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POVERTY AMONG THE ELDERLY:  
WHERE ARE THE HOLES  
IN THE SAFETY NET?

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Poverty Among the Elderly:  
Where are the Holes in the Safety Net?

ABSTRACT

Using data from the longitudinal retirement history survey (RHS), we examine the economic status of the cohort of the elderly who were 68 - 73 years old by 1979 to see who fell through the safety net in the 1970s. Our most important finding is that a non-trivial fraction of the elderly in the age/vintage group we study either remained poor, became poor, or had very low replacement rates in terms of their total income. This occurred despite the enormous general improvement of the economic status of the elderly, part of which was made possible by very large increases in real Social Security benefits.

Examination of the characteristics of those who fell through the safety net reveal that females, especially widows, were the most likely candidates for economic difficulty in this cohort in this stage of their life.

We also note a sharp difference in realizations of retirement income expectations among those who were poor and/or had low replacement rates relative to those who were well off and/or had high replacement rates. Both groups received substantially more Social Security benefits than expected, whereas those with (ex post) low replacement rates received less in pensions and continued earnings than they had expected while those with high replacement rates received more than expected.

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## 1. Introduction

A substantial body of research, combined with aggregate and average official government statistics, documents the absolute and relative real income gains made by the elderly population of the United States in the last fifteen years. The large increase in real Social Security benefits in the early 1970s, and their subsequent indexing, were a major source of this improved economic position of the elderly. It also coincided with a substantial acceleration of early retirement, a lengthening of life expectancies, and other factors affecting the welfare of the elderly.

Among the most important factors which have been documented concerning the economic status of the elderly over this period are the following:

1. A sharp reduction in the incidence of poverty among the elderly, which even continued in the 1981-2 recession;
2. The substantial increase in absolute and relative real income of the non-poor elderly;
3. The (historically) approximate neutrality of inflation on the cost-of-living of the elderly relative to the rest of the population; and also the likely lower inflation vulnerability of the elderly, given their typical asset ownership (especially housing and Social Security);
4. The substantial increase in economic resources, given various conceptual adjustments, of the elderly during their retirement years relative to their own career average earnings.<sup>1</sup>

Various other factors could be mentioned, and we do not mean to imply that more research on the factors mentioned above is unnecessary; certainly, we are in need of improved understanding of these phenomena. However, it is our tentative conclusion that subsequent research is unlikely to alter the qualitative results of this set of findings.

The previous research mentioned above refers primarily to the typical, or average, situation of elderly retirees, and in particular, to the younger cohorts of elderly retirees, since those are the groups for which data are most readily available. A correlative, and important, question is given this remarkable social achievement of lifting the bulk of the elderly out of poverty, and substantially increasing the real incomes of many of them, what fraction were not so fortunate? How many stayed poor? Who were they? Who was so unfortunate as to suffer substantial declines in their incomes relative to career average earnings? Who had particularly low or particularly high replacement rates?

The purpose of this paper is to begin to answer such questions. Again, we focus on a particular data set and a particular cohort of the elderly, and even within this data set, described below, we must winnow our sample down for various reasons. Our analysis, however, is nonetheless revealing. A non-trivial fraction of the elderly were left behind, and various characteristics of this group can be ascertained. Also, a modest fraction of elderly retirees although well-off prior to retirement suffered substantial real income declines and could now be described as relatively poor. Again, our analysis suggests that this phenomenon is not randomly distributed across the elderly population, but heavily concentrated in particular groups, i.e., widows.

Thus, our goal is both to supplement previous studies of the average or typical real incomes or replacement rates of the elderly during retirement and to highlight the heterogeneity in the change in the economic well-being of the elderly. Toward this end, the next section describes our data and methodology. We basically attempt to examine three sets of phenomena using the Longitudinal Retirement History Survey. We attempt to examine who among the elderly were poor in the late 1970s; who among the elderly were well-off prior to retirement but suffered substantial declines in real incomes post-retirement;

and who among the elderly had quite low or high (unadjusted) replacement rates. In our previous research, we concluded that various important adjustments should be made to the typical way replacement rates are calculated to gain a more accurate scalar measure of the economic well-being of typical, or average, elderly individuals and families, relative to their own earlier working lives. We adjusted replacement rates for such things as taxes, career average versus high three years of earnings, risk, childrearing costs, etc. In this paper, as described in more detail below, we take a somewhat more conventional view and just examine income during retirement unadjusted for taxes, risk, childrearing and other expenses. We do this both for comparability with other studies and to separate the two issues of a preferable way to approximate the well-being of typical elderly retirees and families from the detailed study of the poor elderly.

Section 3 presents two types of information on each of the three questions posed above. The first type of information consists of cross-tabulations of post-retirement income by pre-retirement earnings by various characteristics. We examine, in this way, the fractions of the elderly who are poor, suffer substantial income declines, and had high and low replacement rates, as well as characteristics of these groups relative to the general elderly group under study. The second presents a probit analysis of some characteristics potentially correlated with each of these outcomes and discusses the analysis. This is just a richer way of examining the data; we do not present a structural interpretation of factors associated with, for example, poverty in old age, just a probabilistic analysis of factors associated with it.

