SOCIAL SECURITY

## MEMORANDUM

Date: January 7, 2003
Refer To: TCA
To: Representative E. Clay Shaw, Jr., Chairman
Subcommittee on Social Security
From: Stephen C. Goss, Chief Actuary
Alice H. Wade, Deputy Chief Actuary
Chris Chaplain, Actuary
Subject: OASDI Financial Effects of the Social Security Guarantee Plus Act of 2003 (H.R. 75) -INFORMATION

This memorandum provides long-range estimates of the financial effects on the Social Security (OASDI) program assuming enactment of the Social Security Guarantee Plus Act of 2003
(H.R. 75), which was introduced today. These estimates were requested by Kim Hildred and Sophia Wright of your staff and are based on the intermediate assumptions of the 2002 Trustees Report, as well as additional assumptions described below. H.R. 75 states that several provisions would become effective starting one or more calendar years following the year of enactment. For the estimates in this memorandum, we have assumed enactment in 2003.

## Proposal Summary

The Social Security Guarantee Plus (SSGP) Plan would allow workers who have attained age 18 to voluntarily participate in the Social Security Guarantee (SSG) Accounts beginning in 2003. The SSG Account of each worker who elects to participate would be credited with an annual contribution from the General Fund of the Treasury. The annual contribution would equal 4 percent of each worker's OASDI taxable earnings for the year, up to $\$ 1,000$ (value for 2003 and wage-indexed thereafter). Even though participation would be voluntary, we assume universal participation for these estimates. Universal participation is expected because the plan would guarantee a larger total benefit for SSG-account participants than for non-participants. In addition to regular monthly benefits, participants would receive a lump sum payment at initial benefit entitlement equal to 5 percent of their account balance at that time. Participants who work after initial benefit entitlement would also receive additional lump sum payments equal to 5 percent of the resulting contributions (including deemed interest) to their SSG Accounts.

Under the plan, assuming universal participation, regular monthly benefits are expected to be at least as large as the current-law scheduled Social Security benefit amount for all beneficiaries. SSG Account balances (less the 5-percent lump sum payment) would, commencing at the worker's retirement (or disability) benefit entitlement, be gradually withdrawn and transferred to
the OASDI Trust Funds. The beneficiary would receive monthly benefits from the OASDI Trust Funds. Monthly benefits under the proposal would be scheduled as the higher of:

- The beneficiary 's monthly benefit amount scheduled under current law, and
- The computed SSG monthly withdrawal amount, based on a CPI-indexed, unisex lifeannuity calculation.
The life-annuity calculation would be made on a joint and two-thirds survivor basis for married workers. Further details on SSG Account distributions are provided in the section below, entitled The Proposal: SSG Accounts.

Under the proposal, if at some point in the future the Trustees Report intermediate projection of the financial status of the OASDI program indicates a current and sustained level of OASDI income in excess of what is needed to meet net program cost (and maintain a stable trust fund ratio of at least 100 percent), then the Managing Trustee would be authorized to make recommendations to the Congress indicating the extent to which the Trust Funds are expected to be able to finance the contributions to the SSG Accounts, in lieu of financing from the General Fund of the Treasury. The Congress would decide whether or not to act on such recommendations at that time.

The proposal would also include a number of specific changes in OASDI benefits. These changes include:

- The gradual elimination (between 2004 and 2009) of the Social Security retirement earnings test for beneficiaries who have attained age 62 but not their NRA;
- Increasing the benefits of widow and widowers, whose benefits are generally lower than average, to as much as 75 percent of the benefit that the couple would have been receiving if both were still alive;
- Extending eligibility to some disabled widows and widowers;
- Providing child care credits for up to 5 years; and
- Reducing government pension offset from two-thirds to one-third of the government pension.
Details of each of these provisions are provided in the section below, entitled The Proposal: Additional Changes to OASDI Benefits.

Enactment of this proposal, as specified, would eliminate the estimated long-range OASDI actuarial deficit ( 1.87 percent of taxable payroll under present law) based on "intermediate" assumptions described below, and would result in sustainable solvency for the foreseeable future. Under these assumptions, revenue transferred from the SSG Accounts to the Trust Funds would be expected to be sufficient to allow a reduction in the combined OASDI payroll tax rate of 0.4 percentage point in 2040 (from 12.4 to 12.0 percent). After 2040, further reductions would be expected, reaching a level equal to the cost of SSG Account contributions by 2060. However, the financial status of the OASDI program would be very sensitive to the actual yields realized on SSG Accounts, particularly yields on equities (see sensitivity analysis below).

## The Proposal: SSG Accounts

## Contributions and Investment Up To Benefit Entitlement

The proposal would provide Social Security covered workers with refundable tax credits equal to 4 percent of their OASDI taxable earnings (up to a specified dollar limit) starting with earnings for calendar year 2003. The dollar limit for 2003 would be $\$ 1,000$. For subsequent years, the dollar limit would be increased by the growth in the average wage indexing series. Credits would be increased with interest from July 1 of the year of taxable earnings until deposited in the SSG Account, at the market yield provided for securities newly issued to the OASI and DI Trust Funds. Credits would be transferred from the General Fund of the Treasury to SSG Accounts as soon as practicable in the following calendar year (expected to be generally by October 15 for wages and salaries and by December 1 for self-employment earnings).

Accounts would be established as soon as practicable. For the purpose of these estimates, it is assumed that accounts would be established by the end of 2003. Delay to 2004 would not materially affect the results. Account balances would be collectively invested in qualified mutual funds, managed by certified account managers under contract with and regulation by the Social Security Guarantee (SSG) Board. The Board would initially consist of the six individuals appointed by the Board of Trustees of the OASDI Trust Funds to 3, 6, or 9-year terms.

Individuals would be required to hold all SSG Account assets in a single fund and could change funds at most once per year. Annual SSG credits would be pooled and transmitted to the mutual fund managers under regulations prescribed by the Treasury in consultation with the SSG Board. Account holders would receive annual notices of assets, investment performance, and administrative costs in their Social Security statements.

