Social Security Annuities and Transfers: Distributional and Tax Implications

by

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1. Introduction

The division of social security (OASI) benefits into an annuity portion and a transfer portion has been well documented. I have discussed this issue extensively in previous work (1987b, 1988, 1990, and forthcoming), as did Burkhauser and Warlick (1981) previously. My methodology is quite similar to theirs. The annuity portion is defined as the benefit level the worker would receive on the basis of his(her) contributions into the social security system (OASI) if the system were actuarially fair. The calculation is based on the worker's estimated earnings history and actual social security tax rates. The transfer portion is the difference between the actual social security benefit received and the actuarially fair annuity equivalent. As we shall see below, it has been uniformly positive for workers who have retired on or before 1983.

Burkhauser and Warlick examined the relative proportions of annuity versus transfer benefits by income class and age group. However, they did not conduct an extensive examination of the overall distributional implications of the social security transfer portion. Nor did they consider the tax implications of treating social security transfers as taxable income. These are the principal subjects of the current paper.

With regard to the distributional implications of the social security system, I will examine three sets of issue. First, I will consider what the relative magnitudes have been of the annuity and transfer portions of social security income. Since I have data for three years, a related issue is

whether the relative proportions have changed over time. Second, I will consider how the social security transfer portion has affected the distribution of income among elderly households. Has the transfer component been neutral or has it tended to redistribute income toward lower income elderly households? Third, the same issue can be addressed with regard to household wealth, in which social security benefit flows are transformed (capitalized) into wealth equivalents.

From a policy point of view, the more interesting issue is how do the total taxes of the elderly change with the removal of the exclusion of social security transfer income -- that is, when social security transfer income is treated as taxable income. There are three questions of interest. First, how does the change in tax treatment affect the post-tax distribution of income. Second, which groups of elderly are most affected by the change in tax treatment. Third, what is the total change in the magnitude of tax revenues.

As a final point of policy interest, I will also consider whether the extra revenues generated by the new tax treatment of social security income can serve as a "social security capital fund" to reduce the growing wealth gap among age groups in the U.S. As will become apparent in the analysis, the social security system has been quite generous to today's elderly, providing them with benefits far in excess of their contributions into the system. Moreover, young families have fared rather poorly over the last several decades in regard to their income and wealth accumulation. I will propose a policy vehicle below, called a "social security capital fund", which can serve as an additional source of capital for today's young workers. The source of the funding can potentially come from the extra tax revenues from elderly households. It is thus also of interest to analyze whether the additional tax revenues are large or small relative to the wealth holdings of young

households and whether such a fund can make a significant difference in the well-being of younger families.

My analysis will be based on the most recent comprehensive wealth survey currently available, the 1983 Survey of Consumer Finances (see Avery et. al., 1984). The file contains extensive information on the net worth of households at the microdata level. The sample also includes a high-income supplement. In my sample, the asset and liability figures are aligned to national balance sheet totals for the household sector (see Wolff, 1987a, for details).[1]

2. Background and Motivation

Between 1962 and 1983 the mean net wealth of households in the United States showed a cumulative growth of 49% after accounting for increases due to inflation, an average annual rate of about 2%. During this period, there was substantial variation in how growth was spread among different sectors of the population, particularly with regard to age. In previous work (Greenwood and Wolff, 1988), we documented a fairly substantial shift in family wealth away from the young and old to the middle-aged.

The most significant finding is that the average wealth of younger age cohorts declined relative to the overall mean between 1962 and 1983. The mean wealth of households under 35 declined from 27 percent of the overall mean to 20 percent. The corresponding figures for households under 45 are 50 percent in 1962 and 40 percent in 1983. On net, over the two decades, younger families were worse off in relative terms. The average wealth of households under 35 grew by 0.58 percent per year in real terms, compared to 1.90 percent overall, and the mean wealth of families under 45 increased by 0.80 percent per year. The relative wealth of families 70 years and older also decreased over the two decades, from 46 percent above average in 1962 to 22 percent above average in 1983.

The big winners over the two decades were families between ages 45 and 69. Their average wealth increased from 1.35 to 1.74 of the overall mean, or at an annual rate of 3.10%. Families in the 45-49 age bracket improved their relative position the most over the 1962-83 period, from 0.98 of average in 1962 to 1.77 in 1983; families in ages 60-64 increased from 1.34 to 1.73; and those in ages 65-69 increased from 1.74 to 2.38.

The net result over the two decades was a redistribution of wealth from the young (under 45) and the old (70 and over) to the middle-aged (45-69). Between 1962 and 1983, peak wealth moved from the 55-59 age group to the 65-69 age group, and the peak became substantially higher. Over the two decades, the resulting age-wealth profile thus became "humpier", with the peak higher (2.38 compared to 1.82) and occurring for an older age group (65-69 age bracket, compared to the 55-59 age bracket).

This changing pattern of wealth holdings by age group has profound implications for the access to resources in our society. In particular, resources are shifting away from those most in need, namely younger families and the very old, to those of middle age. Especially hard hit are young families with children. The shifting age-wealth profile thus has rather disturbing implications for the well-being of children. The most obvious is a falling homeownership rate among young families, and, indeed, a rising rate of homelessness. Rising poverty among children is another implication of the change in the availability to resources among age groups. Since childhood poverty also affects educational achievement, the shift in available resources may also result in a lower skilled labor force in the future, lower productivity, and a falling standard of living in our society.

3. Policy Analysis

This paper will examine one potential policy vehicle for tilting the age-wealth profile back in favor of the young. This involves a mechanism of taxing social security benefits and using the proceeds as a fund of available credit for younger workers. The proposal is directly related to a plan currently in effect in Singapore, which allows younger workers to borrow against accumulated pension savings. These two plans have the effect of increasing the resources available to younger families. My proposal will also provide a **redistribution** of resources from older families to younger ones. In addition, it may directly increase savings, since the funds can be earmarked for investment purposes only.

The proposed mechanism will work in the following way: Social security benefits received by workers consist of two components. The first is an annuity or "pension equivalent", which is based on the individual's contribution to the social security system over his (her) lifetime. The pension equivalent can be imputed with available data. The second, or residual portion, is a direct transfer payment from the government to the individual. Current retirees, as well as workers in their 50s and early 60s, have benefited from legislative changes in the social security law which provide them with significantly greater social security income than would be justified by their contribution into the social security system. The government is, as it were, providing them with extra transfer income.