Section 4 concludes the paper with a summary of the results, some of the potential implications of the analysis, and some avenues for further research.

## 2. Data

All of the empirical results of the next section are based on the Retirement History Survey conducted from 1969-79 by the Social Security Administration. The survey initially included 11,153 households whose heads were born between 1905 and 1911. There was substantial attrition (due to placement in nursing homes or loss of contact as well as by death) for each successive biennial survey, so that only 7,352 original respondents or their widows remained to answer the last survey in 1979.

Respondents were surveyed in odd-numbered years concerning current family composition, labor force participation, health, activities, and assets and wealth and concerning the previous (even-numbered) years' income and benefits. Replacement rates are calculated here for the years prior to the survey years. The Social Security Administration prepared a matched data set of its records of the survey respondents' and spouses' covered earnings through 1974. It is this information which was used to determine the earnings histories which formed the denominator in the calculation of replacement rates.

Social Security Administration records consider only the earnings for each year in each job which totalled less than the year's maximum taxable earnings. In cases where reported covered earnings equalled or exceeded the taxable maximum, the following imputation procedures were used:

The few cases of covered earnings above the taxable maximum were taken as given. In these instances the person paid taxes in two or more jobs. We assumed that earnings in neither job exceeded the taxable maximum.

In cases where covered earnings equalled the taxable maximum, we assumed that the taxable maximum was attained in the middle of the last quarter in which taxes were paid. If, for example, the respondents finished paying social security taxes in the third quarter, we imputed his year's wage income to be  $8/5$  times the taxable maximum. This method should prove relatively unbiased, if inexact.

A household was excluded from our tabulations if at least one of the following conditions holds (number excluded in parentheses):

(1) Household reports federal or military pension income in 1971, 1973, 1975, 1977 or 1979. (N = 239)

(2) Respondent never reports self retired or partly retired, or the respondent's spouse is always reported either working or looking for a job, but not at work. (N = 825)

(3) The household shows no earnings subject to Social Security taxes between 1958 and 1974. (N = 553)

(4) Household dies or is lost from the survey before 1977. (N = 664)

For the regressions of the next section, we also eliminated those households who had 1977 income, 1969 financial or non-financial wealth or expected total income after retirement of less than \$100. This left us with a sample of 5,644 households for 1977.

The paper reports total income replacement rates relative to career average indexed earnings. Total income was constructed by summing the households' income from wages, interest and dividends, rent, annuities, pensions, relatives, disability benefits, state welfare benefits, workers' compensation, AFDC, unemployment insurance, SSI and social security (old age, disability, survivor's and black lung benefits). Career average indexed earnings averages earnings over the period 1951 to the earlier of retirement or 1974. The indexing is done with the Personal Consumption Expenditure deflator.

Before turning to the empirical results, it is worth mentioning that the data are not for the elderly in general, but for a particular cohort of people who were 67-72 years old in 1977. These households are not representative of the entire elderly population for many reasons. First, none of them are extremely old. Second, almost all of them benefitted from the sharp increase

in the level of real Social Security benefits which occurred in the 1960s and early 1970s. Third, they enjoyed the rapidly rising real wages of the 1950s and 60s. The main point is simply that we are looking at a fairly narrow age cohort for a moment in time (1977 for the most part in this paper). The experiences of this group should be generalized only with extreme caution.

### 3. Analysis of Who Has Low Incomes and/or Replacement Rates Among the RHS Sample

Table 1A gives a cross tabulation of 1976 post-retirement income on career average pre-retirement earnings for all retired households in the 1977 survey which met our selection criteria and which did not have missing information for any of the income categories. It also shows the median replacement rate for each cell, where this replacement rate is total retirement income relative to price-indexed "career average" pre-retirement earnings.<sup>2</sup> The figures are not adjusted for family size, taxes, and risk as we did in our previous paper. If those adjustments were made, and we feel that there is a good case for them, the replacement rates would be significantly higher.

Of particular concern to us are the 674 households (or 16 percent of the sample) whose post retirement income was below \$3,000 in 1976. Of those households, 547 had career average household earnings of less than \$5,000, indicating that their relative poverty was a lifetime phenomenon. It is quite rare that those with above average earnings (say, those with career average earnings in excess of \$20,000) end up with less than \$3,000 in retirement. For the entire sample this happened in only 33 instances, although the frequency of occurrence was about 4 percent for those whose earnings did, indeed, exceed \$20,000.