The proposal specifies three investment options. The default option would require that account balances be invested in qualified mutual funds maintained with a portfolio allocation of 60 percent stock index funds and 40 percent high-grade corporate bond index funds. The other two options are similar, differing only in the portfolio allocation percentages ( 65 percent stock / 35 percent bonds and 70 percent stock / 30 percent bonds). Switching among options would be allowed once per year. The charge for annual administrative expenses would be limited to 25 basis points after the first 5 years of operation. Allowance for administrative expense approved by the Board in excess of 25 basis points would be made for the first 5 years (2003-7) and would be payable from the General Fund of the Treasury. Withdrawals prior to reaching retirement (or disability) would not be permitted.

We assume that many investors will pick the investment option with the highest percentage allocation in stocks i.e., 70 percent stock and 30 percent corporate bonds, in order to maximize their expected rate of return (based on historical experience). Many individuals would be expected to prefer this option because the proposal provides a 5-percent SSG account lump-sum payment at benefit entitlement plus a guarantee that regular monthly benefits will not be reduced as a result of SSG-account participation, regardless of the investment outcome. However, many other individuals would remain with the default portfolio allocation of 60 percent stock and 40 percent corporate bonds. Therefore, we assume that the aggregate average portfolio for SSG
accounts will be halfway between these two allocations-i.e., an average portfolio of 65 percent stock and 35 percent corporate bonds.

Upon divorce before benefit entitlement from a marriage that lasted 1 year or longer, the amounts attributable to contributions during the marriage (including earnings on those contributions) in each spouse's SSG Account would be reallocated evenly between the SSG Accounts of the spouses.

## SSG Account Distributions

Under the plan, workers would receive 5 percent of the SSG Account balance as a lump sum distribution upon benefit entitlement. The remainder of the SSG Account balance for workers who become entitled to OASDI retirement or disability benefits would be gradually withdrawn and transferred to the OASDI Trust Funds. Upon entitlement for Social Security retirement or disability benefits, the Social Security Administration would compute the monthly SSG withdrawal amount, the monthly payment that could be provided from a life annuity purchased with the holdings in the SSG Account remaining after the lump sum payment. The annuity calculation would reflect the anticipated yield on the SSG account (under the specified postentitlement investment of 65 percent stocks and 35 percent corporate bonds, less 25 basis points for administration) and indexing of annuity payments for price inflation (using the present-law Social Security COLA). The annuity calculation would also roughly reflect the expected payment of aged spouse and aged survivor benefits if the worker has a current spouse, by using a joint annuity with two-thirds of the base payment payable when either (1) only the worker is eligible, or (2) either spouse is a survivor.

The Social Security Administration would schedule payments from the Trust Funds for life equal to the larger of (a) the computed monthly annuity amount and (b) the current-law scheduled OASDI benefit. Each month after benefit entitlement the computed annuity amount based on entitlement of the worker and any aged spouse(s) would be transferred from the SSG Account to the OASDI Trust Funds.

Because the computed annuity amount is based on a life annuity calculation, the SSG Account would be expected to be depleted at the point where the beneficiary(ies) reach their life expectancy, as estimated at the time of benefit entitlement. Thus, for about half of the SSG Accounts, benefits will be payable after exhaustion of the SSG Account entirely at the expense of the OASDI Trust Funds. For the other half, death before life expectancy will leave remaining SSG balances that are transferred to the Trust Funds (to assist in the payment of benefits to those who live beyond life expectancy).

For married workers who die after becoming entitled to OASDI retirement or disability benefits, SSG Account withdrawals will continue to be paid to the OASI Trust Fund in the amount of the survivor portion of the annuity calculation. When an unmarried person dies after benefit entitlement, the remaining balance in the SSG Account is transferred to the OASDI Trust Funds.

For workers who die before becoming entitled to OASDI retirement or disability benefits, the SSG Account balance is transferred to the estate of the deceased worker. For individuals who
have reached their normal retirement age and are not eligible for a retired-worker benefit under current law, their SSG Account balance would be transferred to them in a lump sum.

## Taxation of SSG Accounts and Distributions

All yields on account balances would accumulate tax-free. Annuitized distributions would be transferred to the Trust Funds to finance the payment of OASDI benefits that would be taxable as under current law. In cases where the annuity proceeds exceed the Social Security benefit amounts, the excess annuity proceeds are also taxable in the same manner as Social Security benefits.

Lump sum distributions at benefit entitlement would be taxed as OASDI benefits. However, the percentage of the lump sum to be included as taxable would be equal to the percentage of OASDI monthly benefits for the year that are included in taxable income without including the lump sum payment in the calculation.

Distributions of account balances to the estates of workers who die before benefit entitlement would not be taxable as benefits, nor would they be subject to estate tax.

## The Proposal: Additional Changes to OASDI Benefits

## 1) Increased Benefit for Widow(er)s

Surviving spouses who are eligible for aged or disabled widow(er) benefit would receive 75 percent of the benefit that the couple would have been receiving if both were still alive, if advantageous. This alternative benefit, however, would be limited by a benefit cap. The initial benefit cap for a surviving spouse would equal:

- The average PIA for all retired worker beneficiaries in the December of the year prior to entitlement to the surviving spouse benefit times
- The actuarial reduction factor that would apply as a retired worker ${ }^{1}$ (based on the survivor's age at entitlement to a surviving spouse benefit).
The benefit cap would subsequently be increased by the same cost-of-living increases that apply to benefits (COLA). For surviving spouses with entitlement prior to the effective date of this provision, we assume that the benefit cap would be determined as of the December before the effective date.

The couple benefit reflects any actuarial reductions (or DRC) that apply to either spouse. If the deceased spouse had not become entitled to a benefit, then the deceased spouse would be deemed to have become entitled at the date of death, or the attainment of age 62, whichever would occur later. The deceased spouse's benefit would subsequently be increased by the COLA from the deemed date of entitlement until the month of the survivor's entitlement to surviving spouse benefits.

[^0]This provision is effective for all benefit entitlement for months beginning with December of the calendar year of enactment. Implementation of this provision alone would increase the size of the long-range OASDI actuarial deficit by an amount estimated at 0.08 percent of taxable payroll.

## 2) Extend Benefits to Disabled Surviving Spouses Who are Under Age 50

For benefit entitlement for December of the calendar year of enactment and later, allow disabled widows of any age to be eligible for disabled surviving spouse benefits. Remarriage before age 50 would terminate eligibility for the disabled surviving spouse benefit. Implementation of this provision alone would increase the size of the OASDI actuarial deficit by a negligible amount (i.e., less than 0.005 percent of taxable payroll).

