

data

Multiemployer Pension Plan Mortality Study

Segal Consulting has conducted a study of the mortality experience¹ of its multiemployer pension clients to determine how that experience compares to the mortality experience that would be predicted by the RP-2014 Blue Collar Annuitant Mortality Tables (the “RP-2014 Mortality Tables”) published by the Society of Actuaries (SOA). (See page 3 for background on the SOA mortality tables.) The Segal *Multiemployer Pension Plan Mortality Study* (the “Segal Study”) uses actual mortality experience from 2008 through 2013 from 271 plans, representing nearly 200,000 deaths that occurred during this period.

The Study Results

The Segal Study’s overall results reveal that the actual mortality experience was approximately 9 percent greater (*i.e.*, there were approximately 9 percent more deaths) than what would be predicted using the RP-2014 Mortality Tables, adjusted back to the relevant year being analyzed using the MP-2014 Mortality Improvement Projection Scale (the “MP-2014 Scale”).² In addition, the results indicate that the mortality *improvement* experienced by these plans is less than what would be predicted by the MP-2014 Scale. This means that, in addition to participants in the study living shorter lives than would be predicted by the new table, their life expectancy is not improving as quickly as predicted by the MP-2014 Scale.

The Segal Study compared the results by industry, by plan year and in the aggregate for the entire period. Segal determined the ratio of actual deaths to expected deaths, based on the RP-2014 Mortality Table (headcount-weighted), adjusted back to the appropriate period using the MP-2014 Scale. The aggregate ratio for all industries over the entire period was 1.088, or 8.8 percent more deaths than expected.

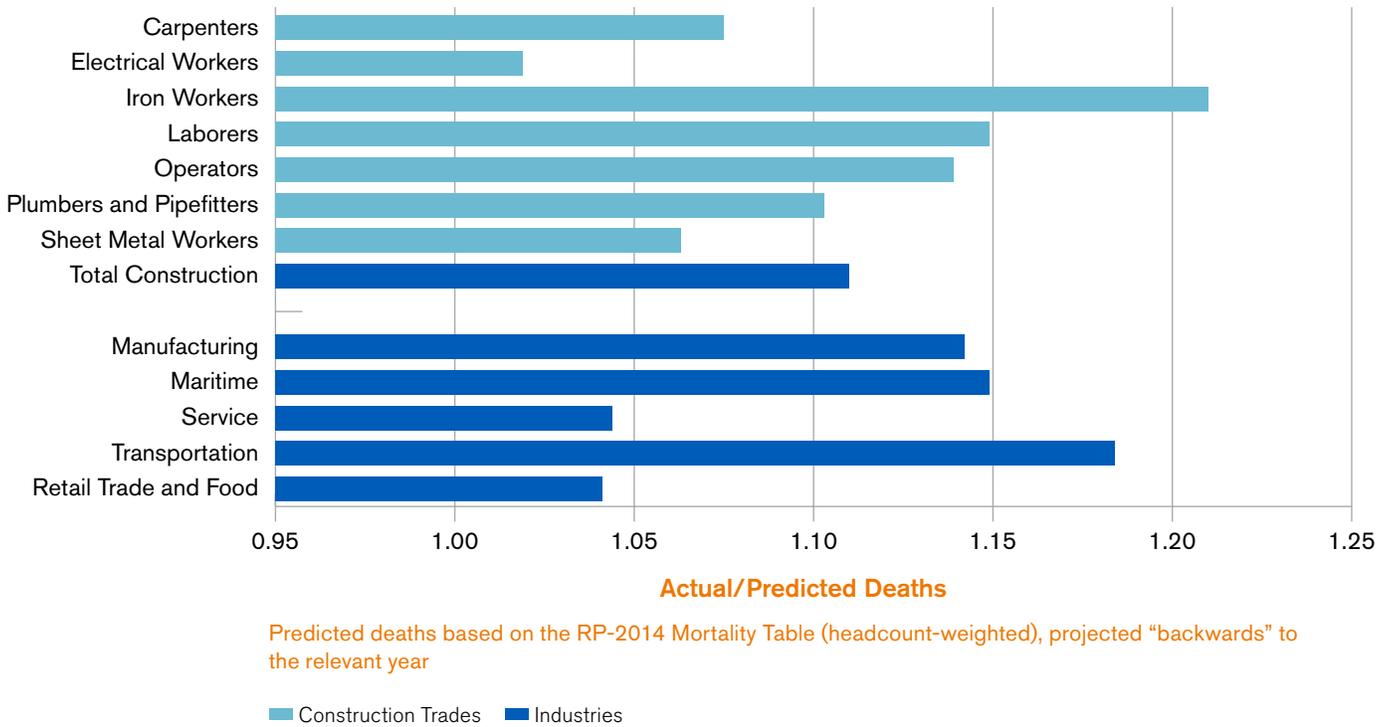
“The Segal Study’s overall results reveal that the actual mortality experience was approximately 9 percent greater... than what would be predicted using the RP-2014 Mortality Tables.”