The annuity or pension component should be left untaxed, since this portion was already treated as taxable income when the individual received the wage or salary income. The other portion is simply a transfer payment, and this should be treated as ordinary taxable income like property income. Indeed, this portion was never taxed by the government, since it does not devolve from the social security contributions.

The proceeds can then be used as an investment fund for younger workers. In a sense, the worker is using his or her contributions for OASI as collateral for a loan. The loan may be restricted to housing, for educational purposes, or for other specified investments. Since the federal government has already set up loan programs for many purposes, including housing and student loans, this part of the proposal is by no means revolutionary. The only new provision is to treat OASI contributions as collateral for loans. However, it should be noted that the security of such loans is airtight, since it is the federal government itself which receives the OASI proceeds. Moreover, the funding for this program is made available by the increased revenues from taxing social security benefits. It is, of course, necessary to make the requisite calculations to determine the extent to which such increased revenues can provide investments for younger workers and the distributional consequences of such a program.

4. Accounting Framework and Estimation Procedures

A wealth accounting framework is employed in order to divide social security benefits into their constituent parts. Let us first define conventional household wealth, **HW**, as the sum of (i) owner-occupied housing and other real estate; (ii) bank deposits and other liquid assets; (iii) bonds and other securities; (iv) corporate stock; (v) equity in unincorporated business; (vi) trust fund equity; (vii) the cash surrender value of life insurance; and (viii) the cash surrender value of pension plans; less the sum of (i) mortgage debt and (ii) other household debt.[2]

There are two forms of social security "wealth" considered here. The first is called social security entitlement wealth, **SSEW**. Following Feldstein (1974, 1976), I define SSEW as the present value of the discounted stream of

future social security benefits. For symmetry, we can also define (private) pension wealth, **PW**, as the present value of the discounted stream of future (private) pension benefits. The second is social security annuity wealth, **SSAW**. This is defined as the accumulated contributions (OASI) made by employees and employers into the social security system. This represents the savings-equivalent of these social security contributions if the contributions were put into a pension reserve. Like a pension fund, these contributions are accumulated over time with the going interest rate. In effect, social security contributions are treated as if they are made into a "defined contribution" pension plan, the benefits from which are based directly on the contributions. SSAW thus represents what the total wealth held by or for the benefit of the household sector would have been if social security contributions were placed in a pension reserve.[3]

Estimation. The imputation of social security wealth involves a large number of steps, which I will summarize here (see Wolff, 1987b, or Wolff, 1988, for further details). I begin with entitlement wealth. For retirees, (r) the procedure is straightforward. Let SSB be the social security benefit currently received by the retiree. Then,

$$(1) \qquad SSEW = \int_0^{LE} SSB e^{(g - \delta)t} dt$$

where LE is the conditional life expectancy, g the expected average annual rate of growth of real social security benefits over time for retirees, and δ is the real discount rate.[4]

For pension wealth, the procedure is analogous. Among current beneficiaries, let PB be the pension benefit currently being received by the retiree. If it is assumed that pension benefits remain fixed in real terms over time for a particular beneficiary (as was generally true in 1983), then pension wealth is given by:

$$(2) \qquad PW = {}_0\int^{LE} PBe^{-\delta t}dt$$

Social security accumulations consist of the accumulated contributions (OASI) made by employees and employers into the social security system on behalf of each individual. This is a hypothetical concept, since there are no actual reserves in the social security system that correspond to this amount.[5] It is first necessary to estimate social security accumulations for current workers. The first step is to estimate annual earnings for each worker from the start of working life to the present. These are based on earnings functions, which are estimated separately by sex, race, and schooling level. In particular, the sample is divided into 16 groups by the following characteristics: (i) white and non-white; (ii) male and female, and (iii) less than 12 years of schooling, 12 years of schooling, 13 to 15 years of schooling, and 16 or more years. For each group, an earnings equation is estimated as follows:

$$E_i = b_0 + b_1 A_i + b_2 A_i^2 + b_3 S_i + \epsilon_i,$$

where E_i is current annual earnings of individual i, A_i is current age, S_i educational attainment[6], and ϵ is a stochastic error term. The earnings function for individual i is then adjusted so that it passes through the individual's earnings in the current year.[7] Then,

$$E^*_i(t) = [\hat{b}_0 + \hat{b}_1(A_i + t) + \hat{b}_2(A_i + t)^2 + \hat{b}_3 S_i] \cdot E_i / \hat{E}_i(t)$$

gives predicted earnings for individual i at age $A_i + t$, assuming no growth in overall real earnings. Accumulated earnings, AE, from the start of working life to the present, are then estimated on the basis of the actual real growth in average earnings and the real discount rate:

$$AE_i = \sum_{t=-t_0}^{0} E^*_i(t) \cdot K_y$$

where t_0 is the number of years at work (estimated as current age less years of schooling less 5), y_c is the current year (1983), y is the calendar year given by $y_c + t$, k_y is the real growth of average earnings in year y,[8] δ_y is the real discount rate in year y, and

$$K_y = \prod_{j=y}^{y_c} (1 + \delta_j - k_j),$$

which gives the present value of earnings in year y.[9]

