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MORTALITY OF CHARTER BENEFICIARIES

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The Old-Age, Survivors, and Disability Insurance program has been paying monthly benefits for more than 30 years. Actually, January 1940 was the first month for which monthly benefits were paid. A substantial number of the individuals who received benefits for that month are still alive. Their mortality experience, developed from a survey taken in 1965, was first analyzed in Actuarial Note No. 30.¹ More studies have been made—and will continue to be made—of these so-called Charter Beneficiaries, those persons who were aged 65 or over and were entitled to monthly benefits for January 1940 and who continue to be so entitled. This Note presents a further analysis based on data collected in early 1970.

Charter Beneficiaries consist not only of old-age beneficiaries (retired workers), but also of wife beneficiaries, widow beneficiaries, and parent beneficiaries, who under the law in effect in 1940, had to be at least age 65. However, only the data for old-age beneficiaries are analyzed in this Note, since all other types of benefits have been virtually terminated.

It should also be noted that because of technical procedural difficulties, a woman who was entitled to wife's benefits for January 1940 and who was subsequently widowed, is not classified now as a Charter Beneficiary, since according to administrative procedures, her wife benefit was terminated and a widow benefit was granted instead. The termination of her original benefit eliminates her from the Charter Beneficiaries group. This factor alone has had a very significant effect in eliminating from the

survey most women who were wife beneficiaries in January 1940. Properly speaking, this particular group of widows should be classified as Charter Beneficiaries, but it is virtually impossible—and definitely not feasible administratively—to locate them and to so designate them. There are other situations in which an original Charter Beneficiary loses his continuity of entitlement to the same benefits, but these are believed to involve only a few cases.

Actuarial Note No. 30 showed that, based on mortality rates derived from the United States Life Tables for 1939-41, 1949-51, and 1959-61, the actual number of old-age Charter Beneficiaries surviving to December 1, 1964 was virtually the same as the "expected" number. This resulted from offsetting differences between males and females. The ratio of actual to "expected" survivors was 94% for males, 134% for females, and 100% for both sexes combined. On the other hand, the same experience as compared to the experience of all OASDI old-age beneficiaries in 1940-61, showed relatively higher mortality (i.e., lower survival rates). In this case, the ratio of actual to "expected" survivors was 78% for males, 80% for females, and 78% for both sexes combined.

As can be seen from Table 1, all of the old-age Charter Beneficiaries were born in the period 1872-75.² At the time they became entitled to benefits in January 1940, their age was 65-67², which required very

¹ Robert J. Myers, Actuarial Note No. 30, "Mortality Study of Charter Beneficiaries," Social Security Administration, July 1966.

² Due to the fact that in the original 1935 Act coverage was limited to workers under age 65. It was not possible for workers born before 1872 to become eligible to old-age benefits for January 1940. Even those born in 1872 would have had to be under age 68 in that month. On the other hand, those born in 1875 had to be born in the month of January.

careful verification. These old-age Charter Beneficiaries can be regarded as a cohort of individuals on which highly accurate age information is available and who can be traced in time for mortality analysis. It is estimated that on the average these beneficiaries were born in January 1874, which would make them exactly age 66 at entitlement to benefit in January 1940. Similarly, their average age was 91 during the 1965 survey and 96 during the 1970 survey. In brief, this Note can be seen as presenting highly accurate mortality data observed during the late 1960's at the higher ages (early to mid 90's), based on social security retired workers' experience.

Table 1 shows the estimated number of living old-age Charter Beneficiaries as of February 1, 1940, December 1, 1964, and January 1, 1970, by sex and year of birth. The 1,874 survivors alive on December 1, 1964 represented about 6% of the starting group, and the 373 survivors on January 1, 1970, represented about 20% of those identified in the previous survey and only about 1% of the starting group.

Table 2 analyzed the data on the mortality of the old-age Charter Beneficiaries that was experienced between the last two surveys—that is, between December 1, 1964 and January 1, 1970. This is done by comparing the actual survivors with the projected beneficiaries as of January 1, 1970, on the basis of two sets of mortality rates.

The first set of mortality rates used were those of the 1959-61 United States Life Tables. The second set of mortality rates were based on Medicare experience for 1968-69.³

The actual number of old-age Charter Beneficiaries surviving to January 1, 1970, was 7% higher than "expected" according to United States 1959-61 mortality. This percentage is the same for both males and females. On this basis, it is estimated that the actual mortality of the old-age Charter Beneficiaries during the late 1960's was about 3½% lower than the 1959-61 United States Life Tables mortality when measured in

term of the annual probability of death, q_x . This finding is applicable to males as well as females.

