
Mortality and Early Retirement

by the Program Analysis Staff*

This article examines and compares the survival rates of persons claiming retired-worker benefits at age 62 with those who did not. The study is based on a sample of Social Security insured workers who reached age 62 during the period 1962-72. The proportion of men dying in the initial years after age 62 was higher among those who claimed benefits at age 62 than among those who did not. The same pattern held for women but the difference was very small. To the extent that survival after age 62 can be taken as an indication of health status at age 62, these data suggest that the age-62 claimants were somewhat more likely than others to have had health problems. The difference in survival rates between the two groups, however, was not as great as the difference in the incidence of health problems reported in surveys. Past surveys have shown that men receiving early retirement benefits were twice as likely as other men to report health problems. According to this study, survival rates for men claiming benefits at age 62 were only 3-5 percentage points lower by age 68 than those for other insured men. Within any given age cohort, the difference between survival rates of age-62 claimants and other insured men widened over time. Survival rates improved across the age cohorts. Among the men, survival rates improved somewhat more for the age-62 claimants than for others.

Starting in 1956, women were allowed to claim Social Security retired-worker benefits as early as age 62. This option was extended to men in the middle of 1961. The percent of all retired-worker benefit awards that are made to persons aged 62 has increased over the years, as shown in the following tabulation.

Year	Percent ¹		
	Total	Men	Women
1962	18	13	30
1972	28	22	37
1978	35	29	44

¹ Percent of total new awards, excluding Disability Insurance conversions.

Source: **Annual Statistical Supplement** to the **Social Security Bulletin**, various years, Office of Research and Statistics, Office of Policy, Social Security Administration.

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Over the same period, the labor force participation of men aged 60-64 declined. Numerous studies have been undertaken to explain the early retirement decision. In some studies, poor health was found to be a major factor. In others, health was found to be unimportant, and economic variables—such as Social Security and pension benefits—were the main explanatory factors. To date, no consensus has been reached on the importance of health in explaining early retirement. If health is a major factor, and if health at age 62 is positively correlated with survival after age 62, then one would expect those retiring at age 62 to have lower survival rates than those who do not. This study compares the survival rates of those who claimed Social Security benefits at age 62 with those who did not.

Data Base

This study is based on an extract from the 1977 1-percent Continuous Work History Sample (CWHS), a longitudinal file that contains demographic character-

istics and program benefit data for a sample of persons with Social Security account numbers. The extract consists of the records of 64,382 persons born in the even years from 1900 through 1910 who were insured for Social Security retired-worker benefits when they reached age 62. The study excludes those who had ever received Social Security disabled-worker benefits.¹

Survival rates for persons in the sample are compared up to the beginning of 1978, the year they would reach ages 68–78. This study cannot measure the total mortality experience of the age cohorts because most of the study group was still alive in 1978. The data do show, however, initial differences in survival rates between those who did and those who did not claim benefits at the earliest possible age.

Overall Survival Rates After Age 62

Table 1 shows survival rates for the six age cohorts who reached age 62 between 1962 and 1972. Survival

rates are the percent of the cohort of 62-year-olds who were still alive at the beginning of the year in which they would reach a specified later age.² For example, of the CWHS men who reached age 62 in 1962, 85 percent were alive at the beginning of the year in which they would reach age 68 and 49 percent were alive at the beginning of the year in which they would reach age 78.

As expected, women had higher survival rates than did men. And the more recent cohorts had higher survival rates than the earlier cohorts, reflecting the overall increase in life expectancy of the age.

Table 1 also shows survival rates for the U.S. population as a whole. Although the two groups show similar trends, the CWHS study group of nondisabled insured workers had slightly higher survival rates than did the population as a whole. The total population includes the disabled who have lower than average survival rates and persons who did not have Social Security numbers or who did not work long enough to be insured for retired-

¹ See the Technical Note for further discussion of cases excluded.

² Survival rates were calculated as of the beginning of the year because the month of death was not always reported on the CWHS.

