Estimating Mortality Risk Using Predictive Modeling

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Abstract

As a life reinsurer, understanding mortality risk is mission critical. Superior models of mortality risk lead to more competitive pricing in profitable market segments and more efficient use of capital. Surprisingly, modern statistical tools such as predictive modeling have not previously been used to model mortality data to gain this edge. In this paper, we present the use of a predictive modeling technique called projection pursuit regression (PPR) to model mortality data. We first describe the process of creating a PPR model using inter-company mortality data collected by the Individual Life Experience Committee of the Society of Actuaries, and present the resulting model. We then discuss the process of using this model as a starting point for creating a more detailed PPR model of internal company mortality data.