## 3) Eliminate the 7-Year Limitation for Disabled Surviving Spouses

For benefit entitlement for December of the calendar year of enactment and later, eliminate the requirement for disabled widow(er) benefits that disability must occur no later than 7 years after the worker's death, or after surviving spouse with child-in-care benefits were payable.
Implementation of this provision alone would increase the size of the OASDI actuarial deficit by a negligible amount (i.e., less than 0.005 percent of taxable payroll).

## 4) Waive the Two-Year Duration of Divorce Requirement

For benefit entitlement for December of the calendar year of enactment and later, waive the twoyear duration of divorce requirement for divorced spouse benefit eligibility, in cases where the worker remarries someone other than the claimant before the two-year period has elapsed. Implementation of this provision alone would increase the size of the OASDI actuarial deficit by a negligible amount (i.e., less than 0.005 percent of taxable payroll).

## 5) Provide Child-Care Credits

For benefit entitlement for months beginning with December of the calendar year of enactment, provide child-care credits for up to 5 years during which the worker was living with and providing care for his/her own child (or spouse's child) under the age of 7. The child-care credit would raise reported earnings for a qualifying year up to 25 percent of the AIME that would have been determined if the worker had become entitled for disabled worker benefits in January of the qualifying year (disability insured status is not required for the credit). The amount of the credit for any qualifying year would not be less than the credit for any prior qualifying year. We assume that child-care credits would not be used to establish insured status not already earned by the worker through actual earnings in covered employment. Implementation of this provision alone would increase the size of the OASDI actuarial deficit by an amount estimated at 0.02 percent of taxable payroll.

## 6) Reduce Government Pension Offset

The present-law GPO provision reduces OASDI auxiliary benefits for spouses and surviving spouses by two-thirds of any non-covered government pension that they receive. For benefit entitlement for months beginning with December of the calendar year of enactment, this provision would change this reduction to one-third of any non-covered government pension. Implementation of this provision alone would increase the size of the OASDI actuarial deficit by an amount estimated at 0.02 percent of taxable payroll.

## 7) Earnings Test Elimination at Ages 62 to NRA

The Social Security earnings test annual exempt amounts for ages 62 to NRA would be raised according to a specified schedule through 2008, and the test would be eliminated starting 2009 for all beneficiaries at ages 62 to NRA. For beneficiaries under age 62, the current test would remain unchanged. The exempt amounts would be specified for the test applicable at ages 62 up to the year of attainment of NRA as $\$ 15,000, \$ 20,000, \$ 25,000, \$ 30,000$, and $\$ 35,000$, for years 2004 through 2008, respectively. This provision alone would increase the size of the present law OASDI actuarial deficit by an estimated 0.01 percent of taxable payroll.

## Assumptions

For years after 2002, all workers who have attained age 18 and have OASDI taxable earnings are assumed to participate in SSG accounts. Under the plan, any worker who did not participate would receive Social Security benefits scheduled under current law. By participating, workers would be guaranteed to receive more than if they did not participate on the basis of one or more of the following:

- A lump sum payment of 5 percent of the account balance is payable upon the worker's benefit entitlement,
- The entire account balance goes to the estate at death before benefit entitlement, and
- In some cases the annuity calculation will produce monthly payments that are greater than the OASDI benefit that would otherwise be payable.


## SSG Account Accumulation

SSG Account portfolios are required to be invested in qualified SSG funds. Prior to retirement (or disability) benefit entitlement workers would have three choices for the portfolio allocation: 60,65 , or 70 percent in equity index funds with the balance invested in high-grade corporate bond index funds ( 40,35 , or 30 percent, respectively). After benefit entitlement all SSG Account assets would be invested in the fund with 65 percent equity and 35 percent corporate bonds. The total annual administrative expense charge would be 25 basis points.

The long-term ultimate average real yield on stock (equity) investments made in the future is assumed to be 6.5 percent, somewhat less than the 7 -percent real yield that was assumed for the 1994-96 Advisory Council. This reduction in expected average yield is consistent with both (1) a growing consensus among economists that the market may value equities at somewhat higher average price-to-earnings ratios in the future based on broader access and a reduction in
the perceived level of risk, and (2) the Trustees' increase in the assumed real yield on Treasury bonds from the level assumed in 1995.

The ultimate real yield on long-term high-grade corporate bonds is assumed to average 3.5 percent, or 0.5 percentage point higher than the 3.0 percent real yield for U.S. Government longterm securities, as assumed for the 2002 Trustees Report. This spread between corporate and U.S. Government bond yields is consistent with the spread experienced over the past 40 or 70 years, on average. It should be noted, however, the spread has been much smaller over the past 20 years. The expected ultimate real portfolio yield for the base projection would be based on a 65 percent stocks/ 35 percent bonds allocation (Tables 1 and 2 ) and equal 5.20 percent, net of administrative expense,

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(0.65 * 6.5 \%+0.35 * 3.5 \%-0.25 \%=5.20)
$$

Due to the large degree of uncertainty associated with future returns on stock, sensitivity analysis provided below illustrates the effect of varying the yield on the SSG Account by plus and minus one percentage point. An illustration assuming that SSG Accounts achieve a yield no better than expected for government bonds is also included.

A range of administrative expense factors was assumed for individual accounts proposed by the 1994-96 Advisory Council on Social Security. For the Individual Account (IA) plan, individual contributions were assumed to be collected and recorded by central institution, invested in large blocks with financial institutions, and invested in a limited number of indexed funds. Based on experience of the Teachers Insurance and Annuity Association (TIAA) and the Federal Employee Thrift Savings Plan (TSP) it was assumed that the IA plan could be administered with an expense of 10.5 basis points per year. For the Personal Security Accounts (PSAs), individual accounts were assumed to be invested on an individual basis, resulting in an annual administrative expense of 100 basis points. We believe that the description of SSG individual accounts is closer to the individual accounts for the IA plan than to the individual accounts for the PSA plan. Determination of SGA Account contributions would be made based on records currently maintained by the Social Security Administration. SGA Account records and actual investments (on a pooled basis) would be made by a central authority. Thus, the specified ultimate administrative-expense level of 25 basis points for SSG Accounts appears to be reasonable.

