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# Older Workers Uninsured for Retired-Worker Benefits

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This article estimates the number of persons who have worked in employment covered by the social security program but not enough to meet minimum requirements for retired-worker benefits. On the basis of a sample of persons near retirement age in 1973, it was found that about 70 percent of these persons are women, that they have worked an average of about 8 quarters, and that many of those ineligible have had no work in covered employment since 1950. An estimated 12 percent of men and 29 percent of women aged 57-64 in 1973, with some covered employment in the period 1937-73, will be ineligible for retired-worker benefits. When only those with more recent covered employment are considered, the percentage ineligible declines. Thus, of those who have worked since 1950, 6 percent of the men and 20 percent of the women will not qualify.

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To be eligible for a retired worker's benefit under the social security program, an individual must have a minimum number of calendar quarters in employment covered by that program. Some workers have not fulfilled this minimum requirement for retired-worker benefits although they have worked in covered employment. Responsive to the concern expressed from time to time about these workers, data were analyzed to see how many and who are the persons in the ineligible group.

As anticipated, the group studied is comprised mainly of women—some of whom have spent much of their lives outside the paid labor force. Many of these women are eligible for a dependent's or a dependent survivor's benefit, almost always based on the husband's earnings record.<sup>1</sup> That fact is outside the scope of the present article.

Many of the men not eligible for retired-worker benefits under the program probably have spent most of their worklives under another retirement system. In State or local government employment covered by a separate retirement system, for example, or in the Federal civil service where most workers are covered under their own retirement system.

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<sup>1</sup> Studies have shown that few women have neither a retired worker nor a dependent's benefit. See Susan Grad, "Economically Dependent Persons Without Pension Coverage in Old Age," *Social Security Bulletin*, October 1975.

The primary purpose here is to determine the proportion of workers who had covered employment but lack eligibility for retired-worker benefits. Some characteristics of this ineligible group are explored: Sex distribution, number of quarters worked, and whether the work was in the remote or recent past. This dimension of the program has heretofore not been quantified.

To be eligible for retired-worker benefits a person who attained age 21 before 1950 must have acquired a quarter of coverage—that is, earned \$50 or more in covered employment in a calendar quarter—for each year that elapsed after 1950, up to the year he or she reaches age 62.<sup>2</sup> To be fully insured a person aged 62 in 1979 must have worked in covered employment for 28 quarters or the equivalent of 7 years. Workers reaching age 21 in 1950 or later need 40 quarters of coverage to be fully insured.

Several questions are considered:

How many workers with some covered employment who are at or near retirement age will be ineligible for retired-worker benefits?

How many are men and how many women? Do women, on the average, work more quarters than do

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<sup>2</sup> Men who attained age 62 before 1973 have the years up to age 65 taken into account. Those aged 61 and 62 in 1973 have the years up to ages 63 and 64, respectively, taken into account when they become eligible. The formula for eligibility is the same for men and women reaching age 62 in 1976 and remains the same thereafter.

not count for benefits than men? When are these quarters earned?

Has the average number of quarters worked by ineligible workers increased as the number of quarters required for coverage increased?

Has the earnings minimum—\$50 per quarter—been a major cause of the number of workers ineligible for retired-worker benefits?

Data from Social Security Administration records are used to answer these questions. Only those workers at or near retirement age (aged 57–64 in 1973) were included in the analysis. The proportion of younger cohorts eligible for retirement benefits could not be determined since a substantial portion of their worklives remains in the future. Even for the sample under consideration, the proportions who would remain ineligible for retired-worker benefits could only be estimated.

## Background

The data presented here are derived from records maintained by the Social Security Administration. The Continuous Work History Sample (CWHS) is used most extensively. For certain purposes the summary earnings record (SER), an administrative record of earnings, is also used.

The CWHS<sup>3</sup> contains data on sex, race, and age of a sample of applicants for social security numbers, as well as their earnings in covered employment (annual since 1937, on a quarterly basis since 1951). The files of the Social Security Administration do not contain data on marital status, occupation, or the extent of noncovered employment. It is therefore not possible, for example, to report how many of those not eligible for retired-worker benefits will be eligible for a dependent's benefit under the program or for benefits from another retirement system through Federal or noncovered State or local employment. Some workers in nonprofit and religious organizations also are excluded from coverage. (About 9 out of 10 gainfully employed persons are, however, in jobs covered by the old-age, survivors, disability, and health insurance (OASDHI) program.)