Table 1.—Survival rates for persons reaching age 62 in 1962–74

Year reached age 62	Percent alive at the beginning of the year the cohort reached age—							
	62	65	68	70	72	74	76	78
CWHS study group¹								
Men								
1962 (N = 6,019)	100	93	85	78	71	64	56	49
1964 (N = 6,188)	100	93	85	78	71	65	58	...
1966 (N = 6,295)	100	93	85	80	73	66	...	...
1968 (N = 6,595)	100	94	86	80	74	...	...	...
1970 (N = 6,915)	100	95	87	82	...	...	...	...
1972 (N = 6,743)	100	94	87	...	...	...	...	...
Women								
1962 (N = 3,481)	100	96	92	88	84	79	74	68
1964 (N = 3,862)	100	96	93	90	86	82	77	...
1966 (N = 4,102)	100	97	93	90	86	81	...	...
1968 (N = 4,427)	100	97	94	90	87	...	...	...
1970 (N = 4,797)	100	98	94	91	...	...	...	...
1972 (N = 4,958)	100	98	94	...	...	...	...	...
U.S. population²								
Men								
1962	100	91	81	74	67	59	51	44
1964	100	91	81	74	67	60	52	...
1966	100	91	81	74	68	60	...	...
1968	100	91	82	75	68	...	...	...
1970	100	92	82	76	...	...	...	...
1972	100	92	83	...	...	...	...	...
Women								
1962	100	95	90	86	82	76	71	66
1964	100	96	90	87	82	77	72	...
1966	100	96	91	87	82	78	...	...
1968	100	96	91	87	83	...	...	...
1970	100	96	91	88	...	...	...	...
1972	100	96	92	...	...	...	...	...

¹ Includes only nondisabled insured workers.

² Life tables for the total U.S. population provided by the Office of the Actuary, Social Security Administration, Actuarial Study No. 87 and unpublished

tables. Survival rates calculated for each age interval using life tables for all intervening years.

worker benefits. For the study group, underreporting of deaths on the CWSHS could cause a slight overstatement of survival rates although any such effect is likely to be small. The Technical Note at the end of this article describes the method used to adjust for possible unreported deaths.

Differences in Survival Rates

Age-62 Claimants and Other Insured Workers

Table 2 compares survival rates between persons in the CWSHS study who became entitled to retired-worker benefits in the calendar year in which they reached age 62 and those who did not. To become entitled to retired-worker benefits, a person must be insured and have filed a claim for benefits. Those who are classified as not claiming benefits at age 62 include those who filed their claim later and those who lived to age 62 but died before they filed for benefits. Table 2 shows:

- Among men, a smaller portion of the age-62 claimants were alive at any subsequent age than of other insured workers. For example, of men in the cohort born in 1900 (those aged 62 in 1962), the proportion alive in the year they reached age 74 was 58 percent of age-62 claimants and 66 percent of the other insured workers—an 8 percentage point difference.
- As a cohort of men grew older, the age-62 claimants continued to have lower survival rates than others. For example, of men reaching age 62 in 1966, the percent surviving 6 years to age 68 was 83 percent for age-62 claimants and 86 percent for others—a 3 percentage point difference; the proportion surviving another 6 years to age 74 was 60 percent for age-62 claimants and 68 percent for others—an 8 percentage point difference.
- Among the women, survival rates of the age-62 claimants were not very different from those of other insured women. For most cohorts of women at most ages, the age-62 claimants had slightly lower survival rates than other women; differences never exceeded 3 percentage points, however. In some cases, survival rates were the same between the two groups, and in a few cases they were even a percentage point higher for those claiming benefits at age 62.

Thus, these data indicate that, among men, more of the age-62 claimants than of other men died in the initial years after age 62; and for the earlier cohorts—those for whom survival data are available over a longer period—the difference in survival rates widened at the more advanced ages. Among women, survival rates tended to be only slightly lower for age-62 claimants than for others.

Cohorts of Age-62 Claimants

Table 1 shows that overall survival rates are increasing; those born in more recent years tend to live longer

than those born earlier. Table 2 permits one to determine whether survival rates for those who claimed benefits at age 62 improved as rapidly as for those who did not.

For men, survival rates of age-62 claimants tended to rise more rapidly over time than did survival rates of other insured men. Of men claiming benefits at age 62 in 1962 and in 1964, for example, 81 percent lived to age 68, while of age-62 claimants in 1970 and in 1972, 85 percent lived to age 68—an increase of 4 percentage points. Survival rates increased by only 2 percentage points for other insured men over the same period.

The larger increase in survival rates for the age-62 claimants may be explained, in part, by two trends during the decade. First, the proportion of nondisabled insured men who claimed benefits at age 62 rose over the period—from 24 percent in 1962 to 28 percent in 1972. If this increase meant that more men without health problems were claiming benefits at age 62, then survival rates for the age-62 claimants might be expected to increase by more than survival rates for all men in the particular cohort.

