

Mortality Experience of Public Pension Systems – A Major Pension Funding Issue

Mortality rates can be a big factor in the cost of defined benefit pension plans. Lower future mortality translates into higher cost for pension plans and lower funded ratios.

This year the IRS has mandated a new table to be used in determining the funding requirements for all private sector plans. The RP2014 table coupled with a mortality improvement projection scale MP2017 is now required for use in all actuarial valuations or private sector plans. Costs are significantly higher under the new table than under the prior one (RP2000 with projections).

The new table was developed by the Society of Actuaries as a major demographic project. In creating the new table a decision was made to exclude the mortality experience of public sector employees for a number of reasons. The Society of Actuaries undertook a separate project of analyzing the mortality experience of public retirement participants.

Actuaries and plan sponsors were left with the question:

What would the public plans mortality experience look like and what impact would new mortality tables have on funding public plans?

The answer is beginning to be revealed.

Last week the Society of Actuaries released its study of public plan mortality and issued a draft of mortality tables that with suitable actuarial judgement could be used in the actuarial valuations of public plans.

The Society analyzed in great detail over 46 million life years of exposure and 580,000 deaths of public sector employees. Multivariate analysis (*fancy math*) was used to identify key factors affecting mortality rates. The most significant factors (other than age and gender) were *job category* and *benefit amount or pay level*.

Mortality was significantly different for three job categories:

Teachers – mortality is substantial better than the other two categories, better even than the white collar version of the private sector RP2014 table

General – (non-teacher and not public safety) mortality is between the other two categories but further from the teacher group than from public safety. Different than the private sector table.

Public Safety (*police and fire*) – higher mortality than the other two categories and higher than the private sector table

Separate mortality tables were created for each of the three job classifications. Tables were created for employees, retirees, disabled persons and survivor annuitants.

For each of the above classifications, separate tables were also created for participants with above median benefits and below median benefits. This factor appears to be too significant to ignore. Higher paid employees and retirees with higher benefits display lower mortality than lower paid employees and retirees with lower benefits.

Summary of Pub-2010 Tables

- Each of the following tables was produced for each gender and “weighting” (\$-weighted or #-weighted) combination

Job Category	Employees	Retirees	Disabled Retirees	Cont. Survivors
Teachers	<ul style="list-style-type: none"> • Total Subpopulation • Above-Median • Below-Median 	<ul style="list-style-type: none"> • Total Subpopulation • Above-Median • Below-Median 	<ul style="list-style-type: none"> • Total Subpopulation¹ 	<ul style="list-style-type: none"> • Total Subpopulation • Above-Median • Below-Median
Public Safety	<ul style="list-style-type: none"> • Total Subpopulation • Above-Median • Below-Median 	<ul style="list-style-type: none"> • Total Subpopulation • Above-Median • Below-Median 	<ul style="list-style-type: none"> • Total Subpopulation 	
General	<ul style="list-style-type: none"> • Total Subpopulation • Above-Median • Below-Median 	<ul style="list-style-type: none"> • Total Subpopulation • Above-Median • Below-Median 	<ul style="list-style-type: none"> • Total Subpopulation¹ 	

¹ The Teacher and General subpopulations were combined for the Disabled Retiree tables

Sean Sullivan and I are immersing ourselves in the public plans mortality study and will prepare a deeper analysis for public plan sponsors and plan trustees.

The mortality assumption is shaping up as an important decision in the actuarial valuations that underpin the financing of American public pension systems.

Want to discuss? Give Sean or me a call.

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