A small minority of households end up with more real income in retirement than their career average earnings. While this is not precisely illustrated in Table 1A, that table does show that 8 percent of those with pre-



Table 1A  
 Number of Households and Median Replacement Rates:  
 Cross-Tabulation of 1976 Post Retirement Income and  
 Career Average Pre-Retirement Earnings, For All Households

Career Average Pre-Retirement Income

1976 Income	\$0- \$1K	\$1- \$3K	\$3- \$5K	\$5- \$10K	\$10- \$20K	\$20- \$30K	> \$30K	Row Totals
\$0- \$1K	9 118%	12 23%	12 10%	25 8%	26 2%	11 2%	3 1%	98 7%
\$1- \$3K	168 1333%	202 274%	150 130%	197 78%	107 47%	13 26%	6 9%	843 138%
\$3- \$5k	56 2304%	100 374%	104 184%	281 106%	344 68%	54 46%	9 23%	948 96%
\$5- \$10K	37 5463%	45 724%	64 329%	198 180%	747 90%	269 70%	60 46%	1420 92%
\$10- \$20K	20 9696%	16 941%	19 456%	59 306%	204 154%	230 99%	106 73%	654 120%
\$20- \$30K	4 7221%	2 1534%	2 1021%	6 389%	31 270%	25 160%	25 104%	95 204%
> \$30K	2 8528%	1 2232%	2 1128%	2 641%	15 632%	9 299%	29 138%	60 249%
Column Totals	296 1833%	378 348%	353 169%	768 112%	1474 87%	611 78%	238 64%	4118 105%

Table 1B  
 Numbers of Household & Median Replacement Rates:  
 Cross-Tabulation of 1976 Post-Retirement Income &  
 Career Average Pre-Retirement Earnings, For Married Couples

Career Average Pre-Retirement Income

1976 Income	\$0- \$1K	\$1- \$3K	\$3- \$5K	\$5- \$10K	\$10- \$20K	\$20- \$30K	> \$30K	Row Totals
\$0- \$1K	2 111%	2 10%	3 8%	4 7%	5 4%	3 7%	1 3%	20 7%
\$1- \$3K	12 776%	24 207%	26 108%	38 64%	18 33%	3 19%	2 7%	123 85%
\$3- \$5K	13 1173%	40 266%	52 151%	108 90%	112 58%	10 34%	3 20%	338 87%
\$5- \$10K-	14 3482%	24 663%	33 313%	102 158%	514 85%	214 68%	42 44%	943 83%
\$10- \$20K	9 5778%	10 845%	15 427%	45 279%	157 143%	195 97%	94 73%	525 111%
\$20- \$30K	2 7221%	1 2149%	1 1021%	5 389%	27 263%	20 160%	23 97%	79 193%
> \$30K	1 8528%	1 2232%	2 1128%	2 641%	11 628%	7 257%	27 136%	51 214%
Column Totals	53 1901%	102 334%	132 177%	304 117%	844 87%	452 79%	192 68%	2079 92%

Table 1C  
 Numbers of Households & Median Replacement Rates:  
 Cross-Tabulation of 1976 Post-Retirement Income &  
 Career Average Pre-Retirement Earnings, For Widows

Career Average Pre-Retirement Income

1976 Income	\$0- \$1K	\$1- \$3K	\$3- \$5K	\$5- \$10K	\$10- \$20K	\$20- \$30K	> \$30	Row Totals
\$0- \$1K	5 107%	6 32%	7 13%	12 8%	13 6%	5 0%	1 0%	49 10%
\$1- \$3K	117 1411%	128 306%	86 139%	110 82%	75 52%	10 31%	3 9%	529 160%
\$3- \$5K	36 2716%	47 491%	40 238%	112 125%	165 75%	40 48%	6 25%	446 104%
\$5- \$10K	16 5964%	17 765%	27 382%	64 209%	146 126%	42 78%	15 50%	327 148%
\$10- \$20K	7 9696%	4 1174%	3 710%	11 417%	27 256%	20 130%	8 97%	80 247%
\$20- \$30K	2 7023%	0 0%	0 0%	0 0%	3 391%	2 219%	2 122%	9 314%
> \$30K	0 0%	0 0%	0 0%	0 0%	2 783%	1 299%	2 169%	5 299%
Column Totals	183 1812%	202 366%	163 177%	309 118%	431 84%	120 67%	37 53%	1445 133%

retirement career average indexed earnings under \$10,000, have post retirement incomes above \$10,000. The corresponding figure for crossing the \$20,000 threshold is 2 percent (i.e., 2 percent of those whose career average indexed earnings were below \$20,000 have retirement income in excess of \$20,000).

Tables 1B and 1C contain the same information separately for married couples and widows. The most obvious result is that widows are far more likely to suffer a sharp fall in retirement income relative to the household's pre-retirement earnings. Of those widows whose households' career average earnings were between \$10,000 and \$20,000, fully 59 percent of them have retirement incomes under \$5,000. Thirty-nine percent of those with career average earnings between \$5,000 and \$10,000 wind up with retirement income under \$3,000. This collapse into relative poverty for widows partly reflects inadequate insurance and lack of joint survivor pension annuities.

