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Modeling Surrender and Lapse Rates With Economic Variables

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Abstract

This paper presents surrender rate models with explanatory variables such as the difference between reference and crediting rates, policy age since issue, financial crises, unemployment and economy growth rates, and seasonal effects. The logit function and the complementary log-log function are used in modeling surrender rates.

This paper shows that the logit model and the complementary log-log model generally perform better than the existing surrender rate models such as the arctangent model. It also shows that the surrender rate models are different according to insurance policy types, and it finds proper surrender rate models for four insurance groups: protection plans, education plans, endowment, and annuities.

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