## Distribution of SSG Accounts

Upon the death of an individual who has not yet become entitled for OASDI benefits, the SSG Account goes to the estate of the deceased tax-free. If an individual reaches normal retirement age and is not eligible for any OASI benefit, the SSG Account balance is payable to the individual. Upon benefit entitlement, the worker receives a lump sum payment of 5 percent of the SSG Account balance at entitlement. The balance of this section describes how the remainder of the account is distributed after benefit entitlement.

Life annuity calculations for the purpose of determining the size of monthly transfers from SSG balances to the OASDI Trust Funds assume a real yield equal to the net expected real yield on

SSG Accounts, as specified. Mortality estimates for these calculations are based on the intermediate projections of the 2002 Trustees Report.

Annuity calculations at the time of future benefit entitlements are prescribed to be made on a unisex basis. For those with a current spouse at entitlement, annuity calculations would be on a joint and survivor basis intended to roughly match the expected payment of OASDI benefits. For the purpose of these calculations, a joint and $2 / 3$ survivor annuity is assumed. Thus, the amounts transferred to OASDI from the SSG Account of a married beneficiary would be twothirds of the full joint payment level when either (1) only the worker is receiving a benefit or (2) upon the death of either the worker or the spouse.

With the yields assumed for these estimates, expected transfers from SSG Accounts after benefit entitlement would generally be less than expected OASDI monthly benefits. However, single workers with above average earnings but who still contribute 4 percent (or nearly 4 percent) of their salaries to the SSG accounts throughout their careers, could have transfers from their SSG Accounts greater than current law benefits if the investment return during their working years exceeded the assumed long-range average return used for these estimates. Married workers with similar earnings levels would be less likely to have transfers that exceed current-law benefits because the joint-and-survivor annuity calculation would provide lower transfers than for single workers, and current law OASDI benefits for married workers would tend to be higher. Estimates for this proposal take into account the likely variability in account returns (see section below).

## Effect of Variability in Account Returns on Cost Estimates

The plan provides that the total Social Security monthly benefit payment for SSG-Account participants would be no less than the benefit for non-participants. When the annuitized amount for a worker's SSG Account exceeds the scheduled monthly OASDI benefit, the excess is payable to the beneficiary. However, when the annuity payment from the SGA is less, then the full OASDI monthly benefit is still payable. Thus, variation across generations in the realized lifetime yield on SSG Accounts (both in accumulation and annuitization) would result in a greater degree of excess payments over time, than if yields were always consistent at the assumed average rates. The effect of this variability is modeled assuming a distribution of lifetime yields for future beneficiaries.

## Estimated Effect On OASDI Financing

The combined effect of the seven additional changes to OASDI benefits listed above would reduce (worsen) of the long-range OASDI actuarial balance by about 0.13 percent of taxable payroll, from a balance of -1.87 percent of payroll under current law to an actuarial balance of -2.00 percent of payroll. However, because the monthly transfers from the SSG Accounts to the Trust Funds are expected to far exceed the additional benefit payments from the Trust Funds, the overall financial status of the OASDI program would greatly improve under this plan.

The balance of this section presents estimates for this plan reflecting the expected future average yield on SSG Accounts as well as sensitivity analysis for a range of possible variation in average yields. For both present law and the SSGP plan, the table below provides the estimated OASDI actuarial balance, the estimated year of combined OASDI trust fund exhaustion, and the estimated annual percentage point change in the OASDI trust fund ratio at the end of the period (between 2076 and 2077). The OASDI program achieves sustainable solvency for the foreseeable future when the trust fund ratio is stable or rising at the end of 75 years.

The base estimate for the SSGP Plan with full payroll taxes retained for the OASDI program (Table 1) indicates that the OASDI actuarial balance would be improved by 2.57 percent of effective taxable payroll, from a balance of -1.87 percent under current law to a balance of 0.70 percent of payroll under the plan. The amount of assets in the OASDI Trust Funds as a percent of annual OASDI outgo (the trust fund ratio) would be expected to remain positive throughout the long-range 75 -year projection period, thus allowing timely payment of benefits in full through 2076, and beyond. The trust fund ratio would be expected to decline to about 238 percent at the beginning of 2042, and to increase thereafter, reaching 965 percent by the end of 2076. The Trust Funds would be stable or rising by an estimated 28 percent of annual cost at the end of the period.

## Estimated Effects on OASDI Financial Status of the Social Security Guarantee Plus (SSGP) Plan

|  | Estimated OASDI <br> Actuarial Balance (percent of taxable payroll) | Year of <br> Exhaustion of OASDI <br> Trust Funds | Percentage Point Change in Trust Fund Ratio Between 2076 and 2077 |
| :---: | :---: | :---: | :---: |
| Present Law (No SSG) | -1.87 | 2041 | -24 2/ |
| (1) SSGP Plan with Full Payroll Tax for OASDI |  |  |  |
| 65\% Stock, 35\% Corporate Bond |  |  |  |
| Assess only 0.25\% Administrative Cost | +0.70 | N/A | 28 |
| (2) SSGP Plan with Potential Financing of SSG |  |  |  |
| Contributions from Payroll Tax 1/ |  |  |  |
| 65\% Stock, 35\% Corporate Bond |  |  |  |
| Assess only $0.25 \%$ Administrative Cost | +0.17 | N/A | 1 |
| 1/ SSG contributions would be financed totally from the payroll tax starting 2060. 2/ Reduction in TFR in last year prior to Trust Fund exhaustion. |  |  |  |
| Based on intermediate assumptions of the 2002 Trustees Report and other assumptions described in the text of this memorandum. |  |  |  |

The table above also includes an illustration of the potential financial effect of the SSGP Plan on Social Security if the SSG Account contributions are partially financed from the payroll tax during the period 2040-2059 and fully financed from the payroll tax beginning in 2060. The
payroll tax that could be redirected from directly financing OASDI to financing SSG contributions is expected to be 0.4 percentage points in 2040-2044 and to increase thereafter reaching about 2.36 percentage points (reflecting the aggregate contribution rate as a percent of taxable payroll) by 2060. Under this illustration, the OASDI actuarial balance would be improved by 2.04 percent of taxable payroll, from a balance of -1.87 percent under current law to a positive balance of 0.17 percent of payroll. The OASDI trust fund ratio is estimated to be essentially stable at about 311 percent at the end of the long-range period. Thus, as of the end of 2076, assets in the OASDI Trust Funds would be about 3.11 times the outgo for 2077. Trust Fund assets at this level are needed to generate interest sufficient to maintain the TFR with SSG contributions fully financed from the Trust Funds.