As compared with Medicare beneficiary's mortality, both male and female old-age Charter Beneficiaries showed relatively high mortality (i.e., low survival), the actual survivors being lower than "expected" by 9% for males, 27% for females, and 14% for both sexes combined.

When measured in terms of the annual probability of death, q_x , the above results imply that the mortality of old-age Charter Beneficiaries in the late 1960's was higher than Medicare mortality by 5% for males and 20% for females. It is not known to what extent this substantially higher mortality for females may be due to more accurate age statement than for Medicare at those ages.

Another point of interest is the differential by sex in the mortality experience. It will be observed from Table 3 that according to the survival ratios of old-age Charter Beneficiaries, the mortality of females was substantially lower (survival ratio substantially higher) than for males in the period 1940 to 1964. This period covers an average age range of 66 to 91 throughout which it is well-known that females hold an advantage in mortality. The Charter Beneficiaries corroborate this fact.

At the higher ages the mortality differential by sex is not well established. In most cases, mortality tables are ended according to the preferences of the researcher and no significance can be attached to the differentials derived from the published graduated rates. The values in Table 3 indicate that for the period 1964 to 1970 covering the average ages 91 to 96, the old-age Charter Beneficiaries demonstrated practically no mortality differential by sex. It is estimated that, as measured by the probability of death, q_x , the females experienced mortality rates that were about 1% lower than for males.

In summarizing, it should be noted that male old-age Charter Beneficiaries experienced, during the late 1960's, mortality rates that were about half-way between the 1959-1961 United States Life Table rates and the

³ Francisco Bayo, "Mortality of the Aged," to be published in TRANSACTIONS of the Society of Actuaries, Vol. XXIV, (1972).

1968-69 Medicare rates. The rates experienced by female old-age Charter Beneficiaries also fell between the 1959-61 United States Life Table rates and 1968-69 Medicare rates, but they were substantially higher than the Medicare rates. This raises some questions about the validity of the Medicare mortality rates at the very high ages for females, which cannot be answered in this Note due to limited amount of data involved in the analysis.

Finally, we believe that it will be of in-

terest to study the survival experience of this Charter Beneficiary group in the future as its members reach the most advanced ages. Particularly, it will be interesting to see how many become centenarians and how many (if any) live to be age 110, which some demographers consider to be about the "true" upper limit of age. This group is one of the few which can be studied over a long period of years where there is an excellent probability that the ages are accurately known.

Table 1
NUMBER OF LIVING OLD-AGE CHARTER BENEFICIARIES

Living as of—	Year of Birth				
	1872	1873	1874	1875	1872-75
	MALE				
February 1, 1940 -----	2,656	11,006	13,536	751	27,949
December 1, 1964 -----	94	523	786	36	1,439
January 1, 1970 -----	20	96	161	8	285
	FEMALE				
February 1, 1940 -----	257	1,447	1,774	130	3,608
December 1, 1964 -----	25	158	228	24	435
January 1, 1970 -----	3	31	51	3	88

Table 2
COMPARISON OF ACTUAL SURVIVAL OF OLD-AGE CHARTER BENEFICIARIES FROM DECEMBER 1, 1964 TO JANUARY 1, 1970 WITH ESTIMATED NUMBER OF SURVIVORS BASED ON MORTALITY RATES ¹

Beneficiary Category	(1)	(2)		(3)	(4)	(5)
	Actual Survivors	Estimated Survivors Based on Mortality of		Col. 1 as Percentage of Col. 2	Col. 1 as Percentage of Col. 3	
		U.S. Population ²	Medicare Beneficiaries ³			
Male Old-Age -----	285	266	313	107%	91%	
Female Old-Age -----	88	82	120	107	73	
Total Old-Age -----	373	348	433	107	86	

¹ See text for description of estimation.

² Based on the 1959-61 United States Life Tables.

³ Based on Medicare 1968-69 experiences as reported in "Mortality of the Aged", TSA, XXIV, (1972).

Table 3
SURVIVAL RATIOS OF OLD-AGE CHARTER BENEFICIARIES

Period	Year of Birth				
	1872	1873	1874	1875	1872-75
	MALE				
Jan. 1940 to Dec. 1964 -----	.0354	.0475	.0581	.0479	.0515
Dec. 1964 to Jan. 1970 -----	.2128	.1836	.2048	.2222	.1981
	FEMALE				
Jan. 1940 to Dec. 1964 -----	.0973	.1092	.1285	.1846	.1206
Dec. 1964 to Jan. 1970 -----	.1200	.1962	.2237	.1250	.2023

Note: These ratios are calculated from the values shown in Table 1.