Future earnings, FE, from current age to age 65, are estimated in analogous fashion.[10] Two values are assumed for future real earnings growth (k): one percent per year and two percent per year. Results are similar for the two values and are shown below for only k equal to 0.01. The total lifetime earnings of worker i, TLE_i, is then given by:

$$TLE_i = AE_i + FE_i.$$

In the second step, it is assumed that each worker was continuously employed from the end of schooling to the current year y_c (1983 in this case) and that the employment and coverage status of each person remained the same over the person's work life.[11] Let ζ_y be either twice the employee social security tax rate in year y or the self-employed tax rate in that year, depending on the employment status of the worker, and $SSMAX_y$ be the maximum taxable wage base in year y in constant (1983) dollars. The social security wage base, SSWAGE, in year y for a covered worker with earnings E^*_i is then given by:

$$SSWAGE(y) = MIN\ [E^{*}_{i}(y - 1983) \cdot H_{y},\ SSMAX_{y}]$$

where MIN indicates the minimum value of the two arguments and

$$H_{y} = \prod_{j=y}^{y_c} (1 - k_{j}),$$

Then, social security annuity wealth for covered workers is given by

$$(3) \qquad SSAW_{w,i} = \sum_{y=y0}^{y_c} \zeta_{y}\ SSWAGE_{i}(y) F_{y}$$

where $y_0 = 1983 - t_0$, the year in which the person began working, and

$$F_{y} = \prod_{j=y}^{y_c} (1 - \delta_{j}),$$

For current beneficiaries, the appropriate concept is the present value of benefits that would be strictly calculated as an annuity on the person's accumulated contributions. Unfortunately, there is no information available on past earnings or contributions into the social security system in the SCF database. It is assumed that a retiree in the nth percentile of social security benefits for his age group was also in the nth percentile of the distribution of total lifetime earnings at retirement (assumed to be age 65). $SSAW_{w,n}$ is then computed for a worker of age 65 in the nth percentile of the earnings distribution. This value is then appropriately discounted, depending on the year of retirement of the beneficiary, to obtain $SSAW_{b}$.

The difference between SSEW and SSAW is what I will call "social security transfer wealth," **SSTW**. It can be defined formally as:

$$(4) \qquad SSTW = SSEW - SSAW$$

Finally, we can define total household wealth, TW, as follows:[12]

(5) $TW = HW + PW + SSEW$

Discount Rate. Two sets of discount rates are used in the calculations. The first set is based on treasury bill rates. Before 1983, the discount rate is the real one-year treasury bill rate in each year, estimated as the nominal one-year rate less the change in the CPI). For 1983 onward, the real 10-year treasury bill rate is used, estimated as the current nominal rate less the average rate of increase of the Consumer Price Index (CPI) over the previous 10 years. The second is based on the average annual real rate of return on the average household portfolio over the 1962-83 period. I calculated that the average annual real rate of return for the average household portfolio over this period was 3.28 percent. (The source is Greenwood and Wolff, 1990.)

5. Distributional Implications

A. Relative Dimension of Social Security Transfers and Annuities. It is first of interest to examine the overall ratio of the social security transfer component to the total social security benefit. This is shown in the last line of Table 1 for all households 65. Overall, social security transfers amounted to 66% of total social security income for households 65 and over in 1983 on the basis of the treasury bill discount rate. Burkhauser and Warlick (1981), whose results are based on the 1973 Social Security Exact Match file, which merges individual records from the 1973 Current Population Survey with OASI earnings and benefit records, calculated a ratio of 0.73. In previous work, I estimated a ratio of 0.85 for the 1969 data. Another study which attempted comparable calculations is Hurd and Shoven's (1983) paper. They

computed an overall ratio of social security transfer income to total social security benefits of about 0.80 for 1969 on the basis of the Retirement History Survey. These results together indicate that social security transfers comprise a rather large (perhaps, surprisingly large) proportion of social security income. In other words, the benefits received from the social security system have far outweighed the annuity value of the social security contributions. Thus, much of the social security benefits received by retirees is a pure government transfer, over and above the actual contributions made into the system by the retirees.

The three methodologies are quite different. Burkhauser and Warlick based their computations on actual earnings and OASI histories; Hurd and Shoven based theirs on actual earnings histories, though imputed social security contributions; whereas mine are based on imputations techniques for both earnings histories and OASI contributions. Despite the differences, the results still strongly suggest that the transfer component of social security income has been declining over time (that is, the annuity portion has been rising). This is mainly a consequence of the fact that the system started up in 1937, so that older retirees payed into the system for fewer years and had much lower contribution rates than more recent retirees.

Another source of difference between my results and those of Burkhauser and Warlick is that they use a rate of return in accumulating social security benefits which is equal to the annual rate of return on government bonds plus the average annual increase in average stock prices. This return is higher than the straight treasury bill rates, which will have the effect of increasing the relative proportion of the annuity component in social security income. I also made a second set of calculations on the basis of the average annual real rate of return on the average household portfolio over the 1962-83

period. On the basis of this discount rate, I calculated an overall ratio of social security transfers to benefits among elderly households of 0.61. As predicted, this is lower than the 0.66 ratio based on the treasury bill rates, though the difference is not substantial.

It is next of interest to compare the sensitivity of the results to the value of g, the expected average annual rate of growth of real social security benefits over time (panel 1 of Table 1). For this, we look at the ratio of social security transfer wealth (SSTW) to total social security entitlement wealth (SSEW). The value of SSEW increases with g, since the value of future social security benefits are higher. Since SSAW does not vary with g, the value of social security transfers also rises with g. On net, the ratio of SSTW to SSEW is found to increase with g, though the differences are not great (0.63 to 0.69 in 1983 on the basis of the treasury bill rates for g varying from 0.01 to 0.03).

The ratio of SSTW to SSEW is also found to increase systematically with age group. In 1983, the ratio varies from 0.65 for those in age group 65-69 to 0.73 for those 80 and over on the basis of the treasury bill rates. Burkhauser and Warlick found a similar result for their 1973 data: The transfer component as a proportion of the total social security benefit varied from 0.52 for the 66-67 age group; 0.71 for age class 72-75; and 0.88 for the 81-85 age group. There are two reasons for this pattern. First, older beneficiaries paid into the social security system over a fewer number of years, since the system started up in 1937, and paid lower tax rates (OASI contribution rates for employees increased from 1 percent in 1937 to 4.8 percent in 1983). Second, Congress periodically increased OASI benefit levels for retirees over the last few decades.

