

# Actuarial Notes

U.S. Railroad Retirement Board Bureau of the Actuary

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## Longevity of Railroad Retirement Beneficiaries

Calculations of the life expectancies of railroad retirement beneficiaries have recently been made from studies of data compiled for the Twenty-Fourth Actuarial Valuation of the railroad retirement system, which was made as of December 31, 2007. These studies have been conducted for male and female age annuitants, disability annuitants, spouses and widows. Comparisons with studies done for the twenty-second and the twenty-third valuations show a general improvement in life expectancies for age and disability annuitants. Other major results of the studies are contained in the following discussion and the two attached tables.

Life expectancies may help provide an indication of the amount that will be paid out in benefits in individual situations, since a benefit is generally payable until the individual beneficiary dies. In the case of spouses and widows, another event, such as death of the employee or remarriage of the widow, may terminate all or a portion of the benefit.

Table 1 illustrates the differences in longevity among the categories of railroad retirement beneficiaries and also shows life expectancy figures for the total U.S. population. The figures for railroad retirement beneficiaries show age and disability retirements separately, while those for the U.S. population do not segregate disabled lives.

As indicated in table 1, a male railroad worker retiring at age 65 may expect, on the average, to receive his annuity for 17.1 years or approximately 205 months; while one retiring at age 62 may expect to receive his annuity for 19.6 years or approximately 235 months. At age 65, female railroad retirement age annuitants have a life expectancy of 20.0 years, which is 2.9 years longer than males at the same age. Females at age 65 in the U.S. population as a whole live 2.9 years longer on the average than males. While a female age annuitant or spouse at age 65 may expect to live about 20.0 and 20.5 years, respectively, a widow at the same age is expected to live 18.3 years. One reason for the difference in longevity may be that a widow's life expectancy is affected by a change in financial and social position and the intangible effect of bereavement brought on by the employee's death.

Life expectancies for disability beneficiaries are shown below. Both those disabled from performing their regular occupation and those totally disabled from performing any occupation are included. Total disabilities are those which meet the more restrictive disability standards of social security.

Life expectancies<sup>a</sup> at selected ages for railroad disability annuitants at retirement and 5 or more years after retirement

<u>Age<sup>b</sup></u>	<u>At retirement</u>	<u>5 or more years after retirement</u>
45 <sup>c</sup>	26.9	27.0
50	22.7	23.5
55	19.4	20.0
60	16.2	16.5
65		13.5
70		10.8
75		8.3
80		6.3

<sup>a</sup> Based on experience between 2003 and 2006 anniversaries of retirement.

<sup>b</sup> Age nearest birthday.

<sup>c</sup> Data not statistically significant.

This table indicates that the life expectancy of a person newly disabled is somewhat lower than that of a person disabled a number of years earlier. At age 55, for example, a recently disabled person may expect to live 19.4 years on average, while one disabled 5 or more years ago has a life expectancy of 20.0 years.

The data used to calculate life expectancy figures also provide a basis for estimating what proportion of the retired population may be expected to remain alive at the end of a particular number of years in the future. The chances of survival for 5, 10, 15 and 20 years for retired individuals are given in table 2. According to these figures, from a group of 1,000 retired male employees at age 65, 920 will survive at least 5 years, 791 at least 10 years, 607 at least 15 years, and 385 at least 20 years. Of female age annuitants at age 65, 532 will be alive 20 years later.

Life expectancy figures are averages for large groups. The future lifetime of a particular individual may be longer or shorter than the life expectancy for his age group. Under the railroad retirement system, there have been many who have received benefits for 25 years or more.

