How Effective Is Redistribution Under The Social Security Benefit Formula?

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I. Introduction

This paper uses earnings histories obtained from the Social Security Administration and linked to the survey responses for participants in the Health and Retirement Study (HRS) to investigate redistribution under the current social security benefit formula. The empirical analysis shows how the Social Security System, with its progressive formula specified according to *individual* earnings, supplemented by a policy designed to redistribute benefits from dual earner toward single earner families, affects the distribution of benefits among *families* with different lifetime earnings or earning capacities.

Under the current benefit formula, those who have low covered lifetime earnings have higher benefits relative to earnings than do those with high earnings. Specifically, the formula for 2000 specifies benefits that are 90 percent of the first $6,372 of annual earnings, 32 percent of the next $32,052, and 15 percent of the remainder up to the maximum of covered earnings. As advertised, when individuals in the HRS are arrayed by indexed lifetime earnings, own benefits are significantly redistributed from those with high lifetime earnings to those with low lifetime earnings.

The focus on the *individual* is misplaced, however. From a public policy perspective, the proper accounting unit for evaluating redistribution is the *family*. The relation of the earnings distributions for individuals and for families depends on the correlation of the wage and labor supply for each spouse and between spouses. Because wives have lower wages than husbands, the social security benefit formula fosters less redistribution among families than among individuals. Effectively, some of the redistribution at the individual level is from husbands with greater lifetime earnings to their wives with lower lifetime earnings.

Spouse and survivor benefits also mitigate the degree of redistribution. The amount of these benefits depends on the earnings of the spouse, and is greater the greater the difference between the lifetime earnings of the two spouses. Spouse and survivor benefits are larger in families with high earnings. When families are arrayed according to total lifetime earnings, and spouse and survivor benefits are taken into account, the extent of redistribution from families with high lifetime earnings to families with low lifetime earnings is roughly half that found when redistribution is measured among individuals arrayed according to their earnings.

Low lifetime earnings may arise because individuals have low wage rates, or because they work few hours or years. We also use the HRS data to examine redistribution among

families arrayed by their earnings capacities. When families are arrayed by their earnings potential, that is earnings during years when both spouses are engaged in substantial work, there is very little redistribution from families with high to low earnings capacity. Thus the remaining part of the redistribution found at the level of the individual is from those in families where both spouses spend much of their potential work lives in the labor market, to families where a spouse, often with high earnings potential, chooses to spend a significant number of years outside of the labor force.

The calculations we make are directly relevant to the debate about the effects of privatizing some or all of the Social Security System. It is often argued that privatization would undermine the redistribution fostered by the progressive social security benefit formula. However, our findings show that at least for families on the verge of retirement today, introducing a simple system of privatized or other individual accounts, i.e., a system that ignored issues of redistribution, would have no major effect on the distribution of social security benefits net of taxes among families with different earnings capacities. Moreover, although privatized or other individual accounts would reduce redistribution from two earner to one earner families, the extent of that redistribution is greatly exaggerated if one looks only at the redistribution among individuals arrayed according to lifetime earnings.

II. Description of the Empirical Findings

The Data: The Health and Retirement Study (HRS) is a longitudinal, nationally representative study of older Americans with at least one household member born from 1931 to 1941. The survey began in 1992 with an initial cohort of 12,652 individuals from 7,607 households. Social security earnings histories were linked for 9,472 respondents, or about 75 percent of the respondents to the survey.

AIME, Yearly Earnings and Years of Work for Men and Women: To understand the relation of yearly earnings to years of work and to AIME, consider the data in Table 3 from our complete paper. Column 1 shows the distribution of average indexed yearly earnings, i.e., AIME times 12. The average is around $15,000 for all respondents, with averages of around $23,000 for males and $8,000 for females.

The second column reports the number of years with significant earnings. To avoid including low-paying summer jobs and similar work in the averages, we introduce the notion of "significant" earnings. To calculate significant earnings, we first find the average of the highest

five years of indexed earnings (in order to mute the effect of a year of very high earnings). Earnings in any particular year are presumed to be significant if the indexed earnings in that year are at least 25% of this average. Almost a fifth of the earnings years are excluded because they involved very low earnings, and this ratio is slightly larger for women than for men. Correspondingly, average earnings are higher by about a sixth if years with very low earnings are excluded. Again, this ratio is higher for women than for men.

The last column in Table 3 indicates that almost two thirds of women fall within the lowest three AIME groups, with almost one third falling within the very lowest AIME group, which averages 6 years of significant work and $6,000 in average earnings in those year. In contrast, only 15 percent of men fall within the lowest three AIME groups. Because the women fall predominantly in the lowest AIME groups, with few years of earnings and low earnings in those years, overall they have 60 percent of the years of significant earnings compared to men, and 50 percent of the earnings in those years, as reported in the last row of the table.