¹ Mortality experience, for the Segal Study, is the percentage of retirees and beneficiaries who die during a plan year.

² A mortality improvement projection scale predicts the improvement in mortality from one year to the next. For example, if the mortality improvement scale is 2 percent, the expected mortality rate in the subsequent year will be 2 percent lower than the prior year.

The results by industry (see Graph 1) show significant variation, with only one industry — electrical workers — exhibiting mortality within 2 percent of that expected under the RP-2014 Mortality Table. The remaining industries all experienced more deaths than expected, with iron workers and laborers and the maritime, transportation and manufacturing industries experiencing at least 14 percent more deaths than expected. The construction trades, as a group, experienced 11.6 percent more deaths than expected.

Graph 1: Segal Data vs. the RP-2014 Mortality Table Predictions Showing Deaths by Construction Trades and Industries 2008 – 2013*



* A score of 1.00 means actual deaths were exactly as predicted by the RP-2014 Mortality Table, a score of 0.95 means that the number of deaths was 5 percent lower than predicted and a score of 1.05 means that the number of deaths was 5 percent higher than predicted by the RP-2014 Mortality Table.

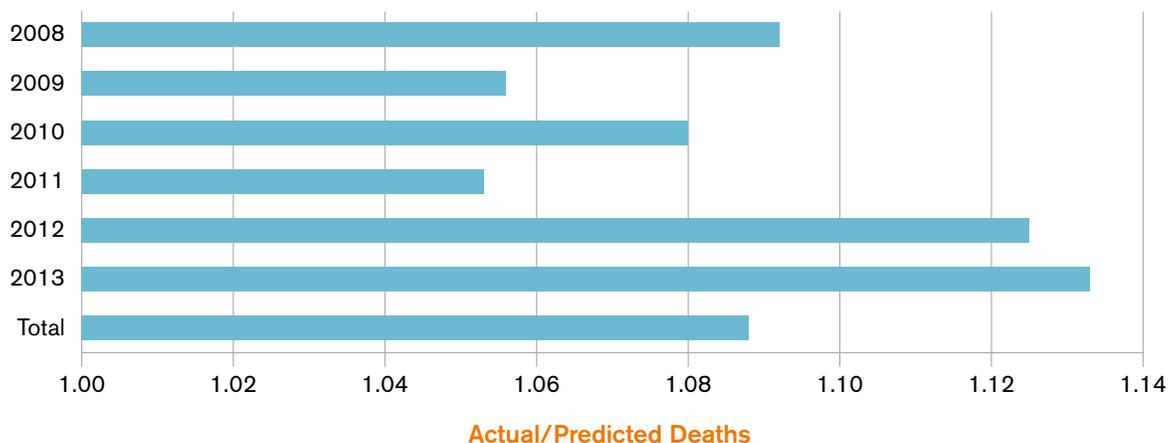
It is also interesting to note that the two groups in the Segal Study that tend to have the lowest retirement benefits (along with the lowest pre-retirement income) — service, and retail trade and food — have moderately lower ratios than the averages. That is, they exhibit lower mortality rates than the study population in aggregate, in contrast to the association between higher benefits and lower mortality noted in the RP-2014 Mortality Tables.

To put the Segal Study’s results in perspective, an 8.8 percent increase in mortality is equivalent to approximately an eight-month decrease in life expectancy for a 65 year-old, and a 2 percent to 2.5 percent decrease in liability for the typical retiree population.

