is:
$(1/81) \times [F_1 \times 81 \times BEND_1 + F_2 \times (81 \times AIME)\ 81 \times BEND_2)]$
where $BEND_1$ and $BEND_2$ are the Plan X bend points and F_1 and F_2 are the Plan X multiplication factors.
Clearly, this expression reduces to the Plan X benefit:
$F_1 \times BEND_1 + F_2 \times (AIME - BEND_2)$.

Figure 7: Marginal Net Tax Rate on Last Dollar Earned for Medium Female Earner, 1990 Birth Cohort

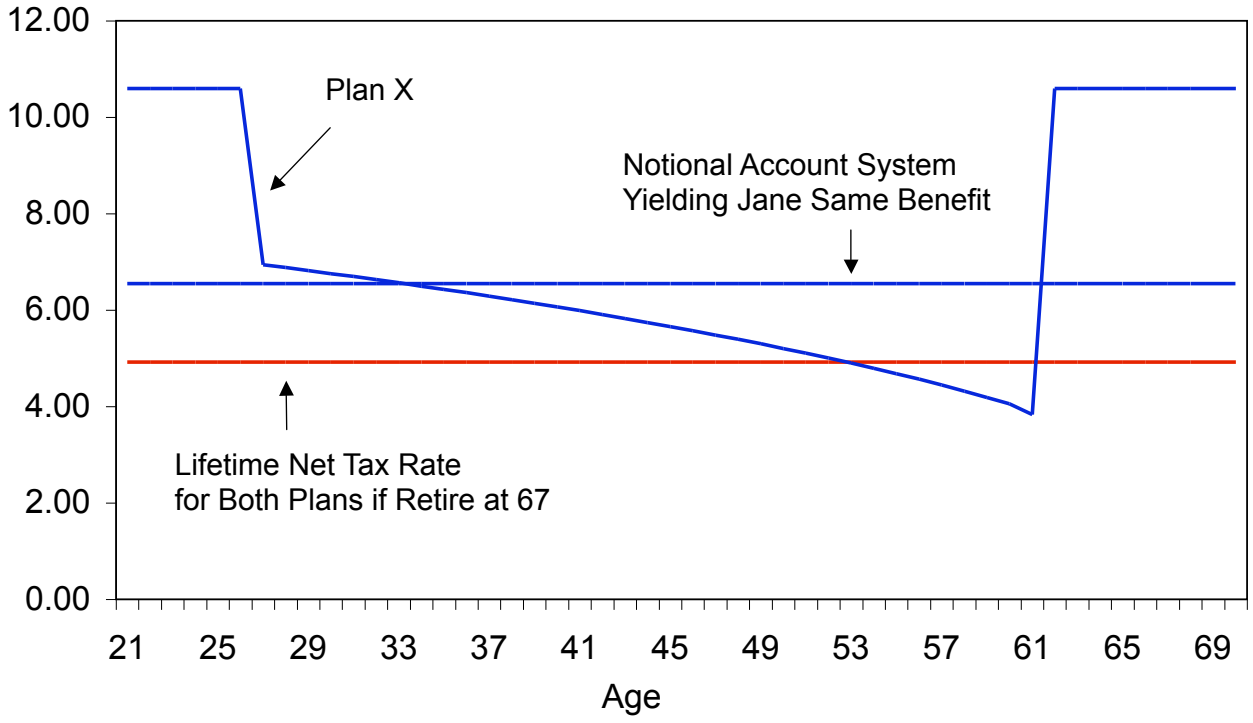
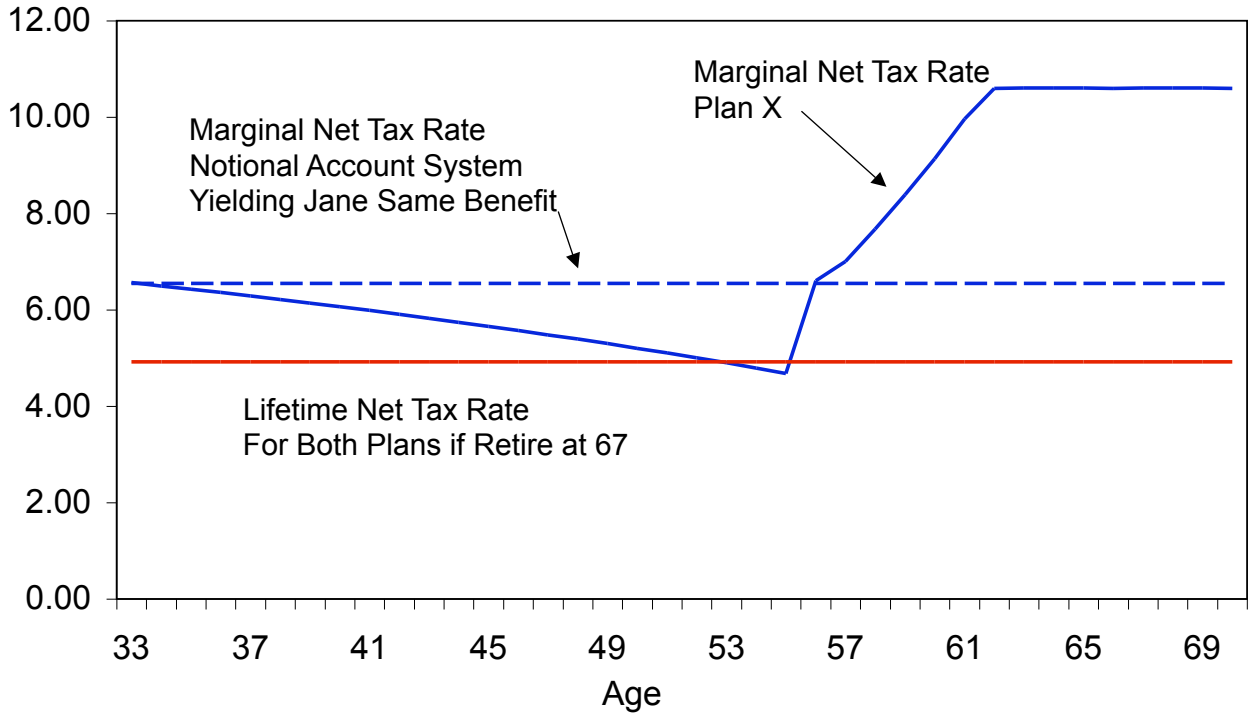


Figure 8: Marginal Net Tax Rate On Last Year of Work, Medium Female Earner, 1990 Birth Cohort



In addition to being more efficient than Plan X, a case can be made that the notional accounts plan is also fairer. Other things the same, a person's lifetime net taxes under Plan X (and current law) are higher the more the person works in early life relative to late life. There would seem to be no reason for Social Security to discriminate among people in this manner.