The analysis focuses on those workers aged 57–64 in 1973, with some covered employment and therefore some contributions to the program during the period 1937 (the year the social security program began operations) through 1973. The number of workers with covered employment was distributed by quarters of coverage and by age. From this distribution the proportion of workers who have ever worked but are ineligible for retired-worker benefits as of 1973 is estimated.

Data for workers known to have died during the study period were removed from the sample and analyzed separately. Since deaths are underreported on the earn-

ings record, not all those who have died have been removed from the sample. A person is classified as "known dead" on the earnings record if a lump-sum death benefit claim was filed on his or her account. If a person is already a beneficiary, report of death is required by law and payment of death benefits and assignment of a "known dead" status are automatic. For nonbeneficiaries, however, death is known only if such a claim is filed. If the deceased person had little or no covered employment in the recent past and had not acquired many quarters of coverage, the need to file a claim may be overlooked by those handling the estate. An adjustment based on estimates<sup>4</sup> for unreported deaths is made in tables 3 and 5 (technical note, page 11).

Grouping workers who die before acquiring fully insured status with workers who lived to retirement age but did not have enough covered employment to receive benefits would have produced a misleading upward bias in the estimate of proportions of workers eligible.

For some purposes (discussed later), it is desirable to confine the analysis to those with comparatively recent work—even though some workers are thereby excluded. Separate estimates of eligibility status are therefore made for the group of workers active in covered employment from 1951 to 1973 and for those workers whose first quarter of coverage came after 1950. It is useful to focus on their eligibility status separately. The groups are

- (1) Those with any covered employment in the period 1937–73 (including those with no quarters of coverage)
  - (a) all workers in the group,
  - (b) all in the group who were alive in 1973,
- (2) those with any covered employment after 1950, some of whom may have also acquired quarters of coverage earlier (including those with no quarters of coverage)
  - (a) all workers in the group,
  - (b) all in the group who were alive in 1973,
- (3) those who worked in covered employment only after 1950

Each group is shown below as a percentage of the total

Year	Workers in covered employment		
	Total	Men	Women
Total number (in thousands)	18,788	10,233	8,555
Percent			
1937–73	100.0	100.0	100.0
1937–73 and living in 1973	86.3	81.3	92.3
1951–73 <sup>1</sup>	86.7	89.5	83.5
1951–73 and living in 1973	75.5	74.8	77.4
1951–73 only	72.2	79.6	63.4

<sup>1</sup>Includes workers with quarters of coverage earlier than 1951

<sup>4</sup>See H. Lock Oh and Frederick J. Scheuren, "Some Preliminary Results from an Evaluation Study of the Estate-Multiplier Procedure," *American Statistical Association Proceedings, Social Statistics Section, 1976*

<sup>3</sup>For more details on the CWHS see the Technical Note on page 10

## Workers in Covered Employment, 1937-73, and Living in 1973

### Quarters of Coverage in 1973

Workers aged 57 in 1973 need at least 27 quarters of coverage to be fully insured for retired-worker benefits. Workers aged 58 need 26 as the figures below show.

Age in 1973	Number needed by—	
	Men	Women
57	27	27
58	26	26
59	25	25
60	24	24
61	24	23
62	24	22
63	24	21
64	23	20

The proportion of men in each age category with fully insured status in 1973 hovers closely around the average of 85.6 percent. For women it is much lower—65.1 percent. The heavy line in table 1 divides data on workers with any coverage from those with sufficient quarters of coverage for fully insured status. In general, the number of quarters required increases by one each year. The requirement was the same in 1973, however, for men from ages 60 to 63, as a result of the 1972 legislation that sought to bring about equality in coverage requirements for men and women.

More women than men have 20-26 quarters of coverage, both absolutely and relatively. Since more women appear in this crucial interval, differences in the required number of quarters of coverage cause more vari-

ation for women than for men in the percentage of fully insured persons.

A striking difference is seen in the quarter-of-coverage distributions of men and women for any given age group. On the average, 14 percent of the women spent the equivalent of a year or less in covered employment, compared with 7 percent of the men. The concentration of women is higher on the low end of the scale, where labor-force attachment is extremely marginal.

### Predicting Those Fully Insured at Retirement

The percentage of persons insured in 1973 represents only a floor for the proportion who will be able to collect benefits in the future.<sup>5</sup> A person aged 57 in 1973 with no quarters of coverage could, for example, still become eligible for retired-worker benefits by age 64 if he or she worked steadily in covered employment for 6 years and 9 months. Table 1 is essentially a "snapshot" at one point of tenure in covered employment. It does not indicate how the distribution will change in the future. To determine the actual number of workers who will remain eligible for retired-worker benefits, one must estimate the number of workers with insufficient quarters of coverage who will gain the required number in later years.