The results also indicate some variation in the relative proportion of social security annuities and transfers by family type and race. The relative

size of the transfer component is considerably greater for married couples than single males, though the results are comparable for married couples and single females. Moreover, the transfer component was proportionately greater for white families than black families, and the difference is particularly great on the basis of the household portfolio rate. At first glance, the results seem surprising, since married men have had, on average, higher earnings than single men, white families have had, on average, higher earnings than black families, and in addition, married couples who had worked are penalized by the social security benefit formula, which limits the spousal benefit. However, the explanation stems from differences in life expectancies, LE, between groups. On average, females have longer life expectancies than men, and whites have considerably higher life expectancies than blacks (particularly, as between males). As a result, the value of SSEW is correspondingly lower for males than for females, and for blacks than for whites.[13]

Table 2 shows the ratio of social security transfers to the total social security benefit among elderly households by income and wealth class and for selected demographic groups. The results show that the relative size of the transfer component in social security benefits declines with income class over the lower income levels (up to $15,000 in 1983 dollars), remains relatively constant over the middle income range ($15,000 to $75,000), and then declines with income over the upper income classes. This pattern is quite similar by age group, family type, and race. These results are also comparable to those of Burkhauser and Warlick, who found that for all household 65 and over, this ratio generally declines with income for lower income levels (below $4,000 in 1973 dollars) and then remains relatively constant above this level. I find an almost identical pattern for the 1983 data. These results indicate that

the social security benefit formula is **redistributive** relative to the accumulated value of social security contributions. In other words, the system pays higher benefits relative to total social security contributions for lower income families than higher income ones.

However, interestingly, there is relatively little variation in the proportion of social security transfers in social security income by wealth class. This is most likely due to the less than perfect correlation between income and wealth among elderly families. A similar finding is reported by Hurd and Shoven (1983), who also found no variation in this ratio with wealth class.

B. Social Security Transfers Relative to Total Income and Wealth. The distributional impact of social security transfers depends not on it size relative to total social security income but on its size relative to total income and wealth. These figures are displayed in Table 3. Here, considerable variation is evident by income and wealth class. Among all households 65 and over in 1983, the ratio of social security transfer income to total income averages 0.25. However, this ratio declines almost monotonically with income class, from a high of 0.59 for households with income between $7,500 and $9,999 (1983 dollars) to 0.03 for those with incomes of $100,000 or more.

The ratio of social security transfer income to total income is higher for older age groups (increasing from 0.19 for those aged 65-69 to 0.34 to those 80 and over). This is true despite the fact that average social security income is higher for younger ages, because other sources of income are proportionately lower for the more aged. Likewise, the ratio is lower for married couples than for singles, and for white families than black ones. The rationale is the same: though married couples have higher social security

income than singles and white families receive greater social security benefits than black ones, other sources of income are proportionately greater.

The overall ratio of SSTW to total household wealth TW is 0.13 in 1983. For household 65 and over, the ratio declines monotonically with wealth class, from a high of 0.41 for the lowest to 0.03 for the highest. The ratio also shows a moderate decline by age class. This result is an artifact of the method for computing SSEW, which is partly based on conditional life expectancy. Since this is lower for older people, the value of SSEW is likewise smaller, as is the value of SSTW. The ratio is also smaller for single males than for married couples and single females. Again, this is a consequence of their lower conditional life expectancy. Finally, the ratio of SSTW to TW is greater for black households than white ones, because elderly black households hold much lower wealth in other forms.

C. Distribution of Income and Wealth among the Elderly. I next consider how the social security transfer portion has affected the distribution of income and wealth among elderly households. Has the transfer component been neutral or has it tended to redistribute income toward lower income elderly households? To do this, I compare the actual distribution of income with one in which only the social security annuity is provided to retired households (that is, the transfer component is subtracted from total household income). These results are shown in Table 4.

Among all households 65 and over, the Gini coefficient for total family income less total social security income is 0.72. If we add only the social security annuity income, the Gini coefficient falls to 0.66. If we then include social security transfer income, the Gini coefficient falls to 0.58. Thus, the addition of total social security income to other income is highly redistributive among elderly households. However, the predominant equalizing

effect comes from social security transfer income, not social security annuity income. The former accounts for about 60 percent of the reduction in inequality, and the latter for about 40 percent. The results are quite similar among different demographic groups.

The same issue can be addressed with regard to household wealth. In this case, the two effects are similar in magnitude. The addition of social security accumulations (SSAW) to household wealth (HW or HW + PW) has a sizable equalizing effect, as does the further inclusion of social security transfer wealth (SSTW). For all households 65 and over, the Gini coefficient for net worth (HW) is 0.77, that for HW plus SSAW is 0.71, and that for HW plus SSEW (with g equal to 0.02) is 0.64. Here, too, results are generally quite similar by age group, household type, and race. For black families, in particular, the effects are quite large. In 1983, the Gini coefficient for HW is very high, 0.84; the addition of SSAW reduces the coefficient to 0.71; and the further addition of SSTW reduces it to 0.62, the same level as white families.

6. Tax Implications

The tax analysis is conducted on the basis of 1989 personal income tax schedules. The procedure is as follows: First, 1983 income figures are inflated to 1989 values using the CPI. Second, adjusted gross income, AGI, is estimated as the sum of all income items, excluding social security income. The taxable portion of social security income is then added back in, according to the worksheet procedure outlined in the tax code. The rate is based on "INC1", defined as the sum of all income, excluding **half** of social security income. If INC1 is less than $25,000 for single filers or $32,000 for joint returns, then all social security income is excluded from taxable income. If

INC1 exceeds these limits, INC1 is divided by two, and the lesser of this amount and total social security income is then included in AGI.

Third, the number of exemptions is computed. Fourth, the standard deduction is also computed. This is based on the filing status of the household and the number of persons 65 or older in the household. Fifth, taxable income is calculated as AGI less the number of exemptions multiplied by $2,000 less the standard deduction. Sixth, federal income tax is then computed on the basis of the appropriate tax tables.

Several limitations of the estimation are apparent: (i) itemized deductions, particularly interest payments, cannot be included in the analysis; (ii) the data analysis cannot incorporate capital gains in family income; and (iii) tax-exempt interest income or any adjustments to income are not excluded from AGI. Despite these limitations, the results are quite encouraging. Total individual federal income taxes collected in 1989 amounted to $445.7 billion (the source is the Economic Report of the President, 1991, Table B-77). My tax estimation produces a total tax figure for all households of $410.2 billion (only a 8 percent discrepancy). The tax estimates are subsequently increased by 8 percent to align with the actual figure.