MAKE LATE-LIFE MARGINAL NET TAX RATES LOWER THAN EARLIER MARGINAL NET TAX RATES

The notion that equalizing tax rates on all economic activities promotes efficiency is premised on the assumption that all economic activities are equally responsive to taxes. Alternatively, it might be that the age of retirement is more responsive to taxes than is work effort while working. It that case, it would be efficient for Social Security's marginal net tax rates to be lower at potential retirement ages than at earlier ages.

One policy that would achieve this objective would supplement the notional accounts discussed in the previous section with a payroll tax rate that varies with age. Specifically, suppose the payroll tax rate is raised prior to the normal retirement age and is lowered after the normal retirement age in such a manner that the present value of lifetime payroll taxes is unchanged for the average person. Skewing the payroll tax rate in this manner would raise marginal net tax rates on earnings prior to the normal retirement age and would lower them on later earnings.

A less effective policy for encouraging later retirement is to include more years of earnings in the AIME computation. With regard to Plan X, for example, one possible modification would be to compute the AIME as the sum of all indexed earnings divided by 35 x 12. That is, the denominator of the AIME computation (the number of months in 35 years) would be the same as it is under Plan X, but the numerator of the computation would include more indexed earnings to the extent that a person has earnings in more than 35 years. Under this reform, people with earnings in more than 35 years would see their AIME increase and their benefits increase in retirement while other people would see no change—implying that the policy would need to be combined with additional measures to make Social Security solvent. (Recall that Plan X is assumed to make Social Security permanently solvent.) Hence, in order to fairly assess this change in the AIME formula, it will be assumed that the reform is combined with a proportionate reduction in the PIA multiplication factors that makes the overall reform neutral with respect to the amount of total lifetime net taxes levied. This plan will be referred to as ALLYEARS.

To understand the implications of ALLYEARS, suppose Jane from the previous illustrations is an average person for whom ALLYEARS does not change lifetime net taxes. Then ALLYEARS would result in a marginal net tax rate on both the last dollar of earnings and on the last year of earnings that averages 6.6 percent over Jane's lifetime—the same average that obtains under the notional accounts system discussed in the previous section. But the shape of the marginal net tax rate profile by age would be different: marginal net tax rates would steadily decline with age under ALLYEARS rather than staying flat as they do under the notional accounts system. The reason marginal net tax rates decline with age under ALLYEARS is the same reason marginal net tax rates on the last dollar earned decline with age under Plan X: both plans are similar to notional accounts systems that credit the account balance with a rate of return less than the risk-free return.

ALLYEARS, however, would be a less effective strategy for encouraging later retirement than the notional accounts system supplemented with a skewing of the payroll tax rate. The ALLYEARS strategy results in declining marginal net tax rates throughout life rather than just in late working life. Moreover, under the reasonable assumption that the responsiveness of work effort to taxes does not vary with age during working years, it would be inefficient for marginal net tax rates to decline during early working life.

MAKE SOCIAL SECURITY'S MARGINAL NET TAX RATES EASIER FOR WORKERS TO UNDERSTAND

If workers do not understand that a large share of their contributions to Social Security will be returned in the form of benefits during retirement, the forced saving component of Social Security discourages work effort in much the same way as does the net tax component (or as does a regular tax—workers pay in but do not realize that they receive something for this in the form of accrued future benefits). This could come about because the marginal net tax rates in Figures 4 and 6 are difficult for workers to estimate. There is a risk, therefore, that workers focus only on the part of the marginal net tax rate that is obvious and immediate—the 10.6 percent payroll tax—and discount or entirely ignore the benefit accruals. In this case, workers would behave as if the marginal net tax rate on the last dollar earned and on the last year of earnings is 10.6 percent in all years. Work effort, therefore, would increase if Social Security's benefit accruals were more transparent to workers.

Basing Social Security benefits on a notional account balance as explained above might help in this regard. Workers could monitor their notional account balance and see that it increases each year in accordance with their payroll tax payments. While Social Security must assess net taxes going forward in order to be solvent and hence the notional account balance cannot benefit the worker dollar for dollar, it would be easy for workers to understand that increasing the account balance does cause their benefits to increase.

Personal retirement accounts would almost certainly make Social Security's marginal net tax rates easier for workers to understand. For example, slightly more than half of Jane's lifetime payroll taxes are forced savings that entirely finance her benefits. It would be possible to devise a system whereby those forced savings are diverted to a personal retirement account over the course of Jane's lifetime, defined benefits are reduced to zero, and marginal net tax rates and progressivity are the same as they are under Plan X.[7] If Jane invested her account entirely in government bonds, and if her benefits were paid as a life annuity, she would be assured the same benefit as in Plan X. Alternatively, if Jane invested some of her account in riskier assets, there is some chance her benefits would decrease relative to the defined benefit, and some chance that they would increase, this outcome would depend on the performance of the assets. In any case, the personal retirement account plan would make it transparent to Jane that the portion of payroll taxes going to her retirement account are forced savings and not pure taxes. In this way, personal retirement accounts would increase the transparency of the system and potentially improve its efficiency in a way that has nothing to do with the returns that might be earned in private accounts.

Indeed, notional accounts would be just as effective as private accounts at making Social Security's benefit accruals transparent to workers. In the equivalent notional account plan, the payroll taxes that would be diverted to personal retirement accounts would continue to go to the trust fund, but a notional account balance would be maintained and defined benefits would be set equal the annuity value of the account at the time that retirement benefits begin to be paid. This plan differs from the earlier notional accounts in that the account balance accurately measures the value of defined benefits that have accrued at all points in time. In the earlier plan, defined benefits accrue less than dollar for dollar with increases in the notional account balance.

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7 Contributions to personal retirement accounts could be designed in many ways. One possibility would be to divert 5.7 percentage points of Jane's payroll taxes to a personal retirement account in every year and to reduce her defined benefits by the annuity value of a hypothetical account balance calculated as if her personal account contributions earned a risk-free rate of return in every year.

If a policy cannot be implemented that enables people to understand that a large share of their contributions to Social Security are forced savings that are returned dollar for dollar in the form of benefits, the implication is that the forced savings component of Social Security discourages work effort in much the same way that the net tax component does. In these circumstances, many people might well regard some or all of their forced savings as pure taxes that penalize work effort. If this is the case, there is a trade-off between the level of benefits and the level of work incentives—higher benefits would require increased forced savings that workers perceive to be pure taxes, which would in turn adversely affect work incentives.

MODIFY EARLY RETIREMENT DEDUCTIONS AND DELAYED RETIREMENT CREDITS

The amount of Social Security benefits a retiree receives depends on the age benefit payments begin, in addition to the lifetime history of earnings. Initial benefits for a person retiring at the "normal retirement age" equal their PIA adjusted for price inflation between the year they turn 62 and the year benefits commence (the normal retirement age in this case). That same person could have collected reduced benefits as early as age 62 or could delay retirement and receive higher monthly benefits starting a later age.