Table 2 contains some detailed characteristics of households with low and high unadjusted career average replacement rates. A comparison of the first two columns of the first page of the table contrasts the average figures for those with replacement rates greater than 200 percent with those whose replacement rates are under 67 percent. For those with total income replacement rates of greater than 200 percent, 1976 Social Security income amounted to 27 percent of 1976 income and 55 percent of career average earnings. For those with low replacement rates, Social Security in 1976 amounted to 67 percent of 1976 income and 15 percent of career average earnings. In absolute dollars, those with low replacement rates on average received more from Social Security than those with high replacement rates.

One aspect of Table 2 which we find interesting is that the low and high replacement rate households expected in 1973 to have roughly the same post-retirement income. However, the high replacement rate group actually received

Table 2  
Financial & Other Characteristics of  
Households with High and Low Replacement Rates

Variable	1976 Total Income Rep. Rate > 200%	1976 Total Income Rep. Rate < 67%	1976 Total Income Rep. Rate < 67%, for Married	1976 Total Income Rep. Rate < 67%, for Widowed
Income (1976)	8345	4712	6320	2845
Income Expected (73)*	5884	6361	7325	5236
Soc. Sec. Inc. (76)	2266	3159	4005	2185
Soc. Sec. Inc. Exp. (73)	1668	2616	2589	2365
Pension Inc. (76)	1970	854	1364	210
Pension Inc. Exp. (73)	1430	1175	1538	799
Earnings Inc. (76)	983	122	203	50
Earnings Inc. Exp. (73)	478	719	652	745
Financial Wealth (69)	10430	9288	10134	8435
Financial Wealth (76)	18559	12335	16445	8341
Non-Fin. Wealth (69)	9658	13636	15605	13608
Non-Fin. Wealth (76)	24983	23660	29358	20281
Career Average Earnings	4086	21134	24093	18611
High-3 Earnings	7808	28437	31846	26040

\*Respondent's expected post-retirement income, as reported in 1973.

Table 2  
Financial & Other Characteristics of  
Households with High and Low Replacement Rates

Variable	1976 Total Income Rep. Rate > 200%	1976 Total Income Rep. Rate < 67%	1976 Total Income Rep. Rate < 67%, for Married	1976 Total Income Rep. Rate < 67%, for Widowed
Race (69)				
White	82%	92%	94%	92%
Black/Other	18	8	6	8
Sex (69)				
Male	50%	93%	98%	94%
Female	50	7	2	6
Median Age (69)	60	60	60	60
Employment Status (77)				
Retired	55%	68%	91%	33%
Keeping House	31	21	1	56
Disabled	10	6	6	7
Unemployed	1	1	0	1
Job/Not at work	0	0	0	0
Working	0	0	0	1
Other	4	4	1	3
Health vs. Others' (Survey before retirement)				
Better	29%	28%	32%	22%
Same	44	48	47	50
Worse	22	19	15	23
Marital Status (69/77)				
Married	43% 32%	85% 54%	97% 100%	90% 0%
Widowed	40% 51%	4% 33%	1% 0%	8% 100%
Div/Sep.	11% 10%	3% 4%	2% 0%	1% 0%
Never marr.	5% 5%	7% 7%	0% 0%	0% 0%
Pension				
Yes	66%	34%	47%	17%
No	34	66	53	83

Table 2  
 Financial & Other Characteristics of  
 Households with High and Low Replacement Rates

Variable	1976 Total Income Rep. Rate > 200%	1976 Total Income Rep. Rate < 67%	1976 Total Income Rep. Rate < 67%, for Married	1977 Total Income Rep. Rate < 67%, for Widowed
Survey Retires				
1969	34%	16%	11%	17%
1971	15	18	16	23
1973	18	29	32	24
1975	16	22	25	19
1977	16	15	15	17
1979	0	0	0	0
Pre-Retirement Income (77 survey)				
<\$7500	84%	7%	4%	10%
\$7500-\$12500	9	17	10	20
\$12500-\$20000	5	37	37	38
\$20000-\$30000	2	24	28	23
>\$30000	1	16	21	9
Number of Households	994	812	435	267

77 percent greater income in 1976. Social Security, pensions, and earnings were all well above expectations for the high replacement rate group, whereas pensions and earnings were below expectations for the low replacement rate households. Fully 29 percent of the low replacement rate group are widows whose husbands died since 1969.

Table 3 contains the same detailed figures for those whose retirement income is low in absolute terms. As already mentioned, more than half of these households are widows. Social Security and a small amount of earnings amounts to 78 percent of their income. Pension income is very low and below expectations. Earnings are also below expectations. Note that these groups with very low income are 55 and 61 percent widows, respectively. As was apparent in Table 1A, most of these people had low career average earnings.

Table 4 contains some summary information regarding those excluded from our selection criteria. Several observations can be made. First, those with military or federal pensions are very well off, with very high pensions relative to other people. They also had more than \$30,000 in financial wealth in 1977, more than any other group. Those who had not retired by 1977 also have above average incomes, and substantial amounts of financial wealth.

