

Actuarial Notes

U.S. Railroad Retirement Board Bureau of the Actuary and Research

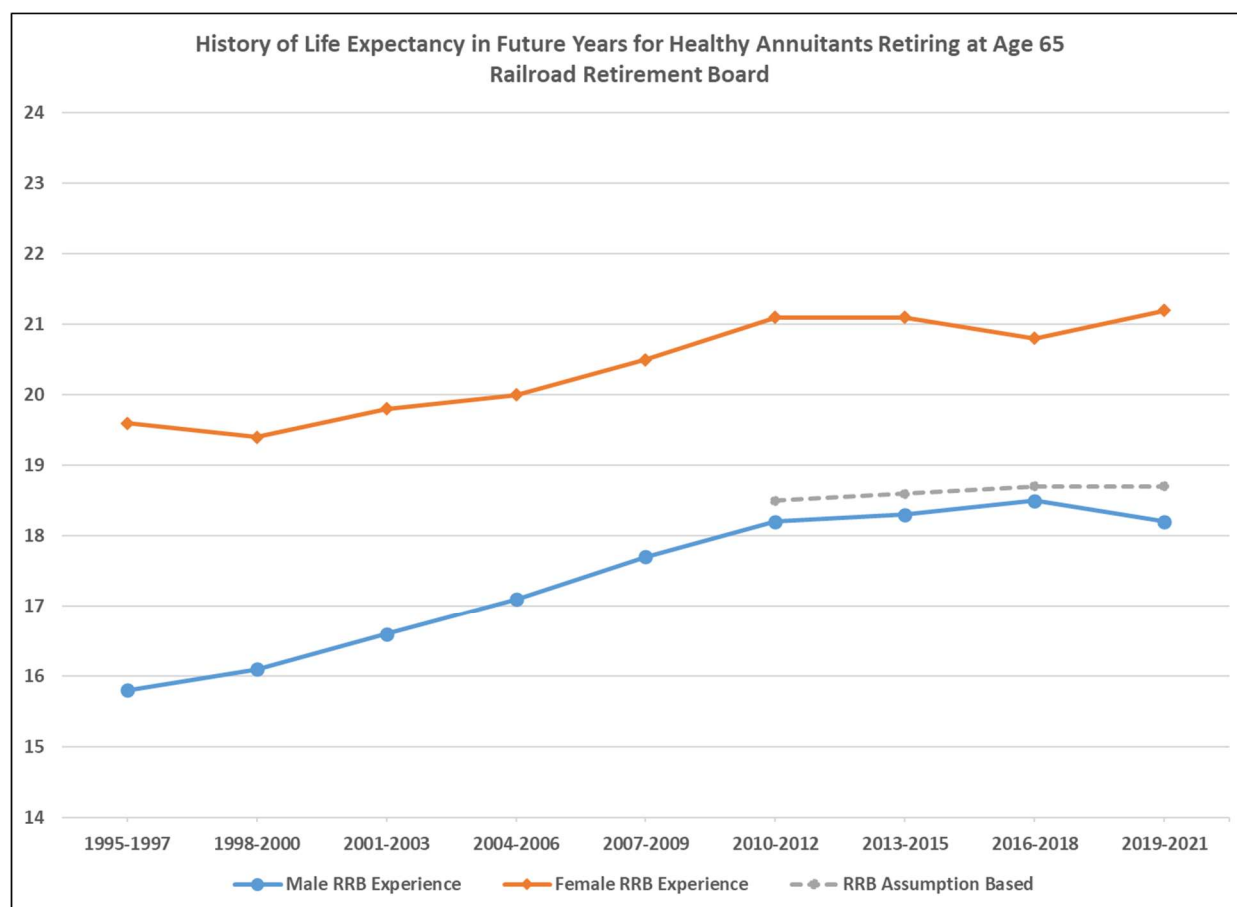
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Longevity of Railroad Retirement Beneficiaries

Based on studies of experience data compiled from the Twenty-Ninth Actuarial Valuation of the railroad retirement system, which was made as of December 31, 2022, the Bureau of the Actuary and Research has calculated the life expectancies of railroad retirement beneficiaries. These studies have been conducted for male and female age annuitants, disability annuitants, spouses and widows. Results of the studies are contained in the following discussion and the two attached tables.