It was assumed that, at the specified ages, workers who had not been employed for the past year had left the covered labor force permanently and would not add to their quarters of coverage in the future. As the findings of many studies indicate, the probability of reentry into

<sup>5</sup> The underreporting of deaths in the CWHS may bias this estimate.

**Table 1.**—Quarters of coverage, 1937-73. Percentage distribution of workers in covered employment, 1937-73 and living in 1973, by age and sex

Quarters of coverage	Age in 1973																	
	Men									Women								
	Total	57	58	59	60	61	62	63	64	Total	57	58	59	60	61	62	63	64
Total number (in thousands)	8,321	1,145	1,136	1,106	1,041	1,071	928	984	910	7,897	1,094	1,059	1,088	945	926	917	952	916
Total percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0	2.5	2.7	2.2	2.9	2.3	3.1	2.2	2.4	1.5	4.2	4.8	5.6	4.7	4.1	3.6	3.6	3.4	3.6
1-4	4.8	4.8	4.4	5.5	4.3	4.8	5.6	4.6	4.8	10.1	8.3	10.3	9.7	11.2	10.8	9.5	11.6	9.6
5-8	2.0	2.4	2.3	1.6	2.2	1.4	1.4	2.4	2.1	5.8	5.9	5.4	5.6	5.9	6.3	5.8	5.8	6.1
9-12	1.5	1.1	1.7	1.3	1.4	1.8	1.4	2.4	1.2	4.9	4.3	4.3	5.4	4.8	4.8	4.9	4.8	5.8
13-16	1.3	1.6	1.3	1.1	1.3	1.5	1.6	1.4	9	4.1	4.7	4.1	4.3	4.4	2.7	4.1	4.2	4.0
17-19	1.0	1.0	1.2	.6	.7	1.7	.6	1.2	1.0	2.7	2.9	2.6	3.3	2.5	4.2	2.0	1.6	2.4
20	4	2	3	3	5	6	3	6	2	10	14	8	8	10	10	8	10	14
21	2	1	1	2	2	5	3	0	1	9	5	6	8	7	8	13	18	10
22	3	4	2	0	7	4	2	2	1	10	9	6	13	13	15	10	11	7
23	3	2	2	3	2	6	3	2	3	9	9	10	6	10	9	9	11	7
24	4	2	3	4	3	6	4	2	10	10	11	8	9	14	12	4	13	12
25	2	2	2	2	4	0	2	2	2	8	6	5	10	9	8	12	5	8
26	2	2	2	2	2	3	3	2	10	5	12	9	10	9	12	12	11	11
27 or more	84.9	85.2	85.6	85.6	85.3	83.0	85.0	83.8	86.2	61.6	63.3	62.4	60.5	59.9	60.8	63.4	60.8	61.7
Percent fully insured 1973	85.6	85.2	85.7	85.9	86.2	83.9	86.0	84.4	87.9	65.0	63.3	63.6	62.4	63.1	64.5	68.1	67.7	68.5

Source: Continuous Work History Sample.

**Table 2.**—Number of workers uninsured for retired-worker benefits, 1972, average number of quarters of coverage, and estimated number and percent with earnings, by age and sex

Age in 1973	Men				Women			
	Total number uninsured (in thousands) <sup>1</sup>	Quarters of coverage average	With earnings		Total number uninsured (in thousands) <sup>1</sup>	Quarters of coverage, average	With earnings	
			Percent of total uninsured <sup>2</sup>	Estimated number (in thousands)			Percent of total uninsured <sup>2</sup>	Estimated number (in thousands)
57	170	7.4	17.7	30	402	9.7	24.3	98
58	162	7.7	17.0	28	385	8.4	23.6	91
59	156	6.3	15.7	24	409	9.0	21.0	86
60	144	7.6	14.6	21	349	8.4	20.5	72
61	173	8.3	12.6	22	329	8.5	16.6	55
62	130	7.0	13.7	18	293	7.9	14.3	42
63	153	7.5	11.7	18	308	7.0	12.4	38
64	110	6.5	11.5	13	289	7.2	10.6	31
Average	152	7.3	14.5	22	346	8.2	18.5	73

<sup>1</sup> Derived from Continuous Work History Sample

<sup>2</sup> Derived from summary earnings record

the labor force at these ages is low.<sup>6</sup> A worker who knows that he needs few additional quarters of coverage to qualify for retired-worker benefits might, however, reenter the labor force to earn the needed quarters. On the other hand, it was assumed that workers currently employed had a chance of earning the additional quarters required for a benefit.