Table 5 illustrates the distribution of replacement rates for six different pre-retirement earnings classes. Table 5 shows that only 20 percent of the \$7,500 - \$12,500 category had a replacement rate of below 60 percent (when only Social Security and pension income are included).<sup>3</sup> Thus, we conclude that less than 30 percent of these households are forced to make significant downward adjustments in their consumption potential. The percentages of households with low replacement rates are slightly higher for the higher earnings categories, but it should be mentioned that other sources of income certainly reduce the number of households who face these downward resource adjustments.



Table 3  
Financial and Other Characteristics of Low Income Households

Variable (year reported)	1976 Income < Poverty Line	Very Low 1976 Income**
Income (77)	\$2574	\$2072
Income Expected (73)*	2909	2784
Social Security Inc. (77)	1966	1627
Social Security Inc. Exp. (73)*	1740	1706
Pension Income (77)	158	57
Pension Income Expected (73)*	279	198
Earnings Income (77)	48	29
Earnings Income Expected (73)*	461	427
Financial Wealth (69)	2876	2794
Financial Wealth (77)	3575	2886
Non-Financial Wealth (69)	5637	5080
Non-Financial Wealth (77)	11082	9754
Career-Average Earnings	6746	5914
High-3 Earnings	10353	9227

\* Respondent's expected post-retirement income, as reported in 1973.

\*\* <\$3000

Table 3  
Financial and Other Characteristics of Low Income Households

Variable (year reported)	1976 Income < Poverty Line	Very Low 1976 Income**
Race (69)		
White	79%	77%
Black/Other	21	23
Sex (69)		
Male	60%	53%
Female	40	47
Median Age (69)	60	60
Employment Status (77)		
Retired	47%	42%
Keeping House	36	41
Disabled	12	11
Unemployed	1	0
Job/Not at work	0	0
Working	1	0
Other	3	5
Health vs. Others' (in Survey before retirement)		
Better	22%	21%
Same	45	46
Worse	27	27
Marital Status (69/77)		
Married	51%    25%	43% 15%
Widowed	30    55	34    61
Divorced/Separated	12    11	14    14
Never Married	7    7	8    8
Pension		
Yes	13%	7%
No	87	93

Table 3  
Financial and Other Characteristics of Low Income Households

Variable (year reported)	1976 Income < Poverty Line	Very Low 1976 Income**
Survey Retires		
1969	30%	33%
1971	20	21
1973	21	19
1975	18	16
1977	12	11
1979	0	0
Pre-Retirement Income (77)		
<\$7500	66%	71%
\$7500-\$12500	20	18
\$12500-\$20000	10	8
\$20000-\$30000	4	3
>\$30000	1	1
Total Income Replacement Rate (77)		
<67%	38%	39%
67%-100%	18	15
100%-200%	18	17
>200%	26	29
Number of Households	1320	926

Table 4  
Financial Characteristics of  
Households Excluded from  
Main Analysis

Variable	Had Federal or Military Pension	Had No Covered Soc. Sec. Earnings	Does Not Retire	Dies or is Lost from Survey
Income (in 1969 survey)	\$11862	\$2948	\$10445	\$6380
Income (76)	15103	5058	14470	6617
Income Expected (73)*	9530	3804	6277	4819
Social Security Inc. (76)	2354	1469	2080	2781
Social Security Exp. (73)*	1347	741	2282	1891
Pension Inc. (76)	6337	1719	1001	1131
Pension Inc. Exp. (73)*	4602	1313	1252	1212
Earnings Inc. (76)	5270	481	10569	602
Earnings Inc. Exp. (73)*	1692	176	4019	1222
Financial Wealth (69)	9232	7671	12451	6921
Financial Wealth (77)	30081	10353	24487	12465
Non-Financial Wealth (69)	16019	9013	15939	9901
Non-Financial Wealth (77)	39047	14299	41697	20661
Career-Average Earnings	9117	0	16359	13022
High-3 Earnings	14500	0	25067	18953
Number of Households	239	553	825	664

\* Respondent's expected post-retirement income, as reported in 1973.

Table 5  
 Distribution of 1976 Social Security + Pension  
 Replacement Rates for Married Couples

Pre-Retirement Career Earnings

Percentile	\$0- \$7.5K	\$7.5- \$12.5K	\$12.5- \$20K	\$20- \$30K	\$30- \$50K	> \$50K
95%	1574*	204*	118*	106*	93*	80*
90%	772	156	104	92	84	67
80%	338	111	90	81	71	55
70%	209	95	81	74	65	43
60%	165	86	76	68	60	40
50%	130	78	71	63	57	33
40%	115	74	66	57	47	26
30%	98	68	61	53	40	20
20%	84	60	54	47	33	12
10%	65	49	44	36	28	8
5%	7	35	32	27	18	5

\*For example: Married couples who received between \$20,000 and \$30,000 in career average earnings had a median replacement rate of 63%. Ten percent of these couples had replacement rates of 92% or higher.