Under current law, benefit reductions for early retirement and benefit credits for delayed retirement are designed to be about actuarially fair in the sense that the expected present value of lifetime benefits for a person with a given PIA and average expected longevity is approximately the same no matter when an individual chooses to begin collecting benefits. For every month the person retires earlier than the normal retirement age, benefits are reduced 5/9ths of 1 percent for the first 36 months early and 5/12ths of 1 percent for months early in excess of 36 months. And, for every month the person chooses to delay collecting benefits relative to the normal retirement age, benefits are increased by 2/3rds of 1 percent up to age 70. There is no reward for delaying benefit commencement after age 70.

As an example, consider the 1943 birth cohort that reaches its normal retirement age of 66 in 2009. Table 1 reports benefits as a portion of the inflation-adjusted PIA for each age of benefit onset between ages 62 and 70. Also shown are the adjustment factors that would be fair in the sense that the expected present value of benefits is the same for all benefit commencement dates, using the mortality probabilities projected in the 2005 Social Security Trustee Report and assuming that individuals earn a safe 2.7 percent real annual return on private investments. The adjustment factors used by Social Security are very close to fair for males and slightly favor late commencement of benefits for females. For males, starting benefits at age 62 increases the expected present value of benefits by 0.3 percent relative to starting benefits at age 66, and starting benefits at age 70 increases the expected present value of benefits by 1.4 percent. For females, the comparable numbers are a 2.1 percent decrease at age 62, and a 4.4 percent increase at age 70.

Table 1
Initial Benefit As Percent of Inflation-Adjusted PIA
(1943 Birth Cohort)

Age Benefits Begin	Current Law	Actuarially Fair Adjustment Factors		
		Males	Females	Unisex
62	77.2	77.0	78.9	78.0
63	81.3	82.0	83.5	82.8
64	87.1	87.4	88.5	88.0
65	93.3	93.4	94.0	93.7
66	100.0	100.0	100.0	100.0
67	108.0	107.3	106.5	106.9
68	116.6	115.3	113.7	114.4
69	126.0	124.2	121.6	122.8
70	136.0	134.2	130.3	132.0

In addition, Social Security includes an "earnings test" that reduces benefits for people who collect benefits before the normal retirement age but continue to work and earn more than a threshold amount and then compensates for any reduction in benefits by increasing benefits later in life. This earnings test is designed to help ensure that older people who are able to continue to work prior to the normal retirement age do not unnecessarily sacrifice late-life benefits for higher early-life benefits. In 2008, benefits are reduced 50 cents for every dollar of earnings above $13,560 and below $36,120, and 33-1/3 cents for every dollar earned above $36,120. (The threshold amounts, $13,560 and $36,120, are increased annually in accordance with the growth of economy-wide average earnings.) Benefits withheld prior to the normal retirement age serve to increase benefits after the normal retirement age by an amount that is gauged to the early retirement adjustment factors in Table 1, and those increases would be just sufficient to compensate entirely for withheld benefits if the Table 1 adjustment factors were fair. In the case of the 1943 birth cohort, post-normal retirement age benefit increases are about right for males and too large for females (compared with the actuarially fair amount).

Some analysts have advocated increasing Social Security's early retirement reductions so as to encourage later retirement, arguing that people may work longer if their early retirement benefits are lower than the actuarially fair amount. Such policies can be expected to be successful, however, only for people with little liquid wealth and without access to borrowing on fair terms. To understand this result, it is important to distinguish the age at which Social Security benefits begin and the age that an individual retires (i.e., substantially cuts back their work effort). Prior to the normal retirement age, early retirement adjustment factors that favor early commencement of benefits also encourage earlier retirement. This is true because the relatively advantageous terms on which benefits are paid early can be enjoyed only to the extent that benefits are not reduced by the earnings test. But the reverse is not necessarily true—early retirement adjustment factors favoring late commencement of benefits do not necessarily encourage later retirement. In this latter case, the actuarial adjustment factors might cause the individual to begin collecting benefits later, but they would not influence the retirement age provided that the individual has sufficient liquid wealth to sustain their living standard between retirement and the time benefits commence, or if he or she has access to borrowing on fair terms. In these circumstances, being retired and delaying the onset of benefits would require greater drawdown of assets (or greater debt)

initially, but the eventual higher benefits would more than compensate (on average) for the drawdown of assets or increased debt. Hence, there would be no reason to work longer.

On the other hand, early retirement adjustment factors favoring late commencement of benefits might cause later retirement on the part of some people with little liquid wealth and without access to borrowing on fair terms. Such people would be unable to finance consumption during retirement unless benefits are being paid, and will be referred to as being "liquidity constrained."

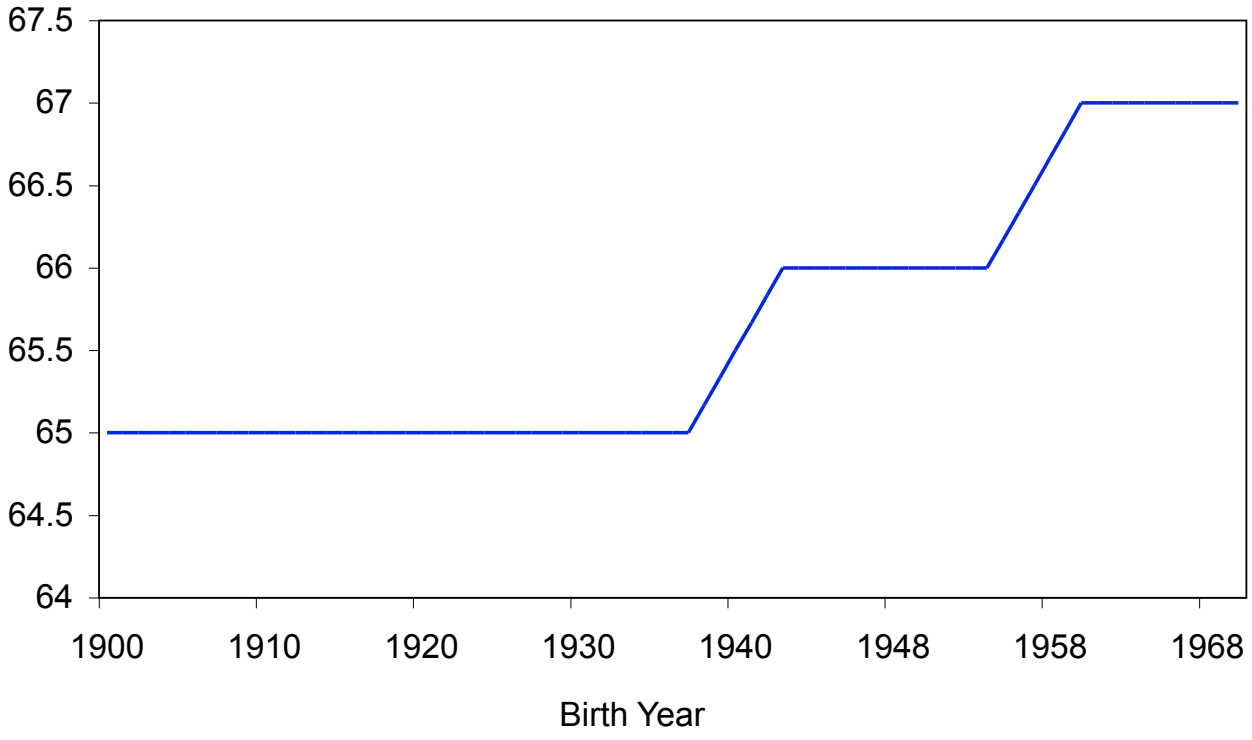
Currently, there is no earnings test after an individual reaches the normal retirement age. After the normal retirement age, therefore, the delayed retirement credits might influence the age at which benefits commence, but they should have no influence on when retirement occurs.