## Sensitivity to SSG Account Investment Yields

The effect of the SSG Plan on the financial status of the OASDI program would depend greatly on the actual yield that is achieved for investments in the SSG Accounts. Returns on all investments are uncertain, and returns on stocks are particularly variable and uncertain over time. For this reason it is important to consider the sensitivity of the financial status of the OASDI program to possible variation in expected average long-term investment yield. Note that the 2002 Trustees Report provides this sensitivity analysis for the OASDI program under current law on pages 152 through 153.

The table below provides the estimated OASDI actuarial balance, the estimated year of combined OASDI trust fund exhaustion, and the estimated annual percentage point change in the OASDI trust fund ratio at the end of the period (between 2076 and 2077, or in the last year prior to Trust Fund exhaustion, if earlier) for present law and for the SSGP Plan with three different SSG Account yield assumptions. The three different yield assumptions are presented in order to illustrate the sensitivity of the proposal to possible variation in the ultimate average returns on stock and corporate bonds. See earlier discussion of variation across generations around the long-term average return.

Under sensitivity illustration 3, the average long-term yield on SSG Accounts is assumed to be 1 percentage point higher than expected for the accounts invested in 65 percent stock and 35 percent corporate bonds. Under this illustration, the OASDI trust fund ratio would be expected to reach a low of about 304 percent at the beginning of 2037, and to increase substantially thereafter. The trust fund ratio is rising by 91 percentage points per year at the end of the 75year period. OASDI would be substantially overfinanced and the SSG Account contributions could be paid entirely from the payroll tax rate as early as 2033 while still maintaining a positive long OASDI actuarial balance and a trust fund ratio of at least 100 percent for each year of the 75 -year period that is stable or rising at the end of the period.

Under sensitivity illustration 4, the average yield on SSG Accounts is assumed to be 1 percentage point lower than expected for the accounts invested in 65 percent stock and 35 percent corporate bonds. Under this illustration, the OASDI trust fund ratio would be expected to decline starting in 2017, reaching a low of 94 percent by the end of 2076. The OASDI actuarial balance would be improved by about 1.87 percent of taxable payroll under this assumption, leaving an actuarial deficit of 0.01 percent of payroll. However, the trust fund ratio
would be declining by about 4 percentage points per year at the end of the 75 -year period. Thus, the plan would not achieve sustainable solvency under this assumption.


Under sensitivity illustration 5, the average yield on SSG Accounts is assumed to be only 2.75 percent above price inflation (the rate for government bonds less 25 basis points for administrative expense). Under this illustration, the OASDI Trust Funds would be expected to become exhausted in 2049, or 8 years later than projected to occur under current law. The OASDI actuarial balance would be improved by about 1.18 percent of taxable payroll under this assumption, leaving an actuarial deficit of 0.69 percent of payroll.

Under sensitivity illustration 6, the SSG Accounts are assumed to be invested in 60 percent equity and 40 percent corporate bonds at all times (with the same allocation used for annuity transfer calculations). This assumption results in an expected 5.05 percent ultimate net real yield. Under this illustration, the OASDI Trust Funds would be more than adequately financed, with the Trust Fund Ratio rising after 2043, at a rate of 22 percent of annual outgo per year between 2076 and 2077. The OASDI actuarial balance would be improved by about 2.46
percent of taxable payroll under this assumption, leaving a positive actuarial balance of 0.59 percent of payroll.

## Annual Estimates of Trust Fund Operations, Estimated Effects on the Unified Budget Balance, and Cash Flow Between the Trust Funds and the General Fund of the Treasury

Provided below are summarized descriptions of the attached tables, some of which have been referenced throughout this memorandum. For a more detailed description of these tables, please see our January 31, 2002 memorandum (pp. 21-26) on financial effects of the three models developed by the President's Commission to Strengthen Social Security. This memorandum is available on the Internet at www.csss.gov.

## OASDI Trust Fund Operations

The attached tables 1 through 6 provide projected OASDI financial effects under each of the six following illustrations outlining future assumed yields on the SSG accounts:

1) an assumed SSG account yield of 5.20 percent real with SSG contributions funded by the General Fund indefinitely (expected yield with average 65 percent equity);
2) an assumed SSG account yield of 5.20 percent real with funding of the SSG accounts to be completely provided by redirection of OASDI payroll taxes by 2060;
3) an assumed 1-percent higher SSG account yield of 6.20 percent real with SSG contributions funded by the General Fund indefinitely;
4) an assumed 1-percent lower SSG account yield of 4.20 percent real with SSG contributions funded by the General Fund indefinitely;
5) an assumed low-yield (or risk-adjusted) SSG account yield of 2.75 percent real ( 0.25 percent less than the assumed yield rate for government bonds)-- with SSG contributions funded by the General Fund indefinitely; and
6) an assumed SSG account yield of 5.05 percent real with SSG contributions funded by the General Fund indefinitely--all investments are assumed to be in the default portfolio (60 percent equity).

Tables 1, 2, 3, 4, 5, and 6 show estimated annual and summarized income rates, cost rates, and balances under each sensitivity illustration of the proposal. The tables also show the trust fund ratio for each year, as well as changes in contribution rates to the OASDI Trust Funds and taxable payroll under the proposal.

## SSG Accounts, Unified Budget, and Cash Flow

Additional attached tables described below provide further details of the financial projections, estimated unified budget effects, and estimated cash flow between the Trust Funds and the General Fund of the Treasury for the base illustration using the expected SSG account yield (consistent with Table 1 described above). Under the base illustration the SSG contributions are funded by the General Fund indefinitely.