I then recompute the taxes in the same way, except that I now treat the transfer portion of social security income as taxable income. Moreover, I also ignore the worksheet adjustment to social security income incorporated in the 1989 tax code. These estimates are also increased by 8 percent for alignment purposes. It should be noted that one limitation of this analysis is that behavioral responses of social security beneficiaries to the new tax schedule are not considered. Despite this, the new tax calculations can give some guidance to their overall redistributional effects and magnitude.

The first point of interest is the distributional effects of the tax treatment change of social security income. This will depend on three

factors: (i) the ratio of social security transfers to total income; (ii) the absolute level of the social security transfers; and (iii) the progressivity of the tax schedule. Though, as we have seen from Table 3, the ratio of social security transfers to total income is higher for lower income households, the progressivity of the tax schedule may make the tax treatment change equalizing rather than disequalizing.

Results on the relative incidence of the alternative tax treatment of social security income are shown in Table 5. The first panel shows the ratio of the new post-tax income to the original post-tax income. Here, it is quite clear that the main losers are lower income households. Indeed, the ratio of the new to old post-tax income rises almost monotonically with income class. Families with incomes of $46,500 or more (1989 dollars) actually pay less taxes under the alternative treatment of social security income. The reason is that the actual 1989 tax code, by including a prorated portion of social security income for high income families, results in a greater proportion of social security income entering AGI than the alternative treatment, based on the transfer portion of social security income alone.

Moreover, older households lose out relative to younger ones. For those in age group 65-69, there is a one percent decline in after-tax income with the alternative tax treatment of social security income; for those between 70 and 79, there is a 3 percent decline; and for those 80 and over, there is a four percent decline. Single females do worse than single males under the new tax treatment, and single males do worse than married couples. Black households are slightly worse off than white households under the new tax treatment.

Panel B shows estimates of the total tax receipts under the actual tax code and the alternative tax treatment of social security income. Total

personal income taxes paid by the elderly in 1989 are estimated to be 59.5 billion dollars. Under the new tax treatment of social security income (and estimation based on the treasury bill discount rate), total taxes are estimated to be 68.0 billion, or 14 percent higher. However, there is considerable variation in the incidence of the new tax burden. For households in age group 65-69, taxes would increase by only 8 percent under the new tax treatment of social security income; for those between 70 and 74, taxes would rise by 17 percent; for those 75-79, the increase would be 28 percent; and for those 80 and over, taxes would rise by 35 percent. Taxes of married couples would increase by 10 percent; those of single males by 18 percent; and those of single females by 43 percent. Black elderly households would see their tax bills rise by a staggering 83 percent! Results based on the household portfolio discount rate are very similar.

However, on net, the new tax treatment is only slightly disequalizing in comparison with the actual tax schedules (Panel C). For all households 65 and over, the Gini coefficient for pre-tax income is 0.58. The Gini coefficient for post-tax income based on the actual 1989 tax code is 0.51, while that based on the new tax treatment of social security income is 0.52. This pattern is very similar by age group, household type, and race. Thus, both the actual tax code and the alternative one are quite equalizing, though the redistributional effects of the former are slightly greater than that of the latter.

The other point of interest is to determine the relative magnitude of the new tax receipts originating from the alteration of the tax treatment of social security benefits. For this purpose, comparisons will be made between the new tax revenue and the actual wealth holdings of young households. The additional tax revenues emanating from the new tax treatment of social

security income amount to 8.5 billion. In contrast, the total net worth (HW) of households age 30 and under is 458 billion (1989) dollars, and that of households in age group 31-39 is 746 billion dollars. Thus, if the new tax receipts were placed in a capital fund for young families, they would be quite insignificant compared to their actual wealth (amounting to 1.9 percent for families 30 and under, and 0.7 percent for families 35 and under).

7. Conclusions

With regard to the distributional effects of the social security system, one of the most important findings is that social security transfers have comprised the bulk of social security income. The relative proportion of the transfer component among all retirees 65 and over was 0.85 in 1969, 0.73 in 1973, and 0.66 in 1983. A similar pattern is evident when comparing these ratios among retirees of different age groups in a given year. Thus, most of the social security benefits received by retirees is a pure government transfer, over and above the actual contributions made into the system by the beneficiaries. In other words, the benefits have far outweighed the annuity value of the social security contributions. However, the figures also indicate that the transfer component of social security income has been declining over time (that is, the annuity portion has been rising). There are two reasons for this. First, because the social security system started up in 1937, with very low OASI tax rates, more recent retirees have contributed into the system for more years and at higher levels than older ones. Second, federal legislation has periodically increased OASI benefit levels for all retirees.

The redistributional effects of social security income are very strong among the elderly. The Gini coefficient for family income less (total) social

security income is 0.72 in 1983, while that for total family income is 0.58. However, the social security benefit formula is strongly redistributive, paying out a higher benefit relative to accumulated contributions for lower income families. This is evident when comparing the distribution of pre-social security transfer income with that of post-transfer income. In 1983, the Gini coefficient for family income excluding social security transfers (but including the social security annuity portion) is 0.66, compared to 0.58 for total family income. Thus, the predominant equalizing effect of the social security system for retirees comes from social security transfer income, not social security annuity income.

With regard to the tax implications of treating the transfer portion of social security income as taxable income, the results are less than fortuitous. Within the elderly population, it is the poorer groups that are harder hit by the new tax treatment. Higher income families pay less tax under the alternative tax treatment than under the actual tax code, and lower income families pay more taxes. Older families, who are less well off in terms of both income and wealth, pay proportionately higher taxes than younger ones. While the total tax payments of families 65-69 increase by 8%, those of families 80 and over increase by 35 percent. Black families will see their tax bill grow by 83 percent, compared to 13 percent for whites. Thus, the tax incidence of the new treatment of social security income is far from equitable. However, it should be noted that, on net, the overall distributional effects of the new tax system compared to the actual code are minimal. The Gini coefficient for post-tax income under the actual system is 0.52, while that under the new system is 0.51.

Moreover, the new tax revenues raised by the new tax system would not be substantial, particularly in comparison to the wealth holdings of young

families. Total taxes of families 65 and over would rise by 8.5 billion, 14 percent of their current taxes. The new tax revenues would amount to only 1.9 percent of the wealth of families 30 and under and 0.7 percent of the wealth of families 35 and under. Thus, as the funding source of a "social security capital fund" for young families, the new tax revenues would have a minimal impact on the wealth of younger families.