To conclude, reducing early retirement benefits relative to benefits payable at the normal retirement age would probably induce some liquidity constrained individuals to delay their retirement.

INCREASE THE NORMAL RETIREMENT AGE

The normal retirement age was set at age 65 for all workers when Social Security was instituted in 1935, but legislation enacted in 1983 provided for the normal retirement age to increase gradually over time as shown in Figure 9. The normal retirement age increases steadily from 65 for persons born in 1937 to 66 for persons born in 1943, stays at 66 through to the 1954 birth cohort, steadily increases to 67 for persons born between 1955 and 1960, and remains constant at 67 for persons born after 1960.

Figure 9: Normal Retirement Age



The normal retirement age might affect retirement behavior both through financial incentives and through the perception that it is a suggested retirement age. As is explained below, the suggestion effect could be much larger than the financial incentives effect.

With regard to financial incentives, increasing the normal retirement age is equivalent to a proportionate benefit cut provided that the early and late retirement adjustment factors continue to be set so that the expected present value of benefits is independent of the age that benefits begin. This can be seen in Table 2, which shows that increasing the normal retirement age by 1 year to age 67 for the 1943 birth cohort is equivalent to a 7.4 percent across-the-board reduction in benefits regardless of the age at which a worker actually retires so long as the adjustment factors for early and late retirement are revised to be consistent with the current adjustment factors. The revised adjustment factors for the higher retirement age can be obtained from the current-law figures by noting that: (1) benefits at the normal retirement age (now age 67) are 100 percent of the inflation-adjusted PIA, and (2) the ratio of the entries in any two rows of the reform column must equal the ratio of the figures in the same two rows of the current-law column if the objective in both cases is for the expected present value of benefits to be independent of the age that benefits begin. The implication is that the reform is equivalent to a 7.4 percent across-the-board reduction in benefits, and that the actuarially fair monthly early retirement reductions under the reform are two-thirds of 1 percent for the first 12 months, five-ninths of 1 percent for next 36 months, and five-twelfths of one percent for months exceeding 48 months.

Table 2
Initial Benefit As Percent of Inflation-Adjusted PIA
(1943 Birth Cohort)

Age Benefits Begin	Benefit As Percent of Inflation-Adjusted PIA		Benefit Cut Resulting From NRA Increase (Percent)
	Current Law	NRA Increased to 67	
62	77	72	-7.4
63	81	75	-7.4
64	87	81	-7.4
65	93	86	-7.4
66	100	93	-7.4
67	108	100	-7.4
68	117	108	-7.4
69	126	117	-7.4
70	136	126	-7.4

The fact that increasing the normal retirement age while maintaining early and late retirement adjustment factors that are consistent with the current adjustment factors is equivalent to a proportionate reduction in benefits indicates that the normal retirement age is not a special tool in the policymaker's arsenal for encouraging later retirement. In principle, then, people should not be much influenced by the normal retirement age when deciding when to begin collecting benefits. This inference, however, conflicts with the well-known empirical facts. As shown in Table 3, 21 percent of male members of the 1935 birth

cohort began collecting benefits within 1 year of reaching the normal retirement age (age 65 for this cohort), while only 13 percent began collecting benefits during the preceding year and less than 1 percent began collecting benefits during the year that followed.

Some analysts hypothesize that people perceive the normal retirement age as a suggested retirement age and are influenced by that suggestion. Supporting this hypothesis is the fact that most people begin collecting benefits at age 62 when they are first eligible (see Table 3). As is discussed below, rational well-informed individuals with a reasonably prudent nest egg at age 62 should be no more apt to begin collecting benefits at age 62 then at later ages. It may be, therefore, that people tend to begin collecting benefits at 62 because of the suggestion that it is a prudent retirement age; if so, it is reasonable to suppose that the normal retirement age has suggestion effects as well.

An alternative explanation for people's tendency to begin collecting benefits at age 65 is that Medicare eligibility begins at that time. People might be induced to work so as to be covered by employer-provided health insurance until they are eligible for Medicare. (Medicare cannot explain, however, the high incidence of retirement at age 62.) As more data becomes available on new benefit awards for birth cohorts with normal retirement ages significantly higher than age 65 (as a result of the 1983 legislation), it will be possible to measure the extent to which it is Medicare eligibility or the Social Security normal retirement age that explains the past tendency to begin collecting benefits at age 65.

Table 3
Age That Retirement Benefits Begin,
Males Born in 1935 Who Never Collected Disability Benefits*

Age Begin Collecting Benefits	Percent of Sample
< 63	51.8
≥ 63, < 64	7.0
≥ 64, < 65	13.4
≥ 65, < 66	21.2
≥ 66, < 67	0.6
≥ 67	6.0

*Treasury tabulations from the 2002 Continuous Work History Survey.

INCREASE THE EARLY RETIREMENT AGE

Increasing the early retirement age, currently 62, is a particular way to "penalize" early retirement by increasing the early retirement reduction amounts. For example, if the early retirement age is set at 63 for the 1943 birth cohort, that policy is equivalent to increasing the monthly reduction for early retirement to 100 percent for the 37th month prior to the normal retirement age the person begins collecting benefits. Hence, the conclusions regarding increasing the early retirement reductions apply here: Some liquidity constrained individuals would delay their retirement while individuals who are not liquidity constrained would have no economic incentive to change their retirement behavior.

On the other hand, to the extent that some people regard the early retirement date as a suggested retirement age, increasing the early retirement age would have some effect on the retirement behavior

even of people who are not liquidity constrained.