Table 1a shows estimated trust fund balances at the end of each year under current law and under the proposal. The "Net IA Accrual for Transfer" column shows the present value of the portion
of SSG Account contributions, accumulated up to a given year, that is expected to be available for future transfers to the OASDI Trust Funds. The "IA/Annuity Assets EOY" column shows the total SSG and annuity account assets at the end of each year excluding payments made to a worker's estate for death before benefit entitlement, assuming that the accounts accumulate at the assumed average net yield rate. The final two columns show aggregate SSG contributions and disbursements for each year. All of these amounts appear on a present value basis as of January 1, 2002.

Table 1 b provides a rough estimate of the effects of the proposal on the annual Federal unified budget balance for each calendar year through 2076. All amounts in this table appear in constant 2002 dollars (that is, dollar amounts that are indexed back to 2002 based on the consumer price index (CPI)). The first three columns in these tables include sources of changes to the unified budget balance, as follows:

- Annual aggregate contributions made to SSG accounts--a reduction to the unified budget balance because the monies go into personal accounts, funded by the General Fund of the Treasury;
- Transfers to OASDI Trust Funds from SSG account proceeds--an increase to the unified budget balance because these proceeds reduce Social Security benefit payments; and
- Other changes in OASDI cash flow (as compared to present law) from the other benefit provisions.

The last three columns present the aggregate effects on the unified budget:

- Change in the annual unified budget cash flow, which is simply the sum of the sources of unified budget balance changes identified above;
- Change in debt held by the public, as of the end of each year, which represents the cumulative change in the unified budget cash flows, with interest (at the assumed rates earned by the Trust Funds)
- Change in annual unified budget balance, which includes changes in both unified budget cash flow and in interest on the publicly held debt.

These unified-budget estimates are based on the intermediate assumptions of the 2002 Trustees Report, including the trust-fund interest assumption, and thus are not consistent with projections made by CBO and OMB (which use different assumptions). However, differences in payroll and benefit estimates are not large during the first 10 projection years so these values can be viewed as very rough approximations of the magnitude of effects on the unified budget balances through this period.

Under the SSGP plan with the expected yield on the specified account portfolio (Table 1b), amounts transferred from the SSG Accounts to the OASDI Trust Funds would at first be small, but would exceed contributions to the SSG Accounts from the General Fund of the Treasury by about 2036. Including the relatively small effects of the additional benefit changes, the estimated change in the unified budget "cash flow" in Table 1b (excluding interest effects) would be negative until 2037.

Including the cumulative effects of interest, the year in which the effect of the SSGP plan on the unified budget annual balance would be expected to become permanently positive is 2057 if the
full payroll tax is retained for OASDI (table lb). If the SSG contributions are financed with payroll tax revenue, partially beginning in 2040, and fully in 2060 and later, the effect on the unified budget is essentially the same as shown in table 1 b , where the full payroll tax is retained for OASDI. This results because retaining the full payroll tax ( 12.4 percent) for OASDI has the essentially same effect on the unified budget as does redirecting a portion of the payroll tax to the General Fund of the Treasury for the purpose of financing SSG contributions.

Table ic provides the estimated annual net cash flow from the General Fund of the Treasury to the OASDI Trust Funds and to SSG accounts under the proposal. All values in this table are expressed in constant 2002 dollars (ie., dollar amounts that are indexed back to 2002 based on the CPI).

For comparison purposes, cash flow estimates are provided in these tables for three different cases:

- The proposal (H.R. 75);
- Present Law OASDI modified to allow borrowing from the General Fund to pay scheduled benefits; and
- Present Law OASDI where only benefits payable with current financing provisions are paid (no General Fund borrowing).

For each of these cases, three columns are provided. The first column shows estimates of the amount of borrowing needed from the General Fund to pay benefits. The second column is the estimated total net cash flow from the General Fund to the Trust Funds under the plan, including transfers and borrowing. The third column is the total net cash flow for years starting with 2002 through the end of the given year, including accumulated interest cash flows for the period.


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Attachments: 9

Table 1--Financial Effects of the SSGP Plan (H.R. 75)--IA Contributions from General Fund Indefinitely with Average Investment at 65 Percent Equity


Based on Intermediate Assumptions of the 2002 Trustees Report.
1/ Net of Benefit Cost Reductions from SSGP Transfers.

Table 1a--Trust Fund Asset Comparison and SSGP Information--IA Contributions from General Fund Indefinitely with Average Investment at 65 Percent Equity
Expected SSGP Yield
IA proceeds go to estate if worker dies before entitlement


| Ultimate Real Trust Fund Interest Rate | 3.00 | Ultimate Average Real SSGP Rate--Actual | 5.20 |
| :--- | :--- | :--- | :--- |
| Ultimate Real SSGP Account Yield Rate | 5.20 | Ultimate Average SSGP Annuity Yield Rate--Actual | 5.20 |
| Utimate Real SSGP Annuity Yield Rate | 5.20 | Assumed SSGP Participation Rate | $100 \%$ |



Based on Intermediate Assumptions of the 2002 Trustees Report.
1/ Amount accumulated to date expected to be available for future SSGP transfers.
$\overline{\underline{2}} /$ Excludes 5 percent lump-sum disbursements and proceeds to workers' estates in the case of death before benefit entitement.

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Table 1b--SSGP Contributions, Transfers to OASDI Trust Funds from IAs, and Budget Effects (assuming IA contributions are counted as expenditures) with IA Contributions from General Fund Indefinitely

Average investment is assumed to be 65 percent equity
Expected SSGP Yield
IA proceeds go to estate if worker dies before entitlement
Ultimate Real Trust Fund Interest Rate
Ultimate Real SSGP Account Yield Rate
Ultimate Real SSGP Annuity Yield Rate

|  | Contributions to | Transters to |
| :---: | :---: | :---: |
|  | SSGP by Federal | OASDI |
|  | Government | Funds |
| Year | E Earnings 1/ | from SSGPs |


|  | Change |
| ---: | ---: |
| Other Changes | in AASDI |
| innual |  |
| Cash Flow | Unified Budget <br> Cash Flow |

SSGP Transfer Rate to Trust Funds
95\%
100\%
xix

2004
2005
2006
2007
2008
2008
2011
2013
2014
2016
2018
$\begin{array}{cc}\text { (In Billions of Constant } 2002 \text { Dolla } \\ 0.0 & 0.0 \\ 0.1 & -5.5\end{array}$ s)
-104.3
-112.1

| Change in | Change in |
| ---: | ---: |
| Debt Held | Annual |
| by Public | Unified Budget |
| (end ot year) | Balance |