Table 1

Life expectancies at ages 60-85 for railroad  
retirement beneficiaries and for the general population

<u>Age<sup>c</sup></u>	<u>Railroad Retirement<sup>a</sup></u>					<u>U.S. Population<sup>b</sup></u>		
	<u>Age annuitants</u>	<u>Disability</u>	<u>Annuitants</u>		<u>Spouses<sup>d</sup></u>	<u>Widows</u>	<u>Males</u>	<u>Females</u>
	<u>Males</u>	<u>Females</u>	<u>Annuitants</u>	<u>Spouses<sup>d</sup></u>	<u>Widows</u>		<u>Males</u>	<u>Females</u>
60	21.3	24.5	16.4	24.6	22.3		20.8	24.0
61	20.4	23.6	15.8	23.8	21.4		20.0	23.2
62	19.6	22.6	15.2	22.9	20.6		19.3	22.4
63	18.7	21.7	14.6	22.1	19.8		18.5	21.6
64	17.9	20.9	14.0	21.3	19.0		17.8	20.8
65	17.1	20.0	13.5	20.5	18.3		17.1	20.0
66	16.3	19.1	12.9	19.7	17.6		16.4	19.2
67	15.6	18.4	12.3	18.9	16.9		15.7	18.4
68	14.8	17.6	11.9	18.2	16.1		15.0	17.7
69	14.1	16.8	11.3	17.4	15.4		14.4	16.9
70	13.4	16.0	10.8	16.6	14.7		13.7	16.2
71	12.7	15.1	10.3	15.8	14.1		13.1	15.5
72	12.0	14.4	9.8	15.1	13.5		12.5	14.8
73	11.4	13.7	9.2	14.4	12.9		11.9	14.1
74	10.8	13.0	8.7	13.7	12.2		11.3	13.5
75	10.1	12.3	8.3	13.0	11.6		10.7	12.8
76	9.6	11.6	7.9	12.4	11.0		10.2	12.2
77	9.0	10.9	7.4	11.7	10.4		9.6	11.5
78	8.4	10.3	7.1	11.0	9.9		9.1	10.9
79	7.9	9.6	6.7	10.4	9.3		8.6	10.3
80	7.4	9.1	6.3	9.8	8.8		8.2	9.8
81	6.9	8.5	5.9	9.2	8.2		7.7	9.2
82	6.5	8.0	5.6	8.6	7.7		7.3	8.7
83	6.0	7.4	5.2	8.0	7.3		6.9	8.2
84	5.6	6.9	4.9	7.5	6.8		6.5	7.7
85	5.2	6.4	4.6	7.0	6.3		6.1	7.2

<sup>a</sup> Based on experience between anniversaries of retirement in 2003 and 2006 for all annuitants.

<sup>b</sup> U.S. Life Tables for 2004 from Tables 2 and 3, National Vital Statistics Reports, Vol. 56, No. 9, Dec. 28, 2007, United States Public Health Service, U.S. Department of Health and Human Services.

<sup>c</sup> For railroad retirement data, age basis is age nearest birthday at beginning of policy year; for U.S. population data, age basis is exact age.

<sup>d</sup> About 96 percent of spouses are female.

Table 2

Chances of survival for specified periods,  
by age and category of railroad retirement beneficiary

<u>Age</u> <sup>a</sup>	<u>Number alive per 1,000 after</u>				<u>Number alive per 1,000 after</u>			
	<u>5 years</u>	<u>10 years</u>	<u>15 years</u>	<u>20 years</u>	<u>5 years</u>	<u>10 years</u>	<u>15 years</u>	<u>20 years</u>
	<u>Male age annuitants</u>				<u>Female age annuitants</u>			
60	957	880	757	581	979	927	840	709
65	920	791	607	385	947	859	725	532
70	860	660	419	190	906	765	561	322
75	768	487	221	60	844	619	355	128
	<u>Spouses</u>				<u>Widows</u>			
60	962	906	821	703	952	870	753	610
65	942	854	731	558	914	791	641	454
70	906	776	592	360	865	701	496	277
75	857	654	397	169	811	573	320	116
	<u>All disability annuitants</u>							
60	873	718	551	364				
65	823	632	418	225				
70	768	507	273	102				
75	661	356	133	29				
	<u>Disability annuitants at retirement</u>				<u>Disabled annuitants disabled 5 or more years</u>			
45	940	876	807	708	942	878	809	709
50	899	828	726	598	932	859	753	620
55	889	780	642	493	921	808	665	510
60	855	704	541	357	877	722	554	366
65	b	b	b	b	823	632	418	225
70	b	b	b	b	768	507	273	102
75	b	b	b	b	661	356	133	29

<sup>a</sup> Age nearest birthday approximates exact age.

<sup>b</sup> Not applicable. Disability annuities not awarded on or after 65th birthday.