INCREASE MAXIMUM TAXABLE EARNINGS

The Social Security payroll tax applies only to earnings up to a maximum amount or cap, and only these taxed earnings are taken into account when computing benefits. For 2008, maximum taxable earnings are $102,000. In future years, this cap will increase at the same rate as economy-wide average earnings.

The earnings cap has been in place since Social Security's inception, and reflects the view that Social Security should provide a base amount of income in retirement.

Workers pay no tax and accrue no benefits on earnings above the cap, implying that the marginal net tax rate on the last dollar earned is zero. (As is discussed below, the marginal net tax rate on the last year worked remains positive.) Social Security's effect on work effort for such workers is unambiguously positive: they work more to compensate for the reduction in their lifetime earnings because they are not penalized for doing so. Social Security has only a wealth effect on work effort in this case.

The cap on Social Security's taxable wages serves to encourage work effort at the top of the income distribution, but at the expense of reduced work incentives at the lower end of the income distribution. A solvent Social Security system must collect a net tax, the difference between the value of taxes and the value of benefits, exceeding $13.6 trillion from current and future workers. Exempting income above the cap from consideration for taxes (and benefits) necessitates higher net tax rates on earnings below the cap.

Figures 10 and 11 illustrate these findings with reference to a member of the 1990 birth cohort (Susan) whose earnings at each age are three times as large as Jane's. The figures show Susan's marginal net tax rates on the last dollar earned and on the last year of earnings, respectively. Susan earns more than the maximum taxable amount between the ages of 28 and 60, so her marginal net tax rate on the last dollar earned is zero in those years. Nevertheless, the marginal net tax rate on the last year of work shown in Figure 11 is substantial. That marginal net tax rate profile has a shape similar to the profile for Jane in Figure 4. The step-up at age 43 occurs because her AIME first exceeds the second PIA bend point in that year, and the lower PIA multiplication factor causes benefit accruals to decline. (A worker's AIME increases especially rapidly with additional years of work up to 35 years.) Jane, in contrast, has an AIME between the first and second bend points for all retirement ages after age 33.

Figure 10: Marginal Net Tax Rates Under Plan X, High Female Earner, 1990 Birth Cohort

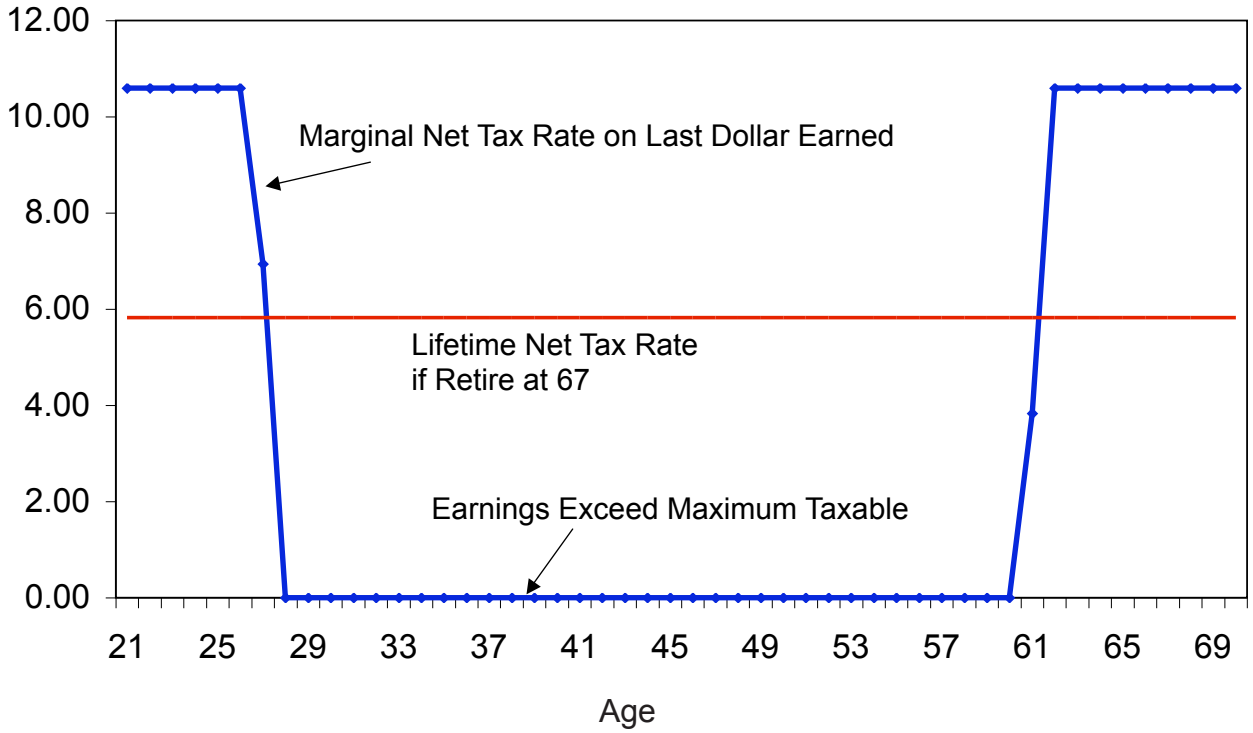
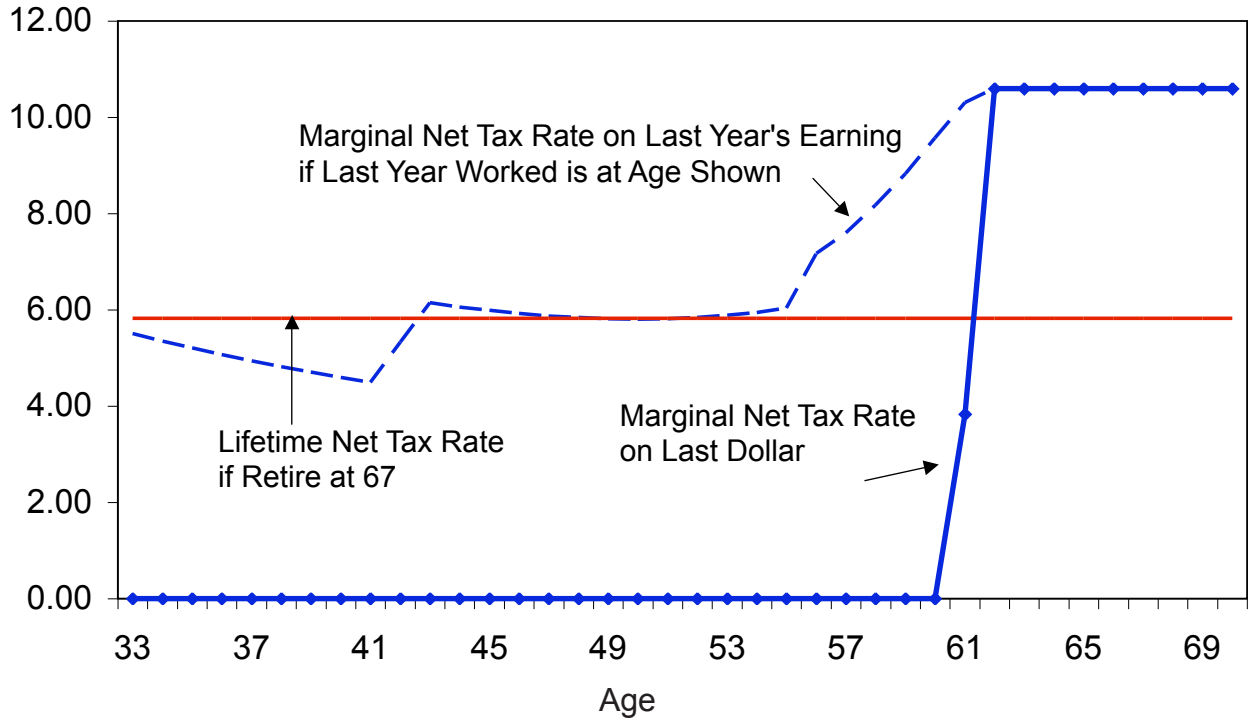