Second, the proportion of insured men aged 62-64 who received Disability Insurance benefits, and therefore were not included in this study, also increased over the period—from 7 percent in 1962 to 11 percent in 1972.³ To the extent that this means that a larger portion of those with health problems were receiving Disability Insurance benefits rather than early retirement benefits, one might expect the average health status and, by inference, survival rates of those claiming retirement benefits at age 62 to increase.

For women, survival rates for both the age-62 claimants and the other insured women improved between cohorts. No clear pattern emerges that shows more rapid improvement for one group or the other.

Survival After Benefit Entitlement for Age-62 and Age-65 Claimants

Another way of looking at survival rates of early retirees is to examine the number of years they lived after establishing entitlement to benefits. Table 3 compares those who became entitled to retired-worker benefits at age 62 with those entitled at age 65 to show which group was more likely to live a given number of years after their benefit entitlement began. Those entitled at age 65 include two groups: (1) those who began receiving cash benefits at age 65, and (2) those who established their cash benefit entitlement when they enrolled for Medicare at age 65 but who did not begin receiving retired-worker benefits immediately because they were not yet retired. Together these groups represent those entitled

³ Annual Statistical Supplement, 1975, to the Social Security Bulletin, Office of Research and Statistics, Social Security Administration, table 52, page 85.

to unreduced retired-worker benefits at age 65. Those entitled at age 62, in contrast, received benefits that were reduced by up to 20 percent because they claimed their benefits early. If survival rates were similar for the two groups, one would expect that on average those entitled at age 62 would live longer after entitlement because their benefit entitlements began 3 years earlier. This did not appear to be the case for the cohorts studied.

Among men, those entitled at age 65 were slightly more likely than those entitled at age 62 to live any given number of years after entitlement. For example, of men in the earliest cohort, 77 percent of those entitled at age

62 and 82 percent of those entitled at age 65 lived to be entitled to benefits for at least 7 years (when they would be ages 69 and 72, respectively). To the extent that health differences underlie survival rate differences, this implies that the health of those men becoming entitled to benefits at age 65 is better at and after age 65 than is the health at and after age 62 of those men becoming entitled to benefits at age 62.

Among the women, those entitled at age 62 were about as likely as those entitled at age 65 to live any given number of years after benefit entitlement. Of those in the earliest cohort, for example, 76 percent of both groups lived to receive benefits for 13 years.

Table 2.—Survival rates of nondisabled insured workers

Year reached age 62	Number in sample	Percent of total	Percent alive in year they reached age—							
			62	65	68	70	72	74	76	78
Men										
1962:										
Claimed benefits at age 62	1,456	24	100	92	81	73	66	58	51	42
Did not	4,563	76	100	94	86	80	73	66	58	51
(Difference). . . . .	...	...	...	(2)	(5)	(7)	(7)	(8)	(7)	(9)
1964:										
Claimed benefits at age 62	1,434	23	100	93	81	72	63	57	50	...
Did not	4,754	77	100	93	86	80	74	67	60	...
(Difference). . . . .	...	...	...	(0)	(5)	(8)	(11)	(10)	(10)	...
1966:										
Claimed benefits at age 62	1,437	22	100	92	83	76	68	60	...	...
Did not	4,858	78	100	93	86	81	74	68	...	...
(Difference). . . . .	...	...	...	(1)	(3)	(5)	(6)	(8)	...	...
1968:										
Claimed benefits at age 62	1,478	22	100	93	82	76	68	...	...	...
Did not	5,117	78	100	94	87	81	75	...	...	...
(Difference). . . . .	...	...	...	(1)	(5)	(5)	(7)	...	...	...
1970:										
Claimed benefits at age 62	1,828	26	100	94	85	79	...	...	...	...
Did not	5,087	74	100	95	88	83	...	...	...	...
(Difference). . . . .	...	...	...	(1)	(3)	(4)	...	...	...	...
1972:										
Claimed benefits at age 62	1,942	28	100	94	85	...	...	...	...	...
Did not	4,801	72	100	95	88	...	...	...	...	...
(Difference). . . . .	...	...	...	(1)	(3)	...	...	...	...	...
Women										
1962:										
Claimed benefits at age 62	1,584	42	100	96	91	87	83	78	73	67
Did not	1,897	58	100	97	92	88	84	80	74	70
(Difference). . . . .	...	...	...	(1)	(1)	(1)	(1)	(2)	(1)	(3)
1964:										
Claimed benefits at age 62	1,723	41	100	97	93	90	86	81	76	...
Did not	2,139	59	100	96	93	90	86	82	78	...
(Difference). . . . .	...	...	...	(-1)	(0)	(0)	(0)	(1)	(2)	...
1966:										
Claimed benefits at age 62	1,827	41	100	97	92	89	85	80	...	...
Did not	2,275	59	100	96	93	90	86	82	...	...
(Difference). . . . .	...	...	...	(-1)	(1)	(1)	(1)	(2)	...	...
1968:										
Claimed benefits at age 62	1,854	39	100	97	93	89	86	...	...	...
Did not	2,573	61	100	97	94	91	87	...	...	...
(Difference). . . . .	...	...	...	(0)	(1)	(2)	(1)	...	...	...
1970:										
Claimed benefits at age 62	2,155	42	100	97	93	89	...	...	...	...
Did not	2,642	58	100	98	95	92	...	...	...	...
(Difference). . . . .	...	...	...	(1)	(2)	(3)	...	...	...	...
1972:										
Claimed benefits at age 62	2,438	45	100	98	94	...	...	...	...	...
Did not	2,520	55	100	98	94	...	...	...	...	...
(Difference). . . . .	...	...	...	(0)	(0)	...	...	...	...	...