Individual AIME vs. Family Income: Columns 4 and 7 in Table 3 report lifetime household earnings. For men, low AIME amounts are associated with very low levels of lifetime household earnings, but for women the household earnings amounts corresponding to low AIME's are much higher. Men with AIME's between 0 and $3,000 have lifetime household earnings of only $170,000, but women with the same level of AIME have household earnings of almost $700,000. Thus many women with low AIME's are married to men with higher earning power, although the same does not seem to be true of men with low AIME's.

Table 5 presents the distribution of lifetime family earnings grouped by the AIME category of the respondents. Here earnings are measured by the total indexed social security earnings of both spouses. Note that for a married couple, there will be two entries in the table, one for the AIME level of each spouse. The most notable feature of this table, particularly for the lower AIME brackets, is the bimodal distributions of the lifetime household incomes within each AIME bracket. In the bottom two AIME categories, for example, 15-20% have lifetime household earnings in excess of $1,250,000, which is 25% above the median lifetime household earnings level of about $1,000,000.

Measures of Redistribution Due to Social Security: Next we consider the extent of redistribution fostered by the current Social Security System. We consider redistribution on the

basis of each individual's earnings, on the basis of total family earnings, and on the basis of *potential* family earnings, which is what the family could earn if both partners worked full time.[1]

Tables 9 and 10 measure redistribution among the various deciles. In the first panel of Table 9, individuals are organized into deciles according to their own AIME. The first of these two rows compares actual benefits of the group to the benefits that would have been received if benefits were simply pro-rated to taxes *for the entire population*. This measure of redistribution is a measure of *net* redistribution *to* the decile. For instance, the value of 37% in the fourth decile means that the actual benefits of that decile are 37% higher than would be the case if benefits were proportional of taxes for the entire population. This 37% obviously comes at the expense of other deciles. This measure is essentially meaningless for the first decile, which pays few taxes and receives almost no benefits. In the second and third deciles, over half of the benefits received by those in those deciles are due to redistribution of benefits from other deciles. On the other hand, those in the top AIME decile receive 33% less than their pro-rata share of taxes; those benefits are redistributed to those in other deciles.

In the first panel of Table 9, first row, there appears to be substantial redistribution to those in the bottom deciles from those in the top deciles. From the bottom row we see that at the level of the family, there is much less redistribution taking place. Individuals with low AIME are often from families with high earnings and high taxes, and appropriately do not benefit from redistribution.

The second panel in Table 9 shows what happens when families are ordered by their AIME. Looking at the bottom line of the second panel, at the level of the family, there is less than half of the redistribution from high to low AIME deciles than is found among individuals, on the basis of own earnings.

Table 10 orders families by earnings potential, as measured by significant earnings. From the last row in Table 10, we see that families with low earnings potential are benefiting very little

[1] These estimates include all age eligible respondents, regardless of whether they had a social security record or not. We impute records for those for whom none was obtained. Further, these results use earnings which are projected beyond 1991 until the individual's indicated expected retirement age. The AIME figures reported in this section are the real value of the expected actual AIME. Nominal earnings amounts are indexed by the social security average annual earnings index up to age 60, as specified in the AIME calculation rules, and the value of the nominal AIME is adjusted from age 62 to 1992 using the Social Security Administration's projected inflation rate.

from redistribution under the benefit formula. By comparing the bottom row of Table 10 with the bottom row of Table 9, we see that what redistribution there is at the level of the family appears to be from families where both spouses are not working to families where both spouses are working.

Rates of Return by AIME, Family Income, and Family Earnings Capacity: Figure 1 summarizes these results by graphing the rates of return to social security taxes paid for those falling within AIME and earnings deciles. The top panel shows the strong redistribution when deciles are computed according to each respondent's AIME, and also shows the 25^{th} to 75^{th} percentile range of the rates of return within each decile. In the second panel, where individuals are grouped by family AIME, the solid line becomes flatter, corresponding to the finding above that almost half the redistribution fostered by the social security benefit formula is eliminated when we evaluate redistribution on a family rather than on an individual basis. In the third panel, where families are grouped according to their significant earnings, the system redistributes hardly at all. Virtually all of the redistribution is within deciles rather than between deciles. Taken together these results suggest that whatever redistribution exists under the current system is largely redistribution among families with similar potential earnings capacities, and that the redistribution benefits traditional families with a spouse who chooses not to work.