Tabulations made from the SER were disaggregated to indicate the number of workers active in covered employment after 1972. As table 2 indicates, the percentage of uninsured workers who worked in 1973 declined almost monotonically with age for both men and women. Among workers with insufficient quarters of coverage the percentage of women currently active is consistently greater than that for men. It is likely, then, that relatively more men with insufficient quarters of coverage to qualify for retired-worker benefits have changed to employment not covered by the social security program after having been in covered employment early in their worklives. Most men work outside the home—in either covered or noncovered employment—for most of their lives, unlike many women.

At every age from 57 to 64, among workers not yet fully insured who were working in 1973, women outnumbered men at least 2 to 1. A greater proportion of women than men are concentrated in the low quarter-of-coverage intervals, but women also are more likely than men to be currently active and thus able to earn enough quarters to qualify for OASDI benefits.

The data in tables 1 and 2 have been combined to estimate what percentage of workers, alive in 1973, are likely to remain ineligible for retired-worker benefits in each age group. This method overestimates the proportion of ineligible persons to the extent that workers not currently working do reenter the labor force. It underestimates that number to the extent that workers currently employed do not acquire the needed quarters.

<sup>6</sup> See, for example, William G. Bowen and T. Aldrich Finegan, *The Economics of Labor Force Participation*, Princeton University Press, 1969, page 270.

Neither of these sources of misestimate, however, seems likely to introduce a large error, and obviously they work in opposite directions.

About 12 percent of the men and 29 percent of the women in the sample are estimated to be ineligible for retired-worker benefits (table 3). The average number of quarters of coverage earned by workers ineligible for benefits is 7.3 for men and 8.2 for women.

**Table 3.**—Workers in covered employment, 1937–73 and living in 1973. Percent likely to remain ineligible<sup>1</sup> for retired-worker benefits and average number of quarters of coverage, by age and sex

Age in 1973	Percent ineligible	
	Men	Women
57	12.2	27.8
58	11.8	27.8
59	11.9	29.7
60	11.8	29.3
61	14.1	29.6
62	12.1	27.4
63	13.7	28.4
64	10.7	28.2
Average	12.3	28.5
Adjusted for unreported deaths <sup>2</sup>	11.2	25.4

<sup>1</sup> Number not fully insured in 1973 multiplied by percent with no covered employment after 1972 yields estimate of percentage likely to remain ineligible.

<sup>2</sup> See the technical note, page 11.

Source: Continuous Work History Sample and summary earnings record.

If all the unreported deaths are assumed to fall in the ineligible group and only 67 percent of the women's deaths and 95 percent of the men's deaths are reported (as noted earlier), these percentages are reduced to 11 percent for women and 25 percent for men.<sup>7</sup>

### Characteristics of Ineligible Workers

**Sex.** Women and men differ greatly in the proportions who are ineligible for retired-worker benefits, as anti-

<sup>7</sup> See Technical Note, page 11.

pated. This fact holds true despite the fact that women who currently are not fully insured are more likely than men to acquire sufficient quarters of coverage to become eligible for retired-worker benefits in the future.

Furthermore, of the total population of 16.2 million with any covered employment and living in 1973 (86 percent of the 18.8 million with any covered employment since 1937), 49 percent are women. Among workers not fully insured for retired-worker benefits in 1973, however, 70 percent are women and 69 percent of these uninsured persons not in the covered labor force in 1973 also were women.

**Age.** A pattern for age might be expected to appear in the proportions of workers—especially women—eligible for retired-worker benefits. The yearly increase in the required number of quarters of coverage for fully insured status will make ineligible some younger workers whose covered employment would have qualified them for benefits if they had been born earlier. On the other hand, lower labor-force participation among women in earlier generations means that many older women workers have not worked enough to qualify. Either because these reasons are counterbalancing or because the age range of these data is small, no trend is evident in the data presented here.

**Number of quarters.** The younger the cohort, the more quarters of coverage that can be earned by workers who remain ineligible since the number required to qualify for retired-worker benefits is rising annually as the system matures. Eventually, as cohorts born after 1930 begin to retire, 40 quarters of coverage will be required of all workers.

The number of quarters of coverage earned by men and women not now eligible for retired-worker benefits is equivalent to about 2 years—7.4 quarters for men and 8.4 for women. The average number of quarters for those not fully insured in the future is impossible to predict accurately, but it will probably be higher than at present. A linear extrapolation, based on an assumption that the number of quarters of coverage required changes but labor-force behavior does not, yields on the average about 9 quarters for men and 14 for women, the equivalent of 2¼ years and 3½ years, respectively.