Figure 11: Marginal Net Tax Rates Under Plan X, High Female Earner, 1990 Birth Cohort



Susan's net tax rate of 5.8 percent is not much higher than Jane's lifetime net tax rate of 4.9 percent even though Susan's earnings are three times as large as Jane's. As is explained in Treasury's second and third Social Security briefs, the system is regressive for earnings above maximum taxable earnings. Indeed, if Susan's earnings were six times as large as Jane's in every year rather than three times as large, her lifetime net tax rate would be only 3.2 percent—lower than Jane's.

SPECIAL ISSUES CONCERNING BENEFITS FOR COUPLES

Thus far, Social Security's marginal net tax rates have been discussed assuming that retirement benefits are based on an individual's own earnings. This is not the case for a married individual whose spouse has substantially higher lifetime earnings. Those individuals may receive benefits based on the high-earning spouse's earnings rather than on their own earnings. Specifically, a married individual's PIA is the larger of either half of the high-earner's PIA or the PIA based on the individual's own earnings. And, after the high-earning spouse dies, Social Security provides a survivor's benefit under which the lower-earning spouse receives the benefits of the high-earner rather than his or her own smaller amount. These two features of current law—the spouse's benefit and the survivor's benefit—are advantageous to married couples with unequal earnings but lead to higher marginal net tax rates on the earnings of the low-earner while lowering marginal net tax rates on earnings of the high-earner. These effects on marginal net tax rates in turn have implications for work incentives.

Table 4 illustrates these findings by comparing the net taxes paid by a couple with the net taxes that would be paid if the couple were two singles, assuming Plan X is in place. The couple is comprised of two members of the 1990 birth cohort—Jill and Tom. Jill has earnings at each age that are half as large as Jane's earnings from Figure 1 that are assumed in earlier illustrations, and Tom has earnings at each age twice as large as Jane's (and hence four times as large as Jill's). (Jill is assumed here to be the lower earner because that is most often the case, and gender matters for longevity and thus the value of the survivor's benefit.) It is assumed that Tom retires at the normal retirement age of 67 and that Jill retires at 62. These assumptions are consistent with the strong incentive Jill has to begin collecting benefits as soon as possible to take advantage of the fact that retiring early reduces her benefits only for as long as Tom is alive.

Tom's and Jill's PIAs based on their individual earnings are $1,943 and $855, respectively, provided they work at least through to age 61. Jane retires and begins collecting benefits at age 62 on the basis of her own earnings—that benefit is $855 reduced by 30 percent to $599 because she retires early. Jill's later benefits depend on when Tom dies. If Tom reaches age 67, he retires and begins collecting his full PIA of $1,943 and Jill begins collecting the spouse's benefit of $971 (half of Tom's PIA). Assuming that Tom dies after retiring but before his wife, Jill receives the survivor's benefit of $1,943—Tom's full retirement benefit rather than her own.

Table 4 allocates the couple's Social Security benefits to each spouse in accordance with whose earnings generate the benefits.[8] Of the expected total lifetime benefits accrued from Tom's earnings ($150,298), about 45 percent are Jill's benefits as a spouse and a widow. Taking into account both the spouse's and widow's benefits, Tom's lifetime net tax rate in this example is 3.9 percent, a full 3.1 percentage points lower than it would be if Tom were single. Jill's lifetime net tax rate is 8.7 percent, which is 5.4 percentage points higher than if she were a single person. For Tom and Jill combined, being married reduces their lifetime net tax rate from 6.3 percent to 4.8 percent. The spouse's and widow's benefits are advantageous to Jill despite the fact that they raise her marginal net tax rates; there is no scenario under which Jill receives lower total Social Security benefits because she qualifies for

Table 4
Effect of Spouses and Widow's (Widower's) Benefits on a Couple's Lifetime Net Taxes*

Item	As Couple			If Two Singles		
	Tom	Jill	Total	Tom	Jill	Total
Primary Insurance Amount at 62	1,943	855	--	1,943	855	--
Primary Insurance Amount at 66	1,943	--	--	1,943	--	--
Retirement Benefit (non-Widow)	1,943	631	--	1,943	599	--
Present Value Taxes	219,195	46,117	265,312	237,433	57,073	294,506
Present Value Benefits	141,430	1,303	142,733	80,284	39,342	119,626
Own	80,012	1,303	81,315	80,284	39,342	119,626
Spouse's Benefit	48,839	--	48,839	--	--	--
Widow's Benefit	12,579	--	12,579	--	--	--
Lifetime Net Taxes	77,764	44,815	122,579	157,149	17,731	174,880
Present Value Earnings	2,067,874	435,069	2,502,943	2,239,935	538,420	2,778,355
Lifetime Net Tax Rate	3.8	10.3	4.9	7.0	3.3	6.3

