

The present work studies applicability of artificial neural networks in the assessment of insurance risk. Structure and function of multilayer perceptrons, Kohonen maps, Fuzzy ART networks, and Fuzzy ARTMAP networks are described. Concept of insurance risk is defined and the ratemaking by generalized linear models is introduced. Neural networks' methods for reduction of input space's dimension, knowledge extraction, and visualization are summed up. Data describing traffic accidents are acquainted and results achieved on them are presented. The work successfully demonstrates theoretically and experimentally that multilayer perceptrons approximate better than generalized linear models. Modification of multilayer perceptron estimated distribution function of total claim. Analysis performed by Kohonen map and by subsequent visualization detected two significant clusters. Analysis by Fuzzy ART network is presented as a part of new algorithm for reduction of input space's dimension. New algorithm inspired by Fuzzy ARTMAP network discovered a group of accidents where the claim is above average. This group is delimited by interpretable rules. Attached CD contains scripts for Matlab and MySQL that was used for mentioned analyses.