**Death.** Of the total group of 18.8 million workers active in covered employment in 1937–73, 2.6 million (14 percent) died some time before 1973. They are not included in the analytic base—though technically they are part of the group described.

Most of the deceased group had fully insured status at the time of death (81 percent of the men and 63 percent of the women). Others were not insured (either currently or fully) for retired-worker benefits or for benefits for their survivors (20 percent of the women and 4 percent of the men). Still others were acquiring quarters of coverage at a rate that would have made them eligible for retired-worker benefits if they had continued work-

ing until retirement (17 percent of the women and 15 percent of the men). Survivor benefits were paid on their accounts.

## Workers Earning Less Than \$50 a Quarter

A worker who earns less than \$50 in covered employment in a calendar quarter is not credited with a quarter of coverage. It might be thought that this limitation keeps workers from insured status. Tabulations were obtained from the SER that show the number of quarters in which earnings were less than \$50 for workers aged 58–65 in 1974. Inclusion of these quarters in the consideration of benefit eligibility would increase the proportion of fully insured men in each age group by 5/10 of 1 percent. For women, the use of these quarters would raise the number fully insured in each age group by about 1¾ percent. Forty-two percent of the women in the sample had at least 1 quarter with earnings of \$1–\$49, and 38 percent of the men had 1 or more quarters with earnings in that interval.

It is difficult to say what effect the minimum requirements for crediting quarters of coverage will have in the future. The 1977 amendments changed the coverage requirements so that for each \$250 of covered annual earnings credit will be given for 1 quarter of coverage. This change will help some and hurt others.

The proportion with such benefits paid is much higher for men in this category than for women—15 percent out of 19 percent, compared with 17 percent out of 37 percent. (The qualifying requirement for survivor benefits differs sharply from those for retired-worker benefits.)<sup>8</sup>

## Workers in Covered Employment After 1950

A question, perhaps more relevant for most social policy than that discussed so far, is: How many persons who worked in covered employment in the two decades preceding retirement did not become insured, compared with those who only worked relatively early in life without becoming insured? For the cohort of women studied here, 1951 (the year of the break in the data series) coincides with the ages 35–42, a time when many women traditionally enter the labor force because their children are old enough to be somewhat independent. The years 1951–73 thus may represent a period of sustained labor-force participation for this group.

Besides these life-cycle considerations, an important reason for concentrating on activity after 1950 is that coverage under the social security program was ex-

<sup>8</sup> See *Social Security Bulletin, Annual Statistical Supplement, 1975*, pages 20–21.

**Table 4.—Quarters of coverage, 1937–73 Percentage distribution of workers in covered employment, 1951–73 and living in 1973, by age and sex**

Quarters of coverage	Age in 1973																	
	Men									Women								
	Total	57	58	59	60	61	62	63	64	Total	57	58	59	60	61	62	63	64
Total number (in thousands)	7,556	1,026	1,036	1,007	957	962	847	885	836	6,625	914	873	921	797	768	769	812	771
Total percent	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0
0	6	5	7	9	5	8	2	8	7	23	26	24	25	25	20	21	20	23
1-4	13	13	9	14	12	14	18	12	13	57	54	49	58	69	61	51	73	43
5-8	9	9	13	9	9	6	9	9	6	41	33	45	42	41	39	35	47	47
9-12	10	7	11	11	10	11	7	11	11	37	35	33	45	30	37	39	35	47
13-16	8	10	9	9	10	3	9	6	8	35	37	36	36	41	25	34	37	31
17-19	8	5	10	6	5	14	6	10	7	23	27	21	27	29	29	18	14	22
20	3	0	1	2	5	6	4	3	1	10	9	6	8	10	12	9	9	17
21	2	0	1	2	2	4	2	0	1	8	3	6	10	4	7	8	16	8
22	3	3	2	0	7	2	2	2	1	10	8	6	13	14	16	8	11	7
23	2	1	2	2	1	2	4	2	4	8	6	10	8	9	10	7	10	7
24	3	1	2	3	3	4	5	2	6	11	11	8	10	15	13	5	12	13
25	1	1	1	2	4	0	1	0	1	8	7	6	12	10	8	10	5	8
26	2	2	1	2	2	2	2	2	1	10	1	14	9	8	9	13	12	12
27 or more	93 1	94 4	93 3	93 0	92 3	92 3	92 8	93 1	93 2	71 9	74 1	73 8	69 9	69 5	71 6	74 3	70 1	71 7
Percent fully insured, 1973	93 6	94 4	93 4	93 3	93 2	93 0	93 6	93 6	94 4	75 3	74 1	75 1	72 0	72 8	75 7	78 5	76 7	78 7