III. Conclusion.

A direct examination of the social security benefit formula, and a finding that benefits are redistributed from high to low earners when people are classified according to own AIME, might suggest to policy makers that the current system is highly redistributive. One might then believe that there is a considerable potential cost in terms of foregone redistribution to going from the present system to an alternative that does not explicitly redistribute, e.g., to a system of national retirement accounts that is neutral with regard to redistribution. However, our evidence suggests that it is a mistake to argue for the current social security benefit formula on the grounds that it is highly redistributive from families with high earnings potential to families with lower potential. A better argument could be made if the focus were on redistributing from two earner families to traditional families with one earner and a stay-at-home spouse, but even here there is much less redistribution than is suggested by applying the social security benefit formula to individual earnings histories.

Table 3: Earnings and Years of Work By AIME Group and Gender

	Males				F	
	In Years with Significant Earnings*				In Years with Significant Earnings*	
Annualized AIME	Number of Years	Annual Earnings	Lifetime Household Earnings	Percent of Obser-vations	Number of Years	Annual Earnings
$ 0-3K	7	$ 8K	$ 170K	5%	6	$ 6K
3-6	12	14	280	5	14	12
6-9	16	17	430	5	19	14
9-12	20	18	510	6	21	17
12-15	24	20	660	6	25	19
15-18	26	22	770	7	26	23
18-21	28	24	880	7	28	25
21-24	30	27	980	9	30	26
24-27	31	29	1150	9	30	30
27-30	32	32	1230	11	32	32
30-33	33	34	1380	13	30	37
33-36	33	37	1460	12	34	35
36+	36	38	1560	8	36	37
All Respondents	27	27	1010	100	16	14

*Significant earnings are indexed yearly earnings that amount to at least 25 percent of the average of the high earnings.

Table 5
Distribution of Lifetime Household Earnings Within AIME Categories

	Annualized AIME										
	$ 0-3K	3-6	6-9	9-12	12-15	15-18	18-21	21-24	24-27	27-30	30-33
Lifetime Household Earnings Level											
$ 0-100K	28%										
100-200	6	27%									
200-300	5	6	24%								
300-400	4	4	9	24%							
400-500	4	4	5	12	21%						
500-750	11	10	11	12	24	46%	38%	3%			
750-1000	13	11	11	9	13	15	24	51	40%	12%	
1000-1250	15	15	12	9	7	9	11	20	24	48	36%
1250-1500	14	19	17	17	14	9	7	9	16	24	36
1500-2000	1	4	11	17	22	20	18	12	15	12	22
2000+						1	3	5	5	3	7
Column Total	100%	100	100	100	100	100	100	100	100	100	100
Percent of Observations	19%	12	9	8	7	6	6	6	5	6	7

Table 9
Share of Benefits Redistributed to Group by AIME Decile

(Figures Are the Percentage of Benefits Accruing to the Decile Which Have Been Redistributed from

				Annualized Individual AIME Decile			
Annualized AIME Range*	$ 0-0.2	0.2-4	4-7	7-11	11-16	16-21	21-26
Own Benefits and Taxes	-	57%	53	37	22	11	1
Including Spouse and Survivor Benefits	-	51	47	30	14	5	-2
Family Benefits and Taxes	26	23	18	11	3	-3	-9

			Annualized Family AIME Deciles				
Annualized AIME Range*	$ 0-3K	3-8	8-14	14-20	20-26	26-31	31-36
Own Benefits and Taxes	33%	50	28	13	4	-4	-10
Including Spouse and Survivor Benefits	25	44	22	9	2	-1	-4
Family Benefits and Taxes	30	23	13	3	-2	-2	-4

*In thousands of dollars.

Table 10
Share of Benefits Redistributed to Group by Earnings Decile

(Figures Are the Percentage of Benefits Accruing to the Decile Which Have Been Redistrib uted fror

	Individual Significant Annual Earnings De						
	$ 0-6K	6-10	10-14	14-17	17-21	21-26	26-31
Own Benefits and Taxes	53%	50	38	25	13	3	-7
Including Spouse and Survivor Benefits	46	43	30	18	7	1	-6
Family Benefits and Taxes	28	20	14	6	1	-5	-11

	Combined Significant Annual Earnings D						
	$ 0-13K	13-21	21-29	29-35	35-41	41-46	46-53
Own Benefits and Taxes	43%	20	2	-3	-5	-5	-5
Including Spouse and Survivor Benefits	36	14	2	-1	0	-2	-4
Family Benefits and Taxes	21	7	3	1	2	-2	-3

*Significant earnings are indexed yearly earnings that amount to at least 25 percent of the average of the high fiv earnings.

Figure 1
Social Security Rates of Return by AIME and Annual Earnings Deciles
25th-75th Percentile Ranges, with Medians Indicated