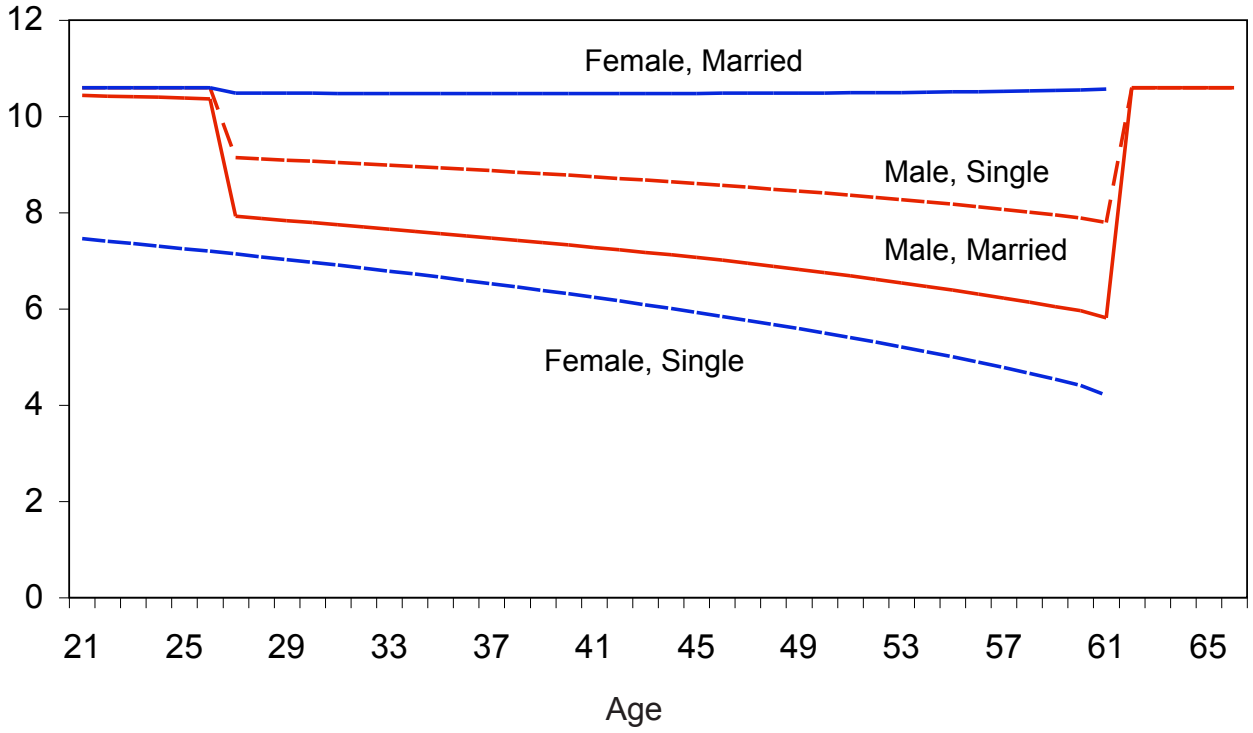
*Assumes retirement and benefit commencement occurs at age 67 for Tom and 62 for Jill. Note that Tom's primary insurance amount is not increased as a result of work between age 62 and 66.

spouse's and widow's benefits.

The advantage Jill receives from spouse's and widow's benefits is conveyed in a manner that reduces her incentive to work and increases Tom's incentive to work. As shown in Figure 12, the marginal net tax rate on the last dollar Jill earns is quite close to the full payroll tax rate of 10.6 percent in every year she works because her contributions to the system have little effect on her future benefits (her retirement benefits are mainly based on her spouse's earnings). Averaged over her working life, the marginal net tax rate on the last dollar earned by Jill is 9.6 percent, compared with a 6.1 percent average if she collects benefits as a single person. In contrast, the average marginal net tax rate on the last dollar Tom earns is reduced by marriage, from 9.1 percent as a single person to 7.7 percent as a married person. This is because his earnings add to future benefits for both himself and Jill, which serves to lower the net tax rate.

8 The calculations in Table 4 allow for other contingencies not described in the text. If Tom dies prior to age 31, Jill collects benefits based on her own earnings all her life because Tom does not complete the ten years of work necessary to qualify for benefits. (Tom's PIA after ten years of work is high enough that the widow's benefit at age 67 is higher than Jill's benefit based on her own earnings.) If Tom dies prior to age 67 but after age 30, it is assumed that Jill collects her own benefit between age 62 and 66, and then collects the full widow's benefit starting at age 67. (If Jill collects the widow's benefit before age 67, it is reduced in accordance with the early retirement adjustment factors.)

Figure 12: Marginal Net Tax Rate on Last Dollar Earned Under Plan X, Effect of Mariage, 1990 Birth Cohort



Marriage increases Jill's marginal net tax rates more than it reduces Tom's. The reason marriage increases the couple's marginal net tax rates on balance, despite lowering its lifetime net tax rate, is that a $1 increase in AIME increases Tom's PIA only about half as much as it does Jill's (due to the progressive benefit formula), and marriage increases the share of total benefits that are based on Tom's earnings.

Social Security's treatment of marriage probably reduces Tom's and Jill's combined work effort. A large body of empirical evidence shows that among couples, the work effort of the lower earner (the so-called "secondary earner") is more sensitive to taxes than the work effort of the relatively high earner. Hence, even if marriage were to lower Tom's marginal net tax rates by the same amount as it increases Jill's, the net effect of the spouses' and widows' benefit would be to lower combined work effort.

The evidence that the work effort of secondary earners is more responsive to taxes than the work effort of primary earners is especially strong with respect to the choice of whether to work at all. The incentive to work at all depends on the lifetime net tax rate, not the marginal net tax rates shown in Figure 12 that are relevant to the choice of how many hours work once one chooses to be in the work force. As is shown in Table 4, the spouse and survivor benefits greatly discourage Jill's incentive to participate in the labor force at all—they raise Jill's lifetime net tax rate to 8.7 percent from 3.3 percent.

One possibility for increasing work incentives for secondary earners is to replace the spouse and survivor benefits with a system that splits a couple's joint earnings evenly for purposes of calculating benefits.

This would preserve the low-earner's share of benefit accruals in the event of divorce and ensure that the last dollar earned by each party counts toward benefits in all of the couple's highest 35 years of earnings. The low-earner's retirement benefit would equal the high-earner's benefit if they both began collecting benefits at the same age, and the death of either Tom or Jill would halve total household Social Security benefits. The reduction in household benefits at the time a spouse dies could be made smaller if the income averaging plan were supplemented to require that couples' benefits be paid as a joint and a survivor's annuity, which would pay the survivor more than half of the amount paid when both the husband and wife are alive.

To illustrate the income averaging plan, suppose that both Tom and Jill survive to the normal retirement age (age 67) and begin collecting benefits at that time. Table 5 shows that the real benefit under Plan X would be $1,943 for Tom and $971 (half of $1,943) for Jill while both are alive, and would be $1,943 while only one is alive. Under the income-averaging plan, Tom's and Jill's benefits would be equal: $1,568 each while both are alive ($3,163 total), and $1,568 for a survivor. If, in addition to income averaging, benefits to Tom and Jill were paid as a joint and survivor annuity paying 80 percent as much while only one is alive as while both are alive, the total household annuity would be $2,630 while both are alive and $2,104 while only one is alive. Compared to Plan X, income averaging with a joint and survivor annuity pays less while both are alive and more while only one is alive.