Source Continuous Work History Sample

panded in 1950 and 1955. The number of workers with taxable earnings jumped by 10 million from 1950 to 1951, in part because farm, domestic, and some self-employed workers came under the program then. From 1954 to 1955, the number with taxable earnings again rose, this time by 6.5 million, as professional and farm self-employed workers were covered. In addition, some workers who were ineligible for retired-worker benefits under the OASDHI program may have acquired some quarters of coverage early in their worklives before changing to a job that may have been covered by a pension plan outside the social security program. Eliminating them from the sample of workers not active after 1950 has a significant effect on the estimated proportion of persons ineligible for retired-worker benefits.

The majority (72 percent of the workers active in 1937–73) earned their first quarter of coverage in 1951 or later. For this reason, in the discussion that follows, two subsets of the group active some time in this period are considered: (1) Those with some activity in covered employment after 1950 whose first quarters of coverage may have been earned earlier and (2) those whose first quarter of coverage was earned after that year. The method of calculation for the proportion not expected to be fully insured is the same one used earlier. It will be seen that the percentage of workers expected to remain ineligible is much lower for these two subsets than for the entire sample.

When the number of workers active only up to 1951 is subtracted from the distribution presented in table 1, the relative frequency in the lower quarters-of-coverage intervals declines substantially for both men and women (table 4). In this smaller sample, 1.9 percent of the men

and 8.0 percent of the women worked the equivalent of a year or less in covered employment, compared with 7.3 percent and 14.3 percent shown in table 1. The percentage of workers with enough quarters to be fully insured increases in every group for both men and women. The average percentage of persons fully insured for retired-worker benefits rises to 93.6 percent for men and 75.3 percent for women—an increase of 8.0 and 10.3 percentage points, respectively.

The earlier method to determine the proportion of workers not eligible for retired-worker benefits was applied to the distribution in table 4. To obtain an estimate of those ineligible for such benefits, the fraction of active workers in covered employment after 1972 for each age group in the SER was multiplied by the percentage not insured at present. The average proportion

**Table 5 —Workers in covered employment, 1951–73 and living in 1973. Percent ineligible<sup>1</sup> for retired-worker benefits, by age and sex**

Age in 1973	Percent ineligible	
	Men	Women
57	4.6	19.6
58	5.4	19.0
59	5.6	22.1
60	5.9	21.7
61	6.1	20.3
62	5.4	18.3
63	5.6	20.4
64	5.0	19.1
Average	5.5	20.1
Adjusted for unreported deaths <sup>2</sup>	4.4	16.9

<sup>1</sup> See table 3 footnote 1.

<sup>2</sup> See the technical note, page 11.

Source Continuous Work History Sample and summary earnings record.

**Table 6.**—Quarters of coverage for workers whose first quarters of coverage were acquired, 1951–73 Percentage distribution of workers in covered employment, 1951–73 only, by age and sex

Quarters of coverage	Age in 1973																	
	Men									Women								
	Total	57	58	59	60	61	62	63	64	Total	57	58	59	60	61	62	63	64
Total number (in thousands)	8 146	1,063	1 073	1 058	999	1 058	938	1 006	951	5,420	731	710	730	654	639	656	668	632
Total percent	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0	100 0
0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0
1-4	1 1	1 1	6	1 2	1 0	1 0	1 7	1 0	1 3	6 2	5 9	4 7	5 9	8 0	7 4	5 6	7 9	4 5
5-8	6	7	8	5	4	8	8	6	3	3 2	1 9	2 8	4 0	3 5	3 4	1 8	3 9	4 3
9-12	5	3	7	8	5	7	5	5	4	2 6	2 2	3 1	2 9	1 8	1 9	2 9	2 4	3 3
13-16	4	3	5	7	6	3	5	2	4	2 4	2 7	2 3	1 8	3 4	1 3	2 9	2 4	2 5
17-19	5	2	3	5	5	6	6	7	4	1 6	1 8	6	1 8	2 0	2 1	1 5	1 0	1 8
20	2	1	1	1	2	2	2	2	2	5	6	2	6	6	7	5	3	5
21	1	0	1	0	1	1	1	1	1	4	0	4	7	6	3	5	9	2
22	1	2	1	0	1	0	2	2	1	5	6	1	7	6	8	3	6	6
23	0	0	0	0	2	0	0	1	0	5	4	6	4	6	8	5	3	2
24	2	1	0	0	3	1	2	2	4	6	3	6	7	5	5	3	9	8
25	1	1	1	0	1	0	1	0	2	3	0	1	3	3	3	6	6	0
26	1	0	1	1	1	0	0	1	1	5	1	9	4	5	5	5	8	7
27 or more	96 2	97 0	97 0	95 9	95 9	96 2	95 0	96 1	96 0	80 8	83 6	83 6	80 0	77 7	80 2	82 2	78 0	80 7
Percent fully insured 1973	96 4	97 0	96 9	96 0	96 4	96 3	95 3	96 4	96 7	82 5	83 6	84 5	80 7	78 9	82 2	84 3	82 1	83 7