Table 3.—Percent of cohort who claimed retirement benefits at age 62 or age 65 and who were still alive after “n” years

Year reached age 62	Total number	Total percent	Percent alive after receiving benefits for “n” years												
			1	2	3	4	5	6	7	8	9	10	11	12	13
Men															
1962:															
Claimed benefits at age—															
62	1,456	100	98	95	92	88	84	81	77	73	69	66	62	58	55
65	2,858	100	99	97	95	91	88	85	82	77	74	70	66	62	58
(Difference) .....	...	...	(1)	(2)	(3)	(3)	(4)	(4)	(5)	(4)	(5)	(4)	(4)	(4)	(3)
1964:															
Claimed benefits at age—															
62	1,434	100	99	96	93	90	86	81	78	72	68	63	60	...	...
65	2,940	100	99	96	94	91	88	85	81	77	73	70	67	...	...
(Difference) .....	...	...	(0)	(0)	(1)	(1)	(2)	(4)	(3)	(5)	(5)	(7)	(7)	...	...
1966:															
Claimed benefits at age—															
62	1,437	100	99	95	92	89	86	83	79	76	72	...	...	...	...
65	2,955	100	99	96	94	91	88	86	82	79	75	...	...	...	...
(Difference) .....	...	...	(0)	(1)	(2)	(2)	(2)	(3)	(3)	(3)	(3)	...	...	...	...
1968:															
Claimed benefits at age—															
62	1,478	100	99	95	93	90	86	82	79	...	...	...	...	...	...
65	3,145	100	99	96	93	91	87	84	81	...	...	...	...	...	...
(Difference) .....	...	...	(0)	(1)	(0)	(1)	(1)	(2)	(2)	...	...	...	...	...	...
1970:															
Claimed benefits at age—															
62	1,828	100	99	96	94	91	89	...	...	...	...	...	...	...	...
65	3,038	100	99	96	94	91	89	...	...	...	...	...	...	...	...
(Difference) .....	...	...	(0)	(0)	(0)	(0)	(0)	...	...	...	...	...	...	...	...
1972:															
Claimed benefits at age—															
62	1,942	100	99	96	94	...	...	...	...	...	...	...	...	...	...
65	2,491	100	99	97	94	...	...	...	...	...	...	...	...	...	...
(Difference) .....	...	...	(0)	(1)	(0)	...	...	...	...	...	...	...	...	...	...
Women															
1962:															
Claimed benefits at age—															
62	1,584	100	99	97	96	94	93	91	89	87	85	83	80	78	76
65	1,001	100	¹ 100	98	97	94	92	90	89	87	85	83	80	78	76
(Difference) .....	...	...	(1)	(1)	(1)	(0)	(-1)	(-1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
1964:															
Claimed benefits at age—															
62	1,723	100	99	98	97	96	95	93	91	90	88	86	83	...	...
65	1,075	100	99	99	97	96	95	93	92	90	89	87	84	...	...
(Difference) .....	...	...	(0)	(1)	(0)	(0)	(0)	(0)	(1)	(0)	(1)	(1)	(1)	...	...
1966:															
Claimed benefits at age—															
62	1,827	100	¹ 100	99	97	95	94	92	91	89	86	...	...	...	...
65	1,220	100	¹ 100	99	98	97	95	94	92	90	88	...	...	...	...
(Difference) .....	...	...	(0)	(0)	(1)	(2)	(1)	(2)	(1)	(1)	(2)	...	...	...	...
1968:															
Claimed benefits at age—															
62	1,854	100	¹ 100	98	97	96	94	93	91	...	...	...	...	...	...
65	1,373	100	¹ 100	98	97	96	94	93	92	...	...	...	...	...	...
(Difference) .....	...	...	(0)	(0)	(0)	(0)	(0)	(0)	(1)	...	...	...	...	...	...
1970:															
Claimed benefits at age—															
62	2,155	100	¹ 100	98	97	96	94	...	...	...	...	...	...	...	...
65	1,359	100	¹ 100	99	98	97	95	...	...	...	...	...	...	...	...
(Difference) .....	...	...	(0)	(1)	(1)	(1)	(1)	...	...	...	...	...	...	...	...
1972:															
Claimed benefits at age—															
62	2,438	100	¹ 100	99	98	...	...	...	...	...	...	...	...	...	...
65	1,084	100	99	98	97	...	...	...	...	...	...	...	...	...	...
(Difference) .....	...	...	(-1)	(-1)	(-1)	...	...	...	...	...	...	...	...	...	...