2019

Table 1c--Cash Flow from the General Fund of the Treasury to the OASDI Trust Funds--Constant 2002 Dollars 1/ with IA Contributions from General Fund Indefinitely
Average investment is assumed to be 65 percent equity


Table 2--Financial Effects of the SSGP Plan (H.R. 75)--with Average Investment at 65 Percent Equity
Assume Subsequent Legislation = Full IA Contributions from Trust Funds by 2060

| Expected SSGP Yield IA proceeds go to estate if worker dies before entitlement |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | imate Re | Trust Fund | Interest Rate |  | 3.00 | SSGP Tran | Rate to Trust Funds | 95\% |
|  | imate Re | SSGP Ac | count Yield Rate |  | 5.20 | Assumed S | Participation Rate | 100\% |
|  | imate Re | SSGP An | uity Yield Rate |  | 5.20 |  |  |  |
|  |  |  |  |  | Marginal |  |  |  |
|  |  | OASDI |  |  | Change in OASDI | $\begin{array}{r} \text { Net } \\ \text { OASDI } \end{array}$ | SSGP | Average |
|  | Cost | Income | Annual | TFR | Contribution | Contribution | from | Contribution |
| Year | Rate 1/ | Rate | Balance | 1-1-yr | Rate | Rate | Trust Funds | Rate |
| 2002 | 10.84 | 12.73 | 1.88 | 261 |  | 12.40 |  |  |
| 2003 | 10.51 | 12.72 | 2.21 | 288 |  | 12.40 |  | 2.36 |
| 2004 | 10.59 | 12.73 | 2.14 | 309 |  | 12.40 |  | 2.36 |
| 2005 | 10.61 | 12.73 | 2.12 | 330 |  | 12.40 |  | 2.36 |
| 2006 | 10.65 | 12.73 | 2.08 | 351 |  | 12.40 |  | 2.36 |
| 2007 | 10.68 | 12.74 | 2.06 | 373 |  | 12.40 |  | 2.36 |
| 2008 | 10.78 | 12.75 | 1.97 | 393 |  | 12.40 |  | 2.36 |
| 2009 | 10.97 | 12.77 | 1.79 | 408 |  | 12.40 |  | 2.36 |
| 2010 | 11.15 | 12.79 | 1.64 | 423 |  | 12.40 |  | 2.36 |
| 2011 | 11.33 | 12.83 | 1.50 | 436 |  | 12.40 |  | 2.36 |
| 2012 | 11.54 | 12.85 | 1.31 | 447 |  | 12.40 |  | 2.36 |
| 2013 | 11.77 | 12.87 | 1.10 | 456 |  | 12.40 |  | 2.36 |
| 2014 | 12.02 | 12.89 | 0.86 | 462 |  | 12.40 |  | 2.36 |
| 2015 | 12.30 | 12.91 | 0.61 | 465 |  | 12.40 |  | 2.36 |
| 2016 | 12.60 | 12.93 | 0.33 | 466 |  | 12.40 |  | 2.36 |
| 2017 | 12.91 | 12.95 | 0.04 | 464 |  | 12.40 |  | 2.36 |
| 2018 | 13.24 | 12.97 | -0.26 | 459 |  | 12.40 |  | 2.36 |
| 2019 | 13.57 | 13.00 | -0.57 | 453 |  | 12.40 |  | 2.36 |
| 2020 | 13.89 | 13.02 | -0.87 | 445 |  | 12.40 |  | 2.36 |
| 2021 | 14.21 | 13.04 | -1.17 | 436 |  | 12.40 |  | 2.36 |
| 2022 | 14.51 | 13.07 | -1.44 | 426 |  | 12.40 |  | 2.36 |
| 2023 | 14.79 | 13.09 | -1.70 | 415 |  | 12.40 |  | 2.36 |
| 2024 | 15.04 | 13.11 | -1.93 | 404 |  | 12.40 |  | 2.36 |
| 2025 | 15.26 | 13.13 | -2.13 | 392 |  | 12.40 |  | 2.36 |
| 2026 | 15.46 | 13.15 | -2.31 | 379 |  | 12.40 |  | 2.36 |
| 2027 | 15.63 | 13.17 | -2.46 | 366 |  | 12.40 |  | 2.36 |
| 2028 | 15.76 | 13.18 | -2.57 | 354 |  | 12.40 |  | 2.36 |
| 2029 | 15.85 | 13.20 | -2.64 | 341 |  | 12.40 |  | 2.36 |
| 2030 | 15.90 | 13.21 | -2.68 | 329 |  | 12.40 |  | 2.36 |
| 2031 | 15.91 | 13.23 | -2.69 | 317 |  | 12.40 |  | 2.36 |
| 2032 | 15.91 | 13.24 | -2.67 | 305 |  | 12.40 |  | 2.36 |
| 2033 | 15.87 | 13.25 | -2.62 | 294 |  | 12.40 |  | 2.36 |
| 2034 | 15.78 | 13.26 | -2.53 | 283 |  | 12.40 |  | 2.36 |
| 2035 | 15.67 | 13.26 | -2.40 | 274 |  | 12.40 |  | 2.36 |
| 2036 | 15.52 | 13.27 | -2.25 | 265 |  | 12.40 |  | 2.36 |
| 2037 | 15.35 | 13.27 | -2.08 | 258 |  | 12.40 |  | 2.36 |
| 2038 | 15.16 | 13.28 | -1.89 | 251 |  | 12.40 |  | 2.36 |
| 2039 | 14.96 | 13.28 | -1.68 | 246 |  | 12.40 |  | 2.36 |
| 2040 | 14.74 | 12.88 | -1.86 | 242 | -0.400 | 12.00 | 0.40 | 2.36 |
| 2041 | 14.53 | 12.88 | -1.64 | 237 |  | 12.00 | 0.40 | 2.36 |
| 2042 | 14.31 | 12.89 | -1.42 | 233 |  | 12.00 | 0.40 | 2.36 |
| 2043 | 14.09 | 12.89 | -1.20 | 230 |  | 12.00 | 0.40 | 2.36 |
| 2044 | 13.88 | 12.89 | -0.98 | 229 |  | 12.00 | 0.40 | 2.36 |
| 2045 | 13.67 | 12.60 | -1.07 | 229 | -0.300 | 11.70 | 0.70 | 2.36 |
| 2046 | 13.47 | 12.60 | -0.87 | 228 |  | 11.70 | 0.70 | 2.36 |
| 2047 | 13.28 | 12.61 | -0.67 | 229 |  | 11.70 | 0.70 | 2.36 |
| 2048 | 13.10 | 12.61 | -0.49 | 231 |  | 11.70 | 0.70 | 2.36 |
| 2049 | 12.92 | 12.62 | -0.30 | 234 |  | 11.70 | 0.70 | 2.36 |
| 2050 | 12.75 | 12.12 | -0.63 | 238 | -0.500 | 11.20 | 1.20 | 2.36 |
| 2051 | 12.60 | 12.13 | -0.47 | 240 |  | 11.20 | 1.20 | 2.36 |
| 2052 | 12.46 | 12.13 | -0.33 | 243 |  | 11.20 | 1.20 | 2.36 |
| 2053 | 12.34 | 12.14 | -0.20 | 247 |  | 11.20 | 1.20 | 2.36 |
| 2054 | 12.22 | 12.15 | -0.07 | 252 |  | 11.20 | 1.20 | 2.36 |
| 2055 | 12.11 | 11.55 | -0.56 | 258 | -0.600 | 10.60 | 1.80 | 2.36 |
| 2056 | 12.01 | 11.56 | -0.45 | 260 |  | 10.60 | 1.80 | 2.36 |
| 2057 | 11.91 | 11.57 | -0.34 | 262 |  | 10.60 | 1.80 | 2.36 |
| 2058 | 11.82 | 11.58 | -0.24 | 266 |  | 10.60 | 1.80 | 2.36 |
| 2059 | 11.73 | 11.58 | -0.15 | 270 |  | 10.60 | 1.80 | 2.36 |
| 2060 | 11.65 | 11.03 | -0.61 | 276 | -0.556 | 10.04 | 2.36 | 2.36 |
| 2061 | 11.58 | 11.04 | -0.53 | 277 |  | 10.04 | 2.36 | 2.36 |
| 2062 | 11.52 | 11.05 | -0.47 | 278 |  | 10.04 | 2.36 | 2.36 |
| 2063 | 11.47 | 11.06 | -0.41 | 280 |  | 10.04 | 2.36 | 2.36 |
| 2064 | 11.42 | 11.06 | -0.36 | 282 |  | 10.04 | 2.36 | 2.36 |
| 2065 | 11.39 | 11.07 | -0.32 | 285 |  | 10.04 | 2.36 | 2.36 |
| 2066 | 11.37 | 11.08 | -0.29 | 287 |  | 10.04 | 2.36 | 2.36 |
| 2067 | 11.35 | 11.08 | -0.27 | 290 |  | 10.04 | 2.36 | 2.36 |
| 2068 | 11.34 | 11.09 | -0.25 | 293 |  | 10.04 | 2.36 | 2.36 |
| 2069 | 11.34 | 11.09 | -0.25 | 295 |  | 10.04 | 2.36 | 2.36 |
| 2070 | 11.35 | 11.10 | -0.25 | 298 |  | 10.04 | 2.36 | 2.36 |
| 2071 | 11.36 | 11.11 | -0.26 | 301 |  | 10.04 | 2.36 | 2.36 |
| 2072 | 11.38 | 11.11 | -0.27 | 303 |  | 10.04 | 2.36 | 2.36 |
| 2073 | 11.41 | 11.12 | -0.29 | 305 |  | 10.04 | 2.36 | 2.36 |
| 2074 | 11.43 | 11.12 | -0.31 | 307 |  | 10.04 | 2.36 | 2.36 |
| 2075 | 11.47 | 11.13 | -0.34 | 309 |  | 10.04 | 2.36 | 2.36 |
| 2076 | 11.51 | 11.13 | -0.37 | 310 |  | 10.04 | 2.36 | 2.36 |
| 2077 | 11.57 | 11.14 | -0.43 | 311 |  | 10.04 | 2.36 | 2.36 |
|  |  | ummarize |  |  |  |  |  |  |
|  | Cost | Income | Actuarial |  | Change in |  |  |  |
| 2002 | Rate | Rate | Balance |  | tuarial Balance |  |  |  |
| 2076 | 13.04 | 13.21 | 0.17 |  | 2.04 |  |  |  |