Table 5
Real Monthly Benefit Levels: Income Averaging Compared to Spouse's and Widows Benefit*

Household Composition	Spouse's & Widow's Benefit			Income Averaging			Income Averaging & 80% Joint Survivor Annuity		
	Tom	Jill	Total	Tom	Jill	Total	Tom	Jill	Total
Both Alive	1,943	971	2,914	1,568	1,568	3,136	--	--	2,630
One Alive	--	--	1,943	--	--	1,568	--	--	2,104

*Assumes both Tom and Jill work to age 66 and begin collecting benefits at age 67.

SPECIAL ISSUES CONCERNING THE TRANSITION TO A REFORMED SYSTEM

Social Security reform that makes the system solvent could include changes to the structure of benefits that reduce marginal net tax rates for people in the middle of their working lives at the time reform is initiated. For example, consider a particular 45-year-old worker for whom a 2 percentage point increase in the payroll tax rate increases net lifetime taxes by the same amount as would an 8 percent reduction in current-law scheduled benefits. (That is, putting into place either the benefit reduction or the revenue increase would have the same effect on the person's lifetime net taxes.) For this worker, compare the following two reform plans:

Reform 1: Increase the payroll tax rate by 2 percentage points and leave benefits unchanged from current-law scheduled benefits.

Reform 2: Reduce current-law scheduled benefits by 8 percent, raise the payroll tax rate 2 percentage points, and supplement the benefit cut with a second tier of benefits set equal to the annuity value of the increased payroll taxes. (Current-law scheduled benefits after the 8 percent reduction will be referred to as "Tier 1" benefits, and the benefit supplement will be referred to as "Tier 2" benefits.)

These two reforms are designed so that the worker's lifetime net taxes and benefits are the same under both plans. Net lifetime taxes paid by the worker are the same because the tax increase in Reform 1 has the same effect on lifetime net taxes as the reduction in current-law benefits under Reform 2, and the combination of the payroll tax increase and Tier 2 benefits under Reform 2 have no effect on net taxes. Benefits are the same because under Reform 2, Tier 2 benefits have the same present value as 8 percent of current-law scheduled benefits. (This is implied by the facts that the Reform 2 incremental tax has the same present value as Tier 2 benefits and the incremental tax has the same present value as 8 percent of current-law scheduled benefits.)

Despite the fact that both reforms impose the same lifetime net tax on the worker, Reform 2 imposes smaller marginal net tax rates on future work and is therefore more efficient. The reason is that the reduction from current-law benefits to Tier 1 benefits reduces benefit accruals (increases net taxes) deriving from both past and future work, but reducing benefits deriving from past work can have no consequence for work effort. Reform 1, on the other hand, leaves benefit accruals on past work effort unchanged and thereby focuses all of the increase in Social Security's net taxes on future work effort.

This efficiency advantage of Reform 2 over Reform 1 applies only to workers in mid working life at the time of the reform. For generations entering the work force after the reform is initiated -- whose entire working lives are ahead of them – all increases in net taxes apply to future work effort.

Reform 2 is essentially equivalent to an 8 percent reduction in benefits combined with mandatory personal retirement accounts financed with an increased payroll tax rate. A general feature of reforms with personal retirement accounts is that they restructure benefits in a manner that reduces past benefit accruals by more than they reduce future benefit accruals, and this feature enhances work incentives for mid-career workers at the time of the reform. But as Reform 2 makes clear, these efficiencies can be achieved just as effectively with notional accounts as they can be with actual accounts.[9] As is explained in Treasury's fourth Social Security brief, the main advantage of personal retirement accounts is that they ensure that attempted pre-funding is truly set aside to help pay future Social Security benefits.

Some might argue that it is unfair for Social Security reform to reduce past benefit accruals. However, as the example of Reform 1 and Reform 2 shows, reducing past benefit accruals does not harm a worker to the extent that higher future accruals (or smaller future payroll tax rates) make up the difference. This is not to say that Reforms 1 and 2 are equal for all 45-year-old workers. Other things the same, workers intending to retire relatively early, and hence to accrue relatively few additional benefits in the future, would favor Reform 1 over Reform 2. But given that current-law scheduled benefits and taxes cannot be sustained indefinitely, it would be unreasonable to expect no changes to the current benefit structure.

The analysis of this section indicates that if policymakers must choose between policies that make Social Security solvent though tax increases alone, or through benefit cuts alone, then the benefit reduction policies would have an inherent advantage in terms of work incentives and thus economic efficiency. This is true because a benefit reduction policy can reduce both past and future benefit accruals, while a

9 It is important to note that there are many possible reforms that would increase future benefit accruals at the expense of past accruals—not just personal retirement accounts or notional accounts. For example, computing the AIME as a simple average of real taxable earnings rather than as an average of indexed covered earnings while modifying the PIA formula so that the same benefits are paid on average would reduce the importance of early-life earnings and increase the importance of late-life earnings in the benefit calculation. (Treasury's fifth issue brief discusses this possibility.) This reform, therefore, would increase future benefit accruals at the expense of past benefit accruals for people in mid-career at the time of the reform.

tax increase policy leaves past benefit accruals unchanged. However, as demonstrated with reference to Reform 1 and Reform 2 above, there are other options. The same efficiency gains can be achieved by reforms that combine tax and revenue changes; increased efficiency does not require that overall benefits be lower than current-law scheduled benefits.

CONCLUSION

Social Security must assess a net tax (lower benefits and/or higher revenues) exceeding $13.6 trillion on current and future workers to finance net benefits that the system has paid or has promised to earlier birth cohorts. This issue brief applies long-standing principles of good tax policy to the question of how this net tax should be levied. A key insight is that it is essential to consider the implications of the net tax for both fairness and work incentives when deciding how it should be apportioned and structured.

Nearly all Social Security reform proposals impose a disproportionate share of the burden of Social Security reform on workers with relatively high lifetime earnings; that is, they increase the progressivity of the system. In general, the more progressive is the system, the greater is the adverse impact on work incentives. While the right balance between progressivity and work incentives is subjective, making an informed choice requires that the tradeoff be understood.

There are many reforms that would enhance work incentives without necessarily affecting the distribution of net taxes across income groups. Such reforms are of two types: those that help people make better informed choices, and those that better focus Social Security's net taxes on work that is least responsive to tax while not sacrificing fairness. Reforms of the first type include increasing the transparency of the forced savings so that workers better understand the degree to which earnings increase retirement benefits, and changing the normal and/or early retirement ages to improve peoples' perceptions of what is prudent. Reforms of the second type include making Social Security's net tax rates on earnings in potential retirement years lower than in earlier years, and changing the design of couples' benefits so that spouses with substantially unequal earnings face more similar tax rates. Reforms of both types would improve work incentives, lead to greater work effort and higher incomes, and would thus lessen the sacrifice necessary to make Social Security solvent.