However, it should be noted, in conclusion, that one can **unbundle** the loan portion of the proposed social security capital fund from the new social security taxes collected -- that is, the loan program can be based on the actual contributions into the social security system (of the individual or family). New tax revenues are not necessarily needed in order to implement the loan portion of the proposed program. The loans could be provided from the accumulated surplus of the social security trust fund, which has now grown to substantial proportions.

Footnotes

[1] Where appropriate, some comparative estimates will also be provided from the 1969 MESP database, created from a synthetic match of Internal Revenue Service tax records to the 1970 Census one-in-a-thousand Public Use Sample and the capitalization of selected income flows to corresponding asset types (for example, dividends to stock shares). The methodology is described in detail in Wolff (1980, 1982, and 1983).

[2] The concept of wealth used is actually that of "fungible wealth", i.e. that which is saleable and therefore has current market value. As a result, consumer durables and household inventories, which are included in some concepts of household wealth, are excluded here. The rationale for excluding them in this study is that their value represents consumption flows rather than income flows, the analysis of which is the principal objective here.

[3] This treatment assumes that other forms of household savings would be unaffected by this new institutional treatment of social security contributions.

It is also possible to define, in analogous fashion, pension accumulation wealth, based on actual contributions made by employees and employers into private pension reserves. However, this imputation is much more problematic and is not of direct interest here. See Wolff (1987b and forthcoming) for more discussion.

[4] Separate imputations were performed for husband and wife and an adjustment in the social security benefit was made for the surviving spouse.

[5] However, the social security system does keep track of these accumulations for each individual, and the benefit received depends on this record.

[6] A schooling variable is not included for the high school graduate group.

[7] This implicitly assumes that there is no transitory component to current

income.

[8] For the 1947-83 period, the figures used are average hourly earnings in private non-agricultural industries, adjusted for overtime and interindustry employment shifts. The data source is the Economic Report of the President, 1990, Table B-44. Before 1947, I use real total wages and salaries per employed person (computed from Tables B-24 and B-33).

[9] It would be desirable to have separate values of g_y for each of the 16 groups enumerated above -- or, at least, for each of the four schooling groups. Unfortunately, the data were not available. As a result, it is assumed that real earnings growth over time is the same for each group -- that is, is equal to overall mean earnings growth in each year.

[10] It is assumed throughout that current workers retire at age 65. In 1969 and 1983, 65 was the mandatory retirement age for most workers. It was also the normal retirement age as embodied in the social security and most private pension benefit formulae. Statistically, it has remained the modal retirement age since 1962, though the percent of the labor force retiring before age 65 has been increasing and the proportion retiring after 65 has been declining.

[11] These assumptions will lead to greater equality in the distribution of social security accumulations than is likely to be the case in actuality.

[12] Technically, the cash surrender value of pension plans is excluded from HW.

[13] For married couples, the value of LE is the greater of the two spouses, with an adjustment in SSB for the survivor benefit (see equation 1).

References

Avery, Robert B., Gregory Ellihausen, Glenn B. Canner, and Thomas A. Gustafson, "Survey of Consumer Finances, 1983." Federal Reserve Bulletin, September, 1984, 679-92.

Burkhauser, Richard V., and Jennifer L. Warlick, "Disentangling the Annuity from the Redistributive Aspects of Social Security in the United States," Review of Income and Wealth, Series 27, No. 4, December, 1981, 4C1-21.

Council of Economic Advisers, Economic Report of the President, 1990, (Washington, D.C.: Government Printing Office), 1990.

Feldstein, Martin S., "Social Security, Induced Retirement and Aggregate Capital Accumulation," Journal of Political Economy, Vol. 82, October 1974, 905-926.

———, "Social Security and the Distribution of Wealth," Journal of the American Statistical Association, Vol. 71, December, 1976, 800-7.

Greenwood, Daphne T., and Edward N. Wolff, "Relative Wealth Holdings of Children and the Elderly in the United States," in John L. Palmer, Timothy Smeeding, and Barbara Boyle Torrey eds., The Vulnerable (Washington, D.C.: Urban Institute Press), 1988

Greenwood, Daphne T., and Edward N. Wolff, "Changes in Age-Wealth Profiles: Savings, Revaluation, and Inheritance," C.V. Starr Working Paper No. 90-33, August, 1990.

Wolff, Edward N., "Estimates of the 1969 Size Distribution of Household Wealth in the U.S. from a Synthetic Database," in James D. Smith, ed., Modeling the Distribution and Intergenerational Transmission of Wealth, (Chicago: Chicago University Press), 1980.

———, "Effect of Alternative Imputation Techniques on Estimates of Household Wealth in the U.S. in 1969," In D. Kessler, A. Masson,

and D. Strauss-Kahn, eds., Accumulation et Repartition des Patrimoines, (Paris: Economica), 1982.

———, "The Size Distribution of Household Disposable Wealth in the United States," Review of Income and Wealth, Series 29, June 1983, 125-146.

———, "Estimates of Household Wealth Inequality in the United States, 1962-83," Review of Income and Wealth, Series 33 September, 1987a, 231-56.

———,"The Effects of Pensions and Social Security on the Distribution of Wealth in the U.S.", in International Comparisons of Household Wealth Distribution, E. Wolff ed., Oxford University Press, 1987b.

———, "Social Security, Pensions, and the Life Cycle Accumulation of Wealth: Some Empirical Tests," Annales d'Economie et de Statistique, No. 9, Janvier/Mars, 1988, 199-226.

———,"Methodological Issues in the Estimation of Retirement Wealth," in D. Slottje ed., Research in Economic Inequality, Vol. 2, (forthcoming).

