

ABSTRACT

Diploma work: 140 p., 19 fig., 10 tabl., 3 appendixes, 24 sources.

Topic: Application of integrated likelihood methods for point estimation with elimination of nuisance parameters.

The object of study – statistical tasks of point estimation where nuisance parameters occur, in particular, estimation of parameter N in binomial distribution (N means number of fraud actions in payment system).

Subject of research – maximum likelihood methods (classic, uniform integrated, Jeffrey, profile and conditional).

Purpose – define and illustrate with examples pros and cons of integrated likelihood methods in comparison with other likelihood methods.

Methods of research – analysis of scientific researches, experiment (computer modeling of point estimation), comparison of likelihood methods, formalization, generalization and systematization, statistical methods.

Actuality – results can be applied in evaluation of the effectiveness of fraud detection instrument in payment systems and many other areas of life.

Computer program is developed. It calculates modes of different likelihoods in case of binomial distribution. Pros and cons of integrated likelihood methods are defined and illustrated with examples. It is shown, that integrated likelihoods are less sensitive than others in case of binomial distribution.

Ways of further development of the subject of research – problem of choosing of the right weight function for integrated likelihood, point estimations in cases of other distributions.

MAXIMUM LIKELIHOOD METHOD, LIKELIHOOD FUNCTION, NUISANCE PARAMETER, UNIFORM INTEGRATED LIKELIHOOD, JEFFREY LIKELIHOOD, PROFILE LIKELIHOOD, CONDITIONAL LIKELIHOOD.