Source Continuous Work History Sample

of workers who were active in covered employment any time after 1950 but not eligible to receive a benefit was found to be much lower among workers with some covered employment in this comparatively recent period than among the larger group of workers (table 5)

### Workers With First Quarters of Coverage After 1950

The number of quarters of coverage for workers whose covered employment began after 1950 is given in table 6. The average percentage of fully insured workers is much higher for this group than for the previous two groups. The difference between the average percentages of fully insured men and women in this sample—15.4 percentage points—is much less than the corresponding difference in the two previous groups. Thus, when the

**Table 7.**—Workers whose first quarters of coverage were acquired, 1951–73 Percent ineligible<sup>1</sup> for retired-worker benefits, by age and sex

Age in 1973	Percent ineligible	
	Men	Women
57	2.4	12.4
58	2.5	11.8
59	3.2	18.2
60	3.1	16.7
61	3.2	15.0
62	4.1	13.4
63	3.2	15.7
64	2.8	14.7
Average	3.2	14.3

<sup>1</sup> See table 3, footnote 1

Source Continuous Work History Sample and summary earnings record

sample is restricted to workers with only recent work in covered employment, the disparity between the proportions of men and women eligible for retired-worker benefits is less. Multiplying the number not now insured for retired-worker benefits by the fraction not active since 1972 gives the estimated percentage of workers who will remain ineligible for such benefits. These estimates are presented in table 7.

Table 8 summarizes findings from the three subsamples. The number of ineligible workers is highest for the group active in covered employment any time since 1937 and living in 1973, declines for both women and men when the sample is restricted to those active in covered employment since 1951 and living in 1973, and is lowest for the group whose first quarter of coverage was in 1951 or later.

The ratio of ineligible women to ineligible men is 2.2 to 1.0 in the group active any time in the 36-year

**Table 8.**—Workers ineligible for retired-worker benefits. Number and percent, by period of covered employment and sex

Period of covered employment	Workers ineligible for retired worker benefits				
	Number (in thousands)		Ratio of women to men	As percent of all—	
	Men	Women		Men	Women
1937–73 and living in 1973	1 024	2,251	2.2	12.3	28.5
1951–73 and living in 1973	412	1 332	3.2	5.5	20.1
1951–73 only	248	777	3.1	3.2	14.3

Source Continuous Work History Sample and summary earnings record

period. Among those active since 1951 and among workers whose covered employment began after 1950, the ratios are more than 3 women to 1 man in the ineligible category.

## Summary and Conclusion

The study estimates the number and proportion of workers who have been in covered employment but who are not eligible for retired-worker benefits. It also explores some characteristics of this group.

A possibility for further research would be to estimate the proportions of workers from later birth cohorts who will remain ineligible for retired-worker benefits. Though estimates for those younger workers would be subject to large prediction error, it would nonetheless be interesting to look at the effects of changing social security requirements and labor-force participation.

It is tempting to speculate about how many of these ineligible persons may have worked most of their lives under a different retirement system, how many may have worked at home after a few quarters in the labor force, and how many have done neither but are in some sense outside the mainstream.

The first group is important in the context of the debate on universal coverage. Analyses of their numbers is underway. The number in the second group could be approximated in part by a fruitful extension of this paper. Investigating the characteristics of the subset of this group who are ineligible for retired-worker benefits but receive either a dependent or survivor benefit. For the remainder, analysis is not possible on the basis of the available data.

Some of the more important findings are:

1. Substantial differences exist in the number of quarters of coverage for men and women working in covered employment. The proportion of men classified as fully insured for retired-worker benefits under the Social Security Act is much greater than that of women.

2. An estimated 12 percent of the men and 29 percent of the women with any covered employment from 1937 to 1973 will not be fully insured for retired-worker benefits. More than twice as many women than men are ineligible for retirement benefits. The average amount of time spent in covered employment by these workers is about 2 years—slightly less for men and slightly more for women.

3. When only those workers active after 1950 are considered, the proportion who are not eligible for retired-worker benefits is about half as great for men and two-thirds as great for women as when all those active since 1937 are included.