As shown in the chart below, life expectancy for railroad retirement age annuitants at age 65 has generally improved in our studies over the last 20 years until the most recent study period, presumably due to the COVID pandemic impact on 2021 mortality experience. Comparisons with studies done for the prior Twenty-Eighth Actuarial Valuation show mixed results for this study period's life expectancies, with some categories improving and some declining, even after making a methodology change to smooth the impact of the 2021 mortality experience.



The gray dashed line reflects the mortality assumption for recent Actuarial Valuations that is based on combined male and female mortality experience, with about 90% male. As you can see, it also reflects a slight improvement in life expectancy over the last few study periods and then remains the same for the most recent Twenty-Ninth Actuarial Valuation. We do not anticipate the COVID pandemic higher mortality experience in 2021 will fully continue in future years, so for the valuation we chose to use six years of experience (2016 – 2021) and use a 50% weight for the 2021 experience. We believe the valuation assumption is more indicative of future experience and chose to use this same approach to develop the life expectancies in this note.

Life expectancies may help provide an indication of the amount that will be paid out in benefits for 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 indicates in table 1, a male railroad worker retiring at age 65 may expect, on the average, to receive his annuity for 18.4 years or approximately 221 months, while one retiring at age 62 may expect to receive his annuity for 20.9 years or approximately 251 months. (This difference partially explains why the benefit may be reduced for early commencement.) At age 65, female railroad retirement age annuitants have a life expectancy of 21.0 years, which is 2.6 years longer than males at the same age.

Females at age 65 in the general U.S. population live 2.7 years longer on the average than males. While a female annuitant at age 65 may expect to live about 21.0 years and a female spouse at age 65 may expect to live about 21.2 years, a female widow may only expect to live 19.1 years or about 2 years less than a female annuitant or spouse. One reason for the difference in longevity may be that a widow's life expectancy is affected by a change in financial position, less beneficial activity, and the intangible effect of bereavement brought on by the husband's death.

Life expectancies for disability beneficiaries are shown below. Both those disabled from performing their regular railroad 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. For this purpose, we consider an annuitant a disabled beneficiary even after conversion to a retirement annuity.

Life expectancies^a at selected ages for railroad disability annuitants at retirement and 5 or more years after retirement

<u>Age^b</u>	<u>At retirement</u>	<u>5 or more years after retirement</u>
45 ^c	27.7	28.0
50	24.0	24.6
55	21.4	21.6
60	17.7	18.2
65		15.0
70		12.0
75		9.3
80		6.9

^a Based on experience between 2015 and 2021 anniversaries of retirement.

^b Age nearest birthday.

^c Data not statistically significant.

This table indicates that the life expectancy of a person newly disabled is generally lower than that of a person disabled several years earlier. At age 55 for example, a recently disabled person may expect to live 21.4 years on average, while one disabled 5 or more years ago has a life expectancy of 21.6 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 of retired individuals are given in table 2. According to these figures, from a group of 1,000 male age annuitants at age 65:

- 936 will survive at least 5 years,
- 828 at least 10 years,
- 664 at least 15 years, and
- 455 at least 20 years.

From a group of 1,000 female age annuitants at age 65, 576 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 their age group. Under the railroad retirement system, there have been many who have received benefits for 30 years or more.

Impact of COVID-19 Pandemic

Mortality experience for the 2021 pandemic years indicates that mortality rates were higher than expected, particularly at older ages and for those with disabilities, which results in slightly lower life expectancies. We do not assume that the pandemic will have as much impact on future life expectancies.