We can summarize some of the tabular results thus far. First, despite the high average or median replacement rates, a significant fraction of elderly households end up with very low incomes and/or with sharply lower resources than they had during their working careers. There is a wide distribution of replacement rates. A nontrivial percentage of households actually have higher real income in retirement than their career average earnings history. The group most likely to have a low income or have suffered a large income decline is widows. The sharply higher incidence of poverty and income loss by widows suggests that public policy may have failed in this particular area.

Our tabular results also show that based on expectations reported in 1973, both those with high and low actual 1976 replacement rates received more Social Security income than anticipated. This clearly indicates that the increase in Social Security which occurred between those years conveyed a windfall gain on this population. Likewise, those with high replacement rates, most of whom had a history of low earnings levels, received more in pensions than expected and more in labor market earnings in 1976. On the other hand, those with low replacement rates, received less in pensions and earnings than they had expected.

## Probit Analysis of Low Incomes and Low Replacement Rates

Beyond the simple cross-tabulation of post-retirement incomes and pre-retirement career average earnings, and an examination of the average characteristics of poor and low replacement rate families with the general elderly population, it is worthwhile to attempt to examine the factors most closely associated with low incomes and low replacement rates. Our analysis of these phenomena are presented below in Tables 6 and 7. These report, respectively, probit analyses of the probability of moving from relatively high pre-retirement career average earnings to low post-retirement income, and the probability of being very poor and of low replacement rates. The analyses are performed on a relevant subset of the data described in Section 2 above. For example, the analyses of movement from well-off to poor is done on the subset of individuals who had pre-retirement career average earnings above \$20,000.00 (indexed). The probabilities of low incomes and low replacement rates are based on the more complete samples described above. Each of the analyses in the tables provide some preliminary insights into the characteristics associated with higher probabilities of the economic circumstances described.

Table 6 presents two probit analyses of the probability of moving from high to low incomes. Our approach, in these as well as subsequent regressions, is to attempt to isolate and measure various potential characteristics likely to be associated with the events under analyses. Thus, in the first column of Table 6 we note that the factors having the greatest potential impact on the likelihood of moving from a pre-retirement career average earnings of a house hold exceeding \$20,000.00 to a post-retirement income under \$5,000.00 are that the respondent was newly widowed, separated or divorced in the sample period; and working in the opposite direction, was expected retirement income. Those who retired later (or in later surveys) were less likely to suffer a sharp drop in economic resources.

Definitions of Variables used in PROBITs

RICHPOOR	- 1 if career average pre-retirement income > \$20,000 and post-retirement income < \$5000 - 0 otherwise
VPOOR	- 1 if 1976 post-retirement income < \$3000 - 0 otherwise
LOWRR	- 1 if 1976 total income replacement rate < 50% - 0 otherwise
FEMALE	- 1 if female in 1969; - 0 otherwise
NEWWS	- 1 if marital status in 1969 was not widowed, separated or divorced <u>and</u> marital status in 1977 = widowed, separated or divorced.
RETSUR	- Survey in which household retirees (1-1969, ..., 5-1977)
LCAEARN	- log Average Pre-Retirement Earnings
LEXPINC	- log (total income which respondent expected in 1973 survey to have after retirement)
OWNHOME	- 1 if house market value > \$10,000 - 0 otherwise
AGE	- Age in 1969
BLACK	- 1 if black/other in 1969; - 0 if white
HSHSIZE	- Household size in 1969
BADHLTH	- 1 if health reported as "worse than others" in the last survey before retirement. - 0 if reported as "same as others" or "better than others"
SMSA	- Code for city size (goes from 1 to 7 as population class goes from <25,000 to >1,000,000).



EDUC - Years of education

WSD69 - 1 if marital status = widowed,  
separated or divorced in 1969;  
= 0 otherwise

CNTOERN - # of years of 0 reported covered  
Social Security earnings before  
retirement.

LFW69 = Log (1969 financial wealth)

Table 6  
 Probit Analysis of Characteristics of Households  
 Suffering Severe Income  
 Declines in Retirement

Dependent Variables		
	RichPoor*	Mean=0.0780
C	2.810 (4.383)	6.66 (3.46)
AGE	-0.085 (0.056)	-0.084 (.051)
NEWWSL	0.975 (0.187)	0.937 (0.176)
RETSUR	-0.252 (0.080)	-0.257 (0.075)
LEXPINC	-0.279 (0.081)	-0.245 (0.078)
LFW69	-0.067 (0.054)	-0.033 (0.051)
FEMALE	-0.444 (0.602)	
BLACK	-0.117 (0.616)	
OWNHOME	-0.048 (0.198)	
LCAEARN	0.401 (0.259)	
WSD69	0.645 (0.444)	
SINGLE	0.510 (0.492)	
SMSA	-0.019 (0.034)	
EDUC	0.018 (0.014)	
HSHSIZE	0.019 (0.081)	
BADHLTH	0.172 (0.242)	
# Obs.	628	628

\*Equals 1 if pre-retirement career average earnings > \$20,000 and 1976 post-retirement income < \$5,000. Equals 0 otherwise.