Table 1
The Ratio of Social Security Transfer Wealth (SSTW) to Total Social Security Entitlement Wealth (SSEW): Summary Table, 1983[a]

	T-Bill Rate[b]	Portfolio Rate[c]
1. All		
a. g=.01	0.63	0.57
b. g=.02	0.66	0.61
c. g=.03	0.69	0.65
2. Age Group		
a. 65-69	0.63	0.61
b. 70-74	0.65	0.60
c. 75-79	0.68	0.60
d. 80 and over	0.73	0.64
3. Family Type		
a. Married Couples	0.67	0.63
b. Single Males	0.56	0.49
c. Single Females	0.66	0.61
4. Race[e]		
a. Whites	0.66	0.62
b. Blacks	0.61	0.45
Addendum: Overall Ratio of Social Security Transfer Income to Total Social Security Income	0.66	0.61

a. Source: own calculations from the 1983 SCF file. The parameter g is the expected average annual rate of growth of real social security benefits over time. Calculations are performed with g=.02 unless otherwise indicated.

b. Based on the annual one-year real Treasury bill rate until 1983 and the 10-year real treasury bill rate from 1983 thereafter.

c. Based on the average annual real rate of return on the average household portfolio, 1962-83. The source is Greenwood and Wolff (1990).

d. Age group is based on the age of the head of household.

e. Based on head of household. Families with Hispanic surnames are classified as white or black, depending on race. Whites include Asians and other races.

Table 2
The Ratio of Social Security Transfers to Total Social Security Benefits By Income and Wealth Class, and Age Group, Family Type and Race, 1983[a]

	Percent of HH (65+)	Age Group[b]					Family Type (65+)			Race (65+)[c]	
		65+	65-69	70-74	75-79	80+	Marr. Coup.	Sing. Male	Sing. Fem.	White	Black
A. Income Class											
Under $5,000	19.4	.77	.74	.76	.78	.78	.80	.69	.77	.77	.74
5,000-7,499	15.1	.68	.68	.64	.71	.67	.72	.53	.67	.69	.64
7,500-9,999	11.8	.66	.68	.62	.66	.69	.69	.49	.63	.67	.58
10,000-14,999	19.9	.64	.61	.63	.68	.73	.67	.50	.61	.65	.53
15,000-19,999	9.5	.66	.62	.66	.71	.75	.68	.53	.64	.67	.53
20,000-24,999	6.5	.64	.64	.57	.60	.76	.64	.62	.66	.64	.65
25,000-37,499	7.3	.67	.66	.69	.58	.72	.67	.62	.68	.67	.49
37,500-49,999	4.5	.61	.59	.61	.65	.77	.61	.48	.69	.61	.61
50,000-74,999	3.2	.68	.62	.73	.68	.75	.70	.49	.54	.69	.54
75,000-99,999	1.0	.56	.64	[d]	.76	[d]	.55	[d]	.66	.56	[d]
100,000 or more	1.8	.57	.44	.66	.66	.67	.56	.68	.56	.57	.66
B. Wealth Class											
Under $10,000	2.9	.67	.65	.64	.69	.70	.67	.59	.69	.69	.63
10,000-24,999	1.5	.68	.65	.70	.67	.77	.69	.48	.71	.69	.64
25,000-37,499	6.7	.67	.65	.65	.67	.71	.69	.48	.70	.69	.57
37,500-49,999	6.9	.68	.66	.69	.69	.72	.70	.46	.68	.69	.61
50,000-74,999	12.4	.66	.66	.64	.70	.74	.68	.49	.65	.67	.51
75,000-99,999	7.3	.66	.61	.64	.69	.73	.66	.58	.67	.67	.61
100,000-249,999	9.5	.65	.62	.61	.67	.74	.66	.61	.63	.65	.59
250,000-499,999	7.9	.63	.60	.66	.56	.75	.63	.57	.69	.63	.59
500,000 or more	7.9	.65	.61	.67	.71	.70	.66	.59	.63	.65	.54
C. All	100.0	.66	.63	.65	.68	.73	.67	.56	.66	.66	.61
No. of HH (mill.)		16.13	5.59	4.57	3.20	2.77	8.19	1.54	6.41	13.90	2.23
Sample Size		816	298	229	161	128	452	76	288	714	102

a. Source: own calculations from the 1983 SCF file, on the basis of the treasury bill discount rate.

b. Based on the age of the head of household.

c. Based on head of household. Families with Hispanic surnames are classified as white or black, depending on race. Whites include Asians and other races.

d. The cell has fewer than 10 observations.

Table 3
The Ratio of Social Security Transfers to Total Income and Wealth
By Income and Wealth Class, and Age Group, Family Type and Race, 1983[a]

	Age Group[b]					Family Type (65+)			Race (65+)[c]	
	65+	65-69	70-74	75-79	80+	Marr. Couple	Sing. Male	Sing. Fem.	White	Black
A. Social Security Transfer Income / Total Income by Income Class										
Under $5,000	.55	.57	.57	.53	.52	.62	.62	.51	.57	.48
5,000-7,499	.57	.56	.54	.61	.56	.70	.64	.50	.60	.48
7,500-9,999	.59	.61	.54	.65	.54	.69	.55	.45	.60	.54
10,000-14,999	.50	.47	.54	.48	.53	.55	.49	.42	.51	.44
15,000-19,999	.41	.40	.44	.41	.39	.45	.46	.33	.42	.34
20,000-24,999	.31	.29	.25	.30	.43	.31	.37	.23	.30	.32
25,000-37,499	.27	.30	.24	.20	.25	.28	.38	.24	.28	.08
37,500-49,999	.15	.16	.11	.22	.09	.17	.24	.03	.14	.38
50,000-74,999	.10	.07	.13	.06	.18	.10	.09	.07	.09	.11
75,000-99,999	.04	.03	.10	.07	[e]	.03	[e]	.27	.04	[e]
100,000 or more	.03	.02	.05	.03	.02	.03	.04	.05	.03	[e]
All	.25	.19	.28	.31	.34	.22	.33	.35	.24	.35
B. Social Security Transfer Wealth (SSTW) / Total Wealth (TW) by Wealth Class[d]										
Under $10,000	.41	.46	.40	.38	.32	.50	.26	.35	.43	.37
10,000-24,999	.39	.41	.46	.28	.24	.45	.23	.27	.41	.32
25,000-37,499	.32	.40	.35	.23	.23	.41	.12	.19	.35	.25
37,500-49,999	.31	.40	.34	.18	.16	.40	.14	.17	.32	.13
50,000-74,999	.29	.35	.23	.24	.15	.35	.11	.22	.29	.21
75,000-99,999	.22	.22	.20	.24	.16	.26	.08	.13	.21	.28
100,000-249,999	.17	.22	.16	.11	.11	.20	.03	.13	.17	.13
250,000-499,999	.11	.12	.10	.04	.14	.11	.13	.05	.11	.07
500,000 or more	.03	.03	.04	.02	.01	.03	.01	.03	.03	.04
All	.13	.14	.14	.12	.10	.14	.08	.14	.13	.21

a. Source: own calculations from the 1983 SCF file, on the basis of the treasury bill discount rate.

b. Based on the age of the head of household.

c. Based on head of household. Families with Hispanic surnames are classified as white or black, depending on race. Whites include Asians and other races.

d. Total household wealth TW = HW + PW + SSEW. The expected average annual rate of growth of real social security benefits, g, is assumed to be 0.02.

e. The cell has fewer than 10 observations.