Table 1

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

<u>Age^c</u>	Railroad Retirement ^a					U.S. Population ^b	
	<u>Age annuitants</u>	<u>Disability</u>	<u>Annuitants</u>	<u>Spouses^d</u>	<u>Aged</u>	<u>Males</u>	<u>Females</u>
	<u>Males</u>	<u>Females</u>			<u>Widows^e</u>		
60	22.7	25.5	18.1	25.5	23.1	20.5	23.7
61	21.8	24.5	17.5	24.6	22.3	19.7	22.9
62	20.9	23.7	16.9	23.8	21.4	19.0	22.1
63	20.1	22.8	16.3	22.9	20.7	18.4	21.3
64	19.3	21.9	15.6	22.1	19.8	17.7	20.5
65	18.4	21.0	15.0	21.2	19.1	17.0	19.7
66	17.6	20.2	14.4	20.4	18.3	16.3	19.0
67	16.8	19.3	13.8	19.5	17.5	15.7	18.2
68	16.0	18.5	13.2	18.7	16.8	15.0	17.5
69	15.3	17.6	12.6	17.9	16.0	14.4	16.7
70	14.5	16.8	12.0	17.1	15.3	13.7	16.0
71	13.8	16.0	11.4	16.3	14.6	13.1	15.3
72	13.1	15.2	10.8	15.6	14.0	12.5	14.6
73	12.4	14.5	10.3	14.8	13.3	11.8	13.8
74	11.7	13.7	9.8	14.1	12.7	11.2	13.2
75	11.1	13.0	9.3	13.4	12.0	10.6	12.5
76	10.4	12.3	8.8	12.7	11.4	10.1	11.8
77	9.8	11.6	8.2	12.0	10.9	9.5	11.2
78	9.3	11.0	7.8	11.4	10.3	9.0	10.6
79	8.7	10.3	7.3	10.7	9.7	8.4	10.0
80	8.1	9.6	6.9	10.1	9.1	7.9	9.4
81	7.6	9.0	6.5	9.5	8.6	7.4	8.8
82	7.1	8.5	6.1	8.9	8.0	7.0	8.3
83	6.6	8.0	5.7	8.3	7.5	6.5	7.7
84	6.1	7.5	5.3	7.8	7.1	6.1	7.2
85	5.7	6.9	5.0	7.2	6.6	5.6	6.7

^a Based on experience between anniversaries of retirement in 2016 and 2021 for all annuitants. Experience was weighted by 50% for 2021. A 100% weighted was used for all other years.

^b Tables 2 and 3, United States Life Tables, 2021, National Vital Statistics Reports, Vol. 72, No. 12, November 7, 2023.

^c 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.

^d About 94 percent of spouses are female.

Table 2

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

<u>Age^a</u>	<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	962	900	796	639	976	938	862	744
65	936	828	664	455	961	884	762	576
70	885	710	487	245	919	793	599	366
75	802	550	277	84	863	651	398	156
	<u>Spouses</u>				<u>Widows</u>			
60	970	924	848	733	957	889	783	642
65	953	874	756	587	929	818	670	485
70	918	794	616	391	880	722	522	304
75	865	671	426	176	820	593	345	132
	<u>All disability annuitants</u>							
60	890	768	620	444				
65	863	697	499	292				
70	807	579	338	148				
75	717	419	183	45				
	<u>Disability annuitants at retirement</u>				<u>Disabled annuitants disabled 5 or more years</u>			
45	930	854	785	703	942	865	795	712
50	893	821	736	636	918	844	756	653
55	909	815	704	568	919	824	712	575
60	863	746	602	432	896	774	625	448
65	b	b	b	b	864	697	500	292
70	c	c	c	c	807	579	338	148
75	c	c	c	c	717	419	183	45

^a Age nearest birthday approximates exact age.

^b Insufficient data.

^c Not applicable. Disability annuities are not awarded after normal retirement age.