Table 7  
 Probit Analysis of Characteristics of  
 Poor and Low Replacement Rate Households

Dependent Variables				
	VPoor*	(Mean = 0.135)	LOWRR+	(Mean = 0.146)
C	6.99 (1.612)	5.377 (0.482)	-4.856 (1.714)	-4.706 (1.600)
FEMALE	0.240 (0.166)	-0.177 (0.109)	-0.104 (0.184)	-- --
NEWWS	0.481 (0.110)	0.562 (0.096)	0.541 (0.094)	0.064 (0.090)
RETSUR	-0.120 (0.033)	-0.114 (0.030)	-0.119 (0.034)	-0.110 (0.032)
LCAEARN	-0.361 (0.042)	-0.375 (0.041)	0.993 (0.089)	0.913 (0.075)
LEXPINC	-0.283 (0.039)	-0.317 (0.037)	-0.203 (0.040)	-0.232 (0.038)
OWNHOME	-0.125 (0.083)	-0.193 (0.080)	-0.017 (0.085)	
AGE	-0.022 (0.024)		-0.043 (0.024)	
BLACK	0.293 (0.177)		0.064 (0.214)	
HSHSIZE	0.017 (0.036)		-0.035 (0.040)	
BADHLTH	0.016 (0.010)		0.105 (0.104)	
SMSA	0.017 (0.016)		-0.009 (0.007)	
EDUC	0.025 (0.007)		-0.018 (0.007)	
WSD69	-0.411 (0.169)			
LFW69	-0.040 (0.027)		-0.077 (0.026)	
# Obs.	2003	2003	2003	2003

\*Equals 1 if 1976 income < \$3,000 and equals 0 otherwise.

+Equals 1 if 1976 Total Income Replacement Rate < 50% and equals 0 otherwise.

Factors such as age within the six years of age cohorts we examine and the log of financial wealth in 1969, have coefficients suggesting modest negative impacts on this probability.

The second column includes a larger number of potential variables which have been discussed in the literature, such as race, health, location, education, etc. Again, the most important in terms of the size of the coefficient and statistical significance appear to be newly widowed, separated or divorced and low expected income. The coefficient for widows as of 1969 is large and significant. Age is significant, suggesting that as we look at older people in this cohort, they are slightly less likely to move from rich to poor; those retiring later are also somewhat less likely to see their incomes collapse; and the log of financial wealth shows up as marginally significant in decreasing the probability of income collapse as it increases for those with incomes above \$20,000.00. The other variables, again, tend to have small coefficients and are not statistically significant. The original set of variables have coefficients which are quite similar in the regression with the expanded list of variables.

We should not be surprised that we are unable to identify precisely the impact on substantial reductions in income from the large number of potential candidates in our winnowed sample. Among other things, there are undoubtedly a variety of case-specific considerations which cause such events which cannot be captured in most of the types of variables we have here. The newly widowed, separated or divorced variable, however, is one and obviously has an immense impact on the probability of income collapse.

Table 7 presents analogous probit analyses for the probability of post-retirement income roughly below the poverty line. The first column reveals that females and those who are newly widowed, separated or divorced, are much more likely to be very poor than the general population. Those who retire

later, have greater pre-retirement earnings (hardly a surprise) expected retirement income, or own a home have substantially lower probabilities of being very poor. The coefficients of other variables measuring household size, location, poor health, widowed in 1969, and the log of financial wealth, have very small coefficients and are not statistically significant. The second column, again, excludes some of these variables and adds race and age. Once again, females and newly widowed have substantially higher probabilities of very low incomes in their retirement years than do the general population. The coefficient on the dummy variable for blacks is also substantial, and at the margin of statistical significance. Once again, those retiring later, with substantially greater career average earnings, or with greater expected retirement income, are much less likely to be poor in old age. We included in this regression a dummy variable taking the value 1 if the household owns its home. Home ownership is a substantial fraction of non-financial wealth. The probability of low incomes decreases substantially for the group that owns its home. Taken as a whole, this way of arranging the data suggests that despite the enormous reduction of the incidence of poverty among the elderly by 1977, which has continued since that time, some glaring problems remain: particularly those associated with elderly females, especially those newly widowed, separated or divorced. Perhaps this reflects the characteristics of pensions discussed above. One curiosity is that the widow's benefit was raised to 100 percent, and should be replacing a very high fraction of the first few thousand dollars of earnings. Apparently, for many elderly widows, there is virtually no other income source, and for some elderly widows, Social Security has not filled the poverty gap.