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The results also appear to show that the mortality improvement experience predicted by the MP-2014 Scale overstates the mortality improvement shown in the Segal Study. By year, the ratios of actual to predicted deaths range from 1.053 to 1.133 (see Graph 2). If the results in Graph 2 had been roughly the same from year to year, that would have indicated that the MP-2014 Scale accurately reflected the mortality improvement for the Segal Study population. Although the pattern does not increase uniformly, there is an upward trend in the ratio of actual deaths to predicted deaths, indicating that the mortality improvement has been less than that indicated by MP-2014 Scale.

Graph 2: Total Actual/Predicted Deaths by Year



Predicted deaths based on RP-2014 Mortality Table (headcount weighted), projected “backwards” to the relevant year

Background on the SOA Mortality Tables

In late 2014, the SOA released its *RP-2014 Mortality Tables Report and the Mortality Improvement Projection Scale MP-2014 Report*. The purpose of the reports was to update the mortality tables that had been last updated in 2000 (subsequently referred to as the “RP-2000 Mortality Tables”) and revise projections of future mortality improvement. Several mortality tables were developed, but only one — the Healthy Annuitant Table — Blue Collar — was deemed relevant for the Segal Study since the Segal population base being analyzed was nearly all blue-collar retirees and their beneficiaries. Subsequent to the release of the original report, the SOA published a supplement, which included a headcount-weighted version of the original table in which the mortality experience was weighted based on participant benefits (*i.e.*, amount-weighted).³

The SOA study was based on 220,000 deaths, although only about 113,000 of those deaths were from populations identified as “blue collar.” Some deaths in the SOA study were attributable to active and disabled retiree populations in addition to retirees and beneficiaries; the Segal Study includes only retirees and beneficiaries. In addition, the blue-collar population used for the SOA study was almost exclusively derived from single-employer plans, which are likely to have significantly different industry concentrations (and perhaps mortality characteristics). Finally, any group that contained less than 30 percent white-collar (salaried and non-union) participants was considered blue collar in the SOA study, which could still result in a significant number of white-collar participants being included in the SOA’s blue-collar mortality experience.

Segal believes that these differences are important and at least partially explain the differences between the predictions of the SOA tables and the findings of the Segal Study.

³ In the headcount-weighted table, the experience of all participants’ experience was weighted equally. In the amount-weighted table, the experience of participants with greater benefits carried proportionately greater weight than the experience of participants with lower benefits.

Segal Study Methodology

All the data for actual and expected deaths among pensioners and beneficiaries was collected from Segal client multiemployer pension plans, based on experience from the 2008 through 2013 plan years. In contrast to the SOA data, the Segal data had very few white-collar participants. The number of expected deaths for each plan was initially based on the mortality table used in the plan's actuarial valuation. That number was then adjusted to produce an estimated expected number of deaths based on the RP-2014 Mortality Table (headcount-weighted) projected "backwards" to the relevant year. (The headcount-weighted table was used in the study because the mortality experience was assembled based only on number of deaths and not benefit levels.)

The estimation techniques are best illustrated by an example, as follows: Assume that a plan used the RP-2000 Mortality Table (headcount-weighted), projected to 2015 using Scale AA, a prior scale, for the 2012 plan year. The expected mortality experience would be adjusted by three factors:

- A factor to represent the difference in expected deaths between the RP-2000 Mortality Table and the RP-2014 Mortality Table;
- A factor to represent the 15-year projection of the RP-2000 Mortality Table (from 2000 to 2015); and
- A factor to represent a two-year projection backwards (to 2012) of the RP-2014 Mortality Table, based on the MP-2014 Scale.

The number of deaths under the Segal Study was determined in aggregate (*i.e.*, not by age) and compared to aggregate expected experience under the RP-2014 Mortality Table. Segal did not attempt to develop a table of mortality rates or make any comparison by age.

Conclusion

The Segal *Multiemployer Pension Plan Mortality Study* demonstrates that mortality is clearly not a one-size-fits-all assumption and published tables need to be studied and understood in the proper context. Mortality is one of the most important multiemployer pension plan assumptions; as such, experience should be reviewed carefully for each industry and rates should be set individually for each plan.

The Segal Study used actual multiemployer plan experience. The differential it has uncovered is important because that experience would generally translate into shorter life expectancies and potentially lower pension costs for multiemployer plans than would result if the RP-2014 Mortality Tables were simply accepted as the new standard.

Questions? Feedback? Contact Us.

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