Table 4

The Distributional Effects of Social Security Transfers:
Gini Coefficients for Selected Concepts of Income and Wealth, 1983[a]

	Age Group[b]					Family Type (65+)			Race (65+)[c]	
	65+	65-69	70-74	75-79	80+	Marr. Couple	Sing. Male	Sing. Fem.	White	Black
A. Income										
1. Total Inc. - Soc. Sec. Inc.	.716	.690	.706	.701	.669	.709	.710	.557	.714	.603
2. Total Inc. - Soc. Sec. Transf	.661	.641	.638	.638	.616	.656	.631	.508	.659	.554
3. Total Income	.578	.571	.550	.539	.533	.565	.561	.433	.574	.485
B. Wealth[d]										
1. HH Wealth(HW)	.771	.778	.743	.740	.772	.768	.766	.695	.754	.840
2. HW + SSAW	.708	.714	.671	.673	.712	.705	.684	.624	.693	.711
3. HW + PW	.713	.710	.682	.681	.726	.712	.697	.614	.700	.690
4. HW + PW +SSAW	.666	.664	.628	.633	.678	.663	.637	.570	.654	.631
a) g = .01[e]										
5a. HW + SSEW	.647	.638	.604	.617	.679	.624	.655	.570	.633	.628
6a. HW+PW+SSEW	.616	.600	.571	.587	.651	.592	.617	.534	.604	.583
b) g = .02[e]										
5b. HW + SSEW	.641	.629	.597	.613	.676	.615	.651	.565	.627	.623
6b. HW+PW+SSEW	.611	.593	.565	.583	.649	.585	.615	.531	.599	.580
c) g = .03[e]										
5c. HW + SSEW	.635	.619	.590	.608	.674	.606	.647	.561	.621	.617
6c. HW+PW+SSEW	.606	.585	.560	.579	.647	.577	.612	.529	.594	.577

a. Source: own calculations from the 1983 SCF files, on the basis of the treasury bill discount rate.

b. Based on the age of the head of household.

c. Based on head of household. Families with Hispanic surnames are classified as white or black, depending on race. Whites include Asians and other races.

d. Key: HW -- fungible household wealth; PW -- pension wealth; SSAW -- social security accumulations; SSEW -- social security entitlement wealth; and SSTW -- social security transfer wealth, where SSTW = SSEW - SSAW.

e. The parameter g is the expected average annual rate of growth of real social security benefits over time.

Table 5
The Ratio of Alternative Post-Tax Income to Original Post-Tax Income
By Income Class, Age Group, Family Type and Race, 1989[a]

	Age Group									
	65+	65-69	70-74	75-79	80+	Marr. Coup.	Sing. Male	Sing. Fem.	White	Black
A. Income Class: Treasury bill rate (1989 dollars)										
Under $6,250	.94	.94	.94	.94	.94	.94	.94	.94	.94	.95
6,250-9,374	.94	.94	.95	.94	.94	.93	.95	.95	.94	.96
9,275-12,499	.94	.94	.95	.94	.94	.93	.96	.95	.94	.95
12,500-18,749	.95	.95	.96	.95	.94	.94	.96	.96	.95	.96
18,750-24,999	.95	.96	.95	.95	.95	.95	.96	.96	.95	.97
25,000-31,249	.97	.97	.98	.97	.95	.97	.96	.98	.97	.97
31,250-46,874	.97	.97	.98	.98	.98	.97	.96	.98	.97	.99
46,875-62,499	1.01	1.02	1.01	1.00	1.00	1.01	1.03	1.00	1.01	.97
62,500-93,749	1.01	1.01	1.02	1.01	1.02	1.01	1.02	1.02	1.01	1.02
93,750-125,499	1.01	1.01	1.04	1.01	--	1.01	--	1.04	1.01	--
125,000 or more	1.00	1.00	1.00	1.00	1.00	1.00	1.01	1.01	1.00	1.00
All	.98	.99	.97	.97	.96	.98	.97	.96	.98	.97
B. Total Tax Payments (billions, 1989$)										
1. Original Taxes	59.5	34.4	14.0	6.7	4.4	48.8	4.1	6.6	58.6	1.0
(a) Treasury bill rate										
2a. Additional Taxes	8.5	2.6	2.4	1.9	1.5	4.9	0.8	2.8	7.6	0.8
3a. Percentage Change in Tax Bill	14%	8%	17%	28%	35%	10%	18%	43%	13%	83%
(b) Household portfolio rate										
2a. Additional Taxes	7.6	2.5	2.2	1.6	1.3	4.4	0.6	2.6	6.8	0.7
3a. Percentage Change in Tax Bill	13%	7%	16%	25%	31%	9%	16%	40%	12%	82%
C. Gini Coefficients										
1. Pre-Tax Income	.578	.571	.550	.539	.533	.565	.561	.433	.574	.485
(a) Treasury bill rate										
2a. Original Post-Tax Income	.508	.505	.479	.467	.466	.489	.485	.373	.504	.421
3a. Alternative Post-Tax Income	.520	.517	.491	.479	.476	.504	.495	.381	.517	.429
(b) Household portfolio rate										
2b. Original Post-Tax Income	.508	.505	.479	.467	.466	.489	.485	.373	.504	.421
3b. Alternative Post-Tax Income	.520	.517	.490	.478	.475	.503	.494	.381	.517	.429

a. Source: own calculations from the 1983 SCF file. See text for details on tax calculations.