The last two columns of Table 7 provide an analysis of the group in the population which has a 1976 post-retirement replacement rate less than 50 percent. Recall that this is the unadjusted replacement rate, i.e., the ratio

of 1976 post-retirement income to pre-retirement price-indexed career average earnings. The price-indexing and the career averaging are the only adjustments made to the traditional replacement rate figures (although we do look at total income, not just Social Security). We do not make any of the adjustments we made in our previous paper for factors such as risk, taxes, cost of children, etc. We have a large list of potential characteristics similar to those above, but not surprisingly, some of them merely reflect the progressive nature of the benefit formula. Recall, the benefit formula replaces a much higher fraction of the first few thousand dollars of earnings than of subsequent earnings, and therefore, one can be poor and have a replacement rate substantially in excess of 50 percent. Thus, in examining those with low replacement rates, we are much more likely to be discussing those further up the income scale. Once again, widows, whether newly widowed or widowed at the start of the survey period (1969), are much more likely to have low replacement rates. Also apparent, though hardly surprising in view of the progressive nature of the benefit formula, is the substantial positive impact of higher career average earnings on the probability of low replacement rates. Quite simply, those with substantial career average earnings are much more likely to have lower replacement rates due to the progressive nature of the benefit formula. The factors which appear to have a negative effect on the probability of low replacement rates are, most importantly, the retirement vintage, financial wealth, and expected retirement income. That those who retired later are less likely to have low replacement rates reflect both, at least in part, the double indexing of Social Security for several years prior to the retirement date involved and the "Gordon" effect, replacing low wage years with high wage years in the benefit computation. Most of the other variables have coefficients which are quite small, and not statistically significant. Of marginal economic significance, but statistical significance, are those reflecting location in an SMSA and years

of education; the more highly educated and less rural population is less likely to have low replacement rates.

Taken as a whole, the results reported in Tables 5, 6, and 7 suggest, historically, some substantial gaps in the safety net for the elderly. An enormous social achievement occurred in the reduction of the incidence of poverty among the elderly, although the cost in terms of society's transferring resources to the elderly was substantial and the target effectiveness of these transfers is open to question. Various types of conclusions can be drawn. Perhaps the most important is that females, especially widows, were much more likely to be left behind than males, or intact couples. Finally, we are not at this point able to provide a structural interpretation to these events. Was it due to problems in the annuitization and survivorship rights in pensions? To case-specific events which we cannot identify? If the primary purpose of a social insurance program is to prevent destitution among the elderly, and to provide a floor to replacement rates, we will need to generate better data and methods to answer these questions in order to design more cost-conscious and target effective public income support systems for the elderly.

#### 4. Conclusion

We have attempted to complement previous research on the general economic status of the elderly with an examination of who fell through the safety net in the 1970s. The analysis must be regarded as preliminary in some respects, and as suggestive in others. Clearly, the most important finding is that a non-trivial fraction of the elderly in the age/vintage group we study either remained poor, became poor, or had very low replacement rates in terms of their total income. This occurred despite the enormous general improvement of the economic status of the elderly, part of which was made possible by very large increases in real Social Security benefits.

Examination of the characteristics of those who fell through the safety net reveal that females, especially widows, were the most likely candidates for economic difficulty in this cohort in this stage of their life.

A variety of other variables seem to impact the probability of low incomes and/or low replacement rates. For example, those who retired relatively early tended to be more likely to be poor and/or to have low replacement rates. This partly reflects particular institutional features surrounding Social Security and its double indexing for a brief period, but it also partly reflects factors influencing retirement in the first place.

A variety of other intriguing findings were mentioned, including the sharp differences in realizations of retirement income expectations among those who were poor and/or had low replacement rates relative to those who did well. Perhaps much of this seems self-evident in retrospect, but it is important to attempt to get behind these numbers to reasons why these events occurred. Undoubtedly, many of them had case-specific causes. The results here are suggestive of a need for further research on the structure and nature of the survivorship and annuity features of pensions; the coverage and marital status provisions of Social Security; as well as a more detailed study of the relationships between actual retirement income outcomes and expectations.

In short, we hope that the work in this paper helps stimulate research on those left behind in the general improvement of the economic status of the elderly, and on the private and governmental income support systems designed to assist these people.



### Footnotes

1. These facts are documented in numerous recent studies. While numerous authors have commented on various factors related to the improved economic status of the elderly, we refer the reader to the following as examples: M. Boskin (1986); M. Boskin and J. Shoven (1984); M. Hurd and J. Shoven (1982); M. Hurd and J. Shoven (1985); and M. Boskin and M. Hurd (1982). These papers provide references to the research of others on the topic; the other research comes to quite similar qualitative conclusions.

2. We use average indexed earnings from 1951-74 or 1951 to retirement; thus, "career average" is really the average over roughly the two decades prior to retirement.

3. In Boskin and Shoven (1986), we demonstrated that an unadjusted replacement rate of around 70 percent translated into full replacement when tax, family size and risk adjustments are included. Thus, an unadjusted replacement rate of 60 percent would be marginally below full replacement.

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