ABSTRACT

Diploma work: 95 p., 13 fig., 9 tabl., 2 appendixes, 11 bibliographic references.

The object of the study – socio-economic data, data that are predicted.

The subject of the study – Bayesian model averaging for the study of socio-economic data.

The purpose of the study - analyze the subject of research and investigate the effectiveness of Bayesian model averaging.

The methods of the study – methods of the averaged Bayesian model, the binomial prior model method, Monte Carlo Markov Chains.

The relevance of the study – In modern applied statistics there is a growing interest in Bayesian methods of statistical inference. The ideas of Bayesian statistics have found wide application in many applied fields: engineering, economics, insurance, medicine and others.

The main difference between the Bayesian paradigms is that the unknown parameter of the probability model is considered as a random variable, while in the classical approach the parameter is considered a fixed point.

Interpretation of the parameter of the model as a random variable allows the researcher to have a priori available information about the unknown parameter in the form of its a priori distribution and combine it with Bayes' theorem of information contained in the experimental sample obtained.

The results of the study – A sample was selected from the initial socio-economic data. This method constructs regression models based on Bayesian statistics. It is faster and less expensive than standard methods such as the Markov chains of Monte Carlo.

According to the experiment, the relationship between the state of crime and the characteristics of the areas of residence is established, which can be useful in forecasting the social sphere of the country, preventing and preventing crime.

Further improvements of the study – The most interesting direction of further research can be called studies of alternative measures to assess a priori information, expanding the criteria for assessing the quality of the model.

BAYESIAN MODELS, BAYESIAN MODEL AVERAGING, A PRIOR STATISTICS, A POSTERIOR DISTRIBUTION, MONTE-CARLO METHOD, MARKOV CHAINS.