Bayesian Cumulative Anti-selection

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Abstract

A few researchers have suggested that individual medical expense policies experience worsens with duration due to the anti-selection associated with lapsation. This prior work did not try to estimate the extent of this anti-selection. In this paper, it is assumed that each insured has a health status parameter. The probability of lapsation of the policy is a function of this parameter. The actual claim experience of the policy is assumed to be conditioned on this health status parameter. The distribution of the parameter in each renewal year is the posterior distribution given that the policy did not lapse. This method also allows for the calculation of the distribution of claims given the actual lapse experience and the actual claim experience. The use of the health status parameter also provides a calculation of the durational effect due to the wearing off of initial underwriting. The paper presents these calculations under various assumptions with some hypothetical data.