¹ Percents equal 100 due to rounding.

Relationship of Survival Rates to Survey Data

The CWHS does not contain information on health status, so it is not possible to determine whether those who died in the initial years after early benefit receipt were also those who had, or would have reported that they had, health problems. If one accepts by inference, however, a relationship between health status at age 62 and survival rates after age 62, one can compare differences in survival rates with differences in the incidence of self-assessed work limitations between those who claim benefits at age 62 and others. The data then are relevant to the debate about the validity of survey data showing that early retirees report more work-limiting health problems than do others of the same age.

The Survey of Newly Entitled Beneficiaries (SNEB) conducted in 1968-70 found a high incidence of work-limiting health problems reported by men who claimed retired-worker benefits at age 62. Data from the SNEB study found that 61 percent of the men who became entitled to retired-worker benefits at age 62 reported work limitations, while only 34 percent of those becoming entitled at ages 63 or older reported such problems, as shown in the following tabulation.

All men awarded benefits	Health does not limit work	Health limits or prohibits work
Total.....	57	43
Age 62.....	39	61
Age 63 or older ¹	66	34

¹ Includes those awarded payable benefits at ages 63 and older and those awarded postponed benefits at age 65 when they enrolled in Medicare but had not yet retired.

Source: Leonard Rubin, "Disabling Health Conditions," in *Reaching Retirement Age* (Research Report No. 47), Office of Research and Statistics, Social Security Administration, 1976, page 66.

The Retirement History Study (RHS) in 1971 and in 1973 provided data on self-assessed health at ages 62-63 for men who did and those who did not receive retired-worker benefits by those ages. Although the proportion of men reporting health problems in the RHS was smaller than in the SNEB, those receiving benefits by ages 62-63 still were nearly twice as likely as those not receiving early retirement benefits to report work-limiting health problems, as the following tabulation shows.

Retirement benefit receipt	Health does not limit work	Health limits or prohibits work
Total.....	72	28
Receiving early benefits.....	56	44
Not receiving early benefits.....	79	21

Source: Special tabulations from the Retirement History Study. Excludes Disability Insurance beneficiaries.

Many analysts have questioned whether these self-assessments of work limitations are accurate indications of actual differences in health status between early retirees and others. Some believe that early retirees emphasize health problems and downplay other equally important factors in the retirement decision—such as preference for leisure or availability of retirement income—because health problems are considered a more socially acceptable reason for early retirement. Others note that the survey questions on work limitations may have a different meaning to those who have stopped working than to those who have not. For example, some types of health conditions of older workers may make work more difficult than it used to be but may not be totally disabling. Given such a condition, a person who had stopped working may be more likely to report that the condition limited his or her work than would a worker who had not yet stopped working.