4. When only those whose first quarter of coverage

was in 1951 or later are considered, the proportion of ineligible workers is smaller still—about one-fourth as great for men and half as great for women as when all those active since 1937 are included.

5. Lowering the requirement that \$50 must be earned in a calendar quarter to obtain coverage would not greatly affect the insured status of workers in the sample.

## Technical Note\*

The estimates presented here are based on a sample of persons from the Social Security Administration's CWHS. The sample for this article consists of approximately 18,800 persons in the CWHS aged 57–64 in 1973 who had covered employment during the period 1937–73. In addition, the SER was used to estimate the proportion of this sample who will remain ineligible for retirement benefits.

Information concerning individuals in the CWHS is derived from the reporting forms and records used in administering the OASDHI program. Data on age, sex, and race are obtained from the employee's application for a social security number. Data on amount of earnings and employment are derived from the report forms submitted by employers and self-employed persons.

## Sample Design

The sample for the CWHS consists of all individuals whose social security numbers have specified combinations of digits in the serial number component. This procedure was designed to provide a sample of approximately 1 percent of the individuals in any designated target population. Later a 0.1-percent sample was obtained as a subsample of the 1-percent sample by designating a specific digit of the 10 possible digits in the second (hundreds) place of the serial number.

The social security number contains geographical and chronological indicators and a serial number. The first three digits show the area in which the number was issued, the next two digits are the group number, and the final four digits represent the serial number. Each area-group combination defines a stratum. Within each of these strata, the selection is made on the basis of the specified combinations of digits in the serial number component. Because of the particular digital combinations used, the procedure for sampling within strata can be described as a systematic sample of clusters, with subsampling to obtain the overall sampling fraction of 1 percent, and later 0.1 percent.<sup>9</sup>

\*Prepared by Bennie A. Clemmer, Division of Retirement and Survivors Studies, except for section on unreported deaths.

<sup>9</sup>For more detailed discussion of the sampling procedures used for the CWHS, see *Workers Under Social Security, 1960*, Office of Research and Statistics, 1968.



## Sampling Variability

The standard error is a measure of sampling variability. The chances are about 68 out of 100 that the difference between a sample estimate and the comparable value obtained from a complete tabulation is less than the standard error. The chances are about 95 out of 100 that the difference is less than twice the standard error.

The effects of clustering and stratification in the design, as well as sample size, must be taken into account in determining the standard error. Although these effects are not the same for all variables, the following tables provide general approximations of the standard error of the number of individuals (table I) or the percentage of individuals (table II) with a given characteristic. The standard error of an estimate of the percentage of individuals with a given characteristic who belong to some subpopulation depends on both the size of the percentage and the size of the subpopulation. Linear interpolation may be used for percentages and subpopulations not shown in the tables.

**Table I.**—Approximations of standard errors of estimated number of persons, CWHS 1-percent sample

Size of estimate	Standard error
100 000	10 000
250 000	16 000
500 000	22 000
1 000 000	32 000
2 000 000	40 000
5 000 000	70 000
10 000 000	90 000
20 000 000	110 000

**Table II.**—Approximations of standard errors of estimated percentages, CWHS 1-percent sample

Size of base	Estimated percentage				
	2 or 98	5 or 95	10 or 90	25 or 75	50
100 000	1.4	2.2	3.0	4.3	5.0
250 000	.9	1.4	1.9	2.7	3.2
500 000	.6	1.0	1.3	1.9	2.2
1 000 000	.5	.7	.9	1.4	1.6
2 000 000	.3	.5	.7	1.0	1.1
5 000 000	.2	.3	.4	.6	.7
10 000 000	.1	.2	.3	.4	.5
20 000 000	.1	.2	.2	.3	.4

## Adjusting for Unreported Deaths

The problem of underreporting is greater for women than for men: an estimated two-thirds of women's deaths and more than nine-tenths of men's deaths are reported in the earnings record.

To obtain a rough idea of how this problem affects insured status, one must first assume that almost all those whose deaths are unreported would be ineligible for retired-worker benefits. Next, note that the difference between the total group with any covered employment 1937-73 and those in that category alive in 1973 represents reported deaths—about 8 percent for women and 19 percent for men, for those active since 1951, 6 percent for women and 15 percent for men. Unreported deaths then represent about 4 and 1 percent for the first group and 2 and 0.6 percent for the second, for women and men, respectively. When the numbers, both of those ineligible and the total living in 1973, are reduced by the appropriate number, the ratios appearing in tables 3 and 5 are the result.