Based on Intermediate Assumptions of the 2002 Trustees Report.
1/ Net of Benefit Cost Reductions from SSGP Transfers.

Table 3--Financial Effects of the SSGP Plan (H.R. 75)--IA Contributions from General Fund Indefinitely with Average Investment at 65 Percent Equity: Sensitivity = $\mathbf{1}$ percent higher than expected yield


Based on Intermediate Assumptions of the 2002 Trustees Report.
1/ Net of Benefit Cost Reductions from SSGP Transfers.

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Table 4--Financial Effects of the SSGP Plan (H.R. 75)--IA Contributions from General Fund Indefinitely with Average Investment at 65 Percent Equity: Sensitivity $\mathbf{= 1}$ percent lower than expected yield


Based on Intermediate Assumptions of the 2002 Trustees Report.
1/ Net of Benefit Cost Reductions from SSGP Transfers.

Table 5--Financial Effects of the SSGP Plan (H.R. 75)--IA Contributions from General Fund Indefinitely with Average Investment at 65 Percent Equity: Sensitivity = SSGP yield equal to government bond yield


Based on Intermediate Assumptions of the 2002 Trustees Report.
1/ Net of Benefit Cost Reductions from SSGP Transfers.

Table 6--Financial Effects of the SSGP Plan (H.R. 75)--IA Contributions from General Fund Indefinitely
Sensitivity = All Investments at 60 Percent Equity, 40 Percent Corporate Bonds


Based on Intermediate Assumptions of the 2002 Trustees Report.
1/ Net of Benefit Cost Reductions from SSGP Transfers.


[^0]:    ${ }^{1}$ If the surviving spouse is under age 62, the actuarial reduction is equal to the worker's actuarial reduction that would apply if the surviving spouse were age 62.