If survival rates after age 62 are, in fact, indicative of health status at age 62, then the results of this study show that the age-62 claimants were more likely to have health problems than were other insured workers. The differences in survival rates, however, were not as great as the differences in self-assessed work limitations reported in surveys about a decade ago. Although the men receiving early retirement benefits were about twice as likely as other men to report health problems in surveys, the survival rates of men claiming benefits at age 62 in this study were only 3-5 percentage points lower by age 68 than for other insured men. For the earlier cohorts, for whom survival data are available over a longer period, the difference in survival rates grew wider at more advanced ages.

Some difference between the survey data on work limitations and the survival rates is to be expected. One would not expect work limitations and mortality rates to be perfectly correlated. Some conditions such as arthritis may limit ability to work but are not immediately life threatening. Other conditions, such as certain heart diseases, may call for a curtailment of work activities in order to improve survival prospects. Still other conditions may become acutely life-threatening with very little prior effect on ability to work.

Limitations and Summary of Findings

Because the majority of those born in 1900 through 1910 who lived to age 62 were still alive at the end of 1977—the last year for which data were available—it is not possible to say whether the overall life expectancy of the age-62 claimants will be lower than that of the other insured workers at age 62. Although more of the age-62 claimants died by 1978, those who remained alive could be a relatively long-lived group. Surveys in the past have indicated that the age-62 claimants were a mixed group. While many reported health problems and some who

reported health problems also had low incomes, others reported they were free of health problems and had relatively high incomes from Social Security and pensions. If a significant number of the surviving early retirees are a healthy, long-lived group, then the overall average life expectancy of those who claimed benefits at age 62 might not be significantly different from that of other insured workers. Data on mortality experience long after 1977 would be needed to compare accurately the total life expectancy of early retirees to that of others.

Based on the survival data through 1977 for nondisabled insured workers who reached age 62 in 1962-72, this study found:

- These cohorts of nondisabled insured workers had higher survival rates than those calculated for the same age cohorts from U.S. life tables for the total population.
- As expected, overall survival rates were higher for the more recent cohorts than for the earlier cohorts of insured workers. In addition, overall survival rates were higher for insured women than for insured men.
- Among insured men, a smaller proportion of those claiming retired-worker benefits at age 62 than of others survived to any given later age. These differences in survival rates grew wider at more advanced ages.
- Although they were entitled to benefits 3 years earlier, age-62 claimants were not more likely than those who became entitled to benefits at age 65 to survive a given number of years after their benefit entitlements.
- Among insured men, the difference in survival rates between age-62 claimants and others was not as great as the difference in self-assessed work limitations reported in surveys of men who did and who did not claim early retirement benefits under Social Security.

Technical Note

Other studies have shown that not all deaths are reported on the CWSH.⁴ Most of the unreported deaths appear to be noninsured workers—people whose deaths would not result in a lump-sum death payment from the Social Security program. However, if some deaths of insured workers are unreported on the CWSH, then the study data would overstate survival rates for insured workers. Because this study focuses on differences between age-62 claimants and other insured workers, unreported deaths would bias these results only if underreporting occurred at a different rate for age-62 claimants than for other insured workers. There is no

reason to believe that underreporting of deaths after age 62 would occur at a different rate between age-62 claimants and those who claimed later. Unreported deaths before age 62, however, could bias the results because they would all be included in the group that did not claim benefits at age 62. Because they could not die after age 62, they would show up as survivors.

Only a small proportion of insured workers who appeared to be alive at age 62 could have been cases with unreported deaths before age 62; they are those who neither claimed benefits nor died. Table I shows the status at the beginning of 1978 of all insured workers in the six birth cohorts (1900-10) with no deaths reported before age 62 (in 1962-72).

In the total of the six age cohorts, only 3 percent of the insured men and 9 percent of the insured women neither claimed retired-worker benefits nor had a death reported after age 62. They could either be:

- Cases of unreported deaths before age 62. If so, they should be excluded from the study;
- Cases of unreported deaths after age 62, but before benefits were claimed. If so, comparisons between age-62 claimants and others would be unbiased because, in theory, an unreported death after age 62 could occur for both groups; or
- Cases of persons who survived through 1977 but simply did not establish entitlement to retired-worker benefits. In theory such cases should be included in the study. It is very unlikely, however, that insured workers who had survived to age 72 would not have claimed benefits. Most workers become entitled to benefits by age 65 when they enroll for Medicare. Any others would be expected to claim benefits by age 72, when the Social Security earnings test no longer applied.⁵

Because it was not possible to determine into which of the above categories these cases fell, some assumptions had to be made as to whether this small group who neither claimed benefits nor reported death after age 62 had been alive at age 62. Three assumptions regarding these unknown cases were tested and the effects of these different assumptions on survival rates calculated for the study group are shown in table II.

