

Abstract: In this thesis we describe the theory of generalized linear models and demonstrate its applications in non-life insurance. We also introduce some methods commonly used to estimation of regression parameters and hypothesis testing . Furthermore, we discuss possible extensions of GLM by introducing tools for reparametrization of predictors which leads to new classes of models, concretely to segmented generalized linear models and generalized additive models. Consequently, we derive models appropriate for actuarial praxis using the real insurance data. In practical part of this thesis we illustrate the use of appropriate software for calculating the parameters of GAM and find way how to use open source statistical program \mathbb{R} .