The three assumptions were: (1) that all the unknown cases were living nonbeneficiaries and therefore should be included, (2) that all had died before age 62 and therefore should be excluded, and (3) that all unknown

⁵ The group that never claimed retired-worker benefits could also include some women who, before age 65, claimed widow's benefits that exceeded their own retired-worker benefits. Such widows are not required to establish entitlement to retired-worker benefits. The Social Security Administration's Office of the Actuary estimates that approximately 5-7 percent of fully insured women aged 62 and older receive only widow's benefits and never establish entitlement to retired-worker benefits.

⁴ Faye Aziz and Warren Buckler, *Mortality and the Continuous Work History Sample*, Social Security Administration; presented at the Joint Statistical Meetings, American Statistical Association, August 11-14, 1980, Houston, Texas.

Table I.—Insured workers with no deaths reported before age 62: Total of six cohorts born in 1900, 1902, 1904, 1906, 1908, and 1910

Insured workers	Men		Women	
	Number	Percent	Number	Percent
Total	39,716	100	27,702	100
Claimed benefits at age 62	9,575	24.1	11,581	41.8
Did not claim benefits at age 62	30,141	75.9	16,121	58.2
Claimed benefits later	27,229	68.6	12,942	46.7
Died at age 62 or later before claiming benefits	1,780	4.5	612	2.2
No benefits claimed or death reported after age 62	1,132	2.9	2,567	9.3

cases in cohorts that had reached age 73 by 1977 and a similar proportion of younger cohorts were cases of unreported deaths before age 62 and should be excluded.

Whether or not the unknown cases were included made very little, if any, difference in survival rates calculated for the men. For the women, survival rates were slightly lower when the unknown cases were excluded.

The data shown in tables 1 and 2 of this article are based on calculations using the third assumption. For the three cohorts that had already reached age 73 by 1977, all unknown cases were excluded. Similar proportions of the three younger cohorts (2.4 percent of the men and 7.5 percent of the women) were also excluded.

Table II.—Alternative assumptions regarding unknown cases (cases with no death reports and no benefit entitlement recorded on the CWHS): Effect on number of cases and on survival rates through 1977 for six cohorts of insured workers with no deaths reported by age 62

Year cohort reached age 62	Assumption 1: all unknowns included		Assumption 2: all unknowns excluded		Assumption 3: unknowns aged 73 and over excluded	
	Number	Percent alive through 1977	Number	Percent alive through 1977	Number	Percent alive through 1977
Men						
1962:						
Total cohort	6,192	50	6,019	49	6,019	49
Did not claim benefits at age 62	4,736	52	4,563	51	4,563	51
1964:						
Total cohort	6,336	59	6,188	58	6,188	58
Did not claim benefits at age 62	4,902	61	4,754	60	4,754	60
1966:						
Total cohort	6,437	67	6,295	66	6,295	66
Did not claim benefits at age 62	5,000	69	4,858	68	4,858	68
1968:						
Total cohort	6,757	74	6,578	73	6,595	74
Did not claim benefits at age 62	5,279	76	5,100	75	5,117	75
1970:						
Total cohort	7,065	82	6,880	82	6,915	82
Did not claim benefits at age 62	5,257	83	5,052	83	5,087	83
1972:						
Total cohort	6,909	87	6,624	87	6,743	87
Did not claim benefits at age 62	4,967	88	4,682	88	4,801	88
Women						
1962:						
Total cohort	3,765	71	3,481	68	3,481	68
Did not claim benefits at age 62	2,181	74	1,897	70	1,897	70
1964:						
Total cohort	4,165	79	3,862	77	3,862	77
Did not claim benefits at age 62	2,442	80	2,139	78	2,139	78
1966:						
Total cohort	4,440	83	4,102	81	4,102	81
Did not claim benefits at age 62	2,613	85	2,275	82	2,275	82
1968:						
Total cohort	4,786	88	4,356	87	4,427	87
Did not claim benefits at age 62	2,932	89	2,502	87	2,573	87
1970:						
Total cohort	5,186	91	4,622	90	4,797	91
Did not claim benefits at age 62	3,031	93	2,467	91	2,642	92
1972:						
Total cohort	5,360	94	4,712	94	4,958	94
Did not claim benefits at age 62	2,922	95	2,274	93	2,520	94