# ANNOTATION

The thesis of Nadezda Spiridovskaya “Nontraditional regression models in transport planning and modeling”. The scientific supervisor is Dr.sc.ing., professor Iryna Yatskiv, scientific consultant is Dr.sc.ing., professor Alexander Andronov.

Promotional work is devoted to the various non-traditional regression models, their establishment and application results in the transport sector.

The paper deals with the general use of regression models for transport and there is created regression models classification. The classical transport model structure is reflected and specified place the use of regression models in a given model. The author describes the regression models in determining the level of service quality, and the regression models in microscopic simulation of data updating.

A significant part of the work is devoted to regression models with ordinal dependent variable and the classification of ordinal models is created. Also the most popular ordinal regression models are described. Practical application of the described models is made in the transport sector, namely, passenger terminal level of service quality assessment.

In the work is also formulated and developed nonlinear regression model for polytomous data, all the necessary procedures for the unknown model parameter estimation are described, as well as information matrix is obtained. The proposed method is approbated on the data of couch terminal service quality. For the new approach testing is offered to compare this method with a traditional approach, as a result, advantages and disadvantages of the selected models are formulated.

In the thesis are also defined and developed the Markov-modulated linear regression model, which includes the idea that the regression model parameters do not remain constant throughout the period of the process of viewing the model, but varies randomly with the external environment, the impact of which is described by the Markov chain with continuous time and final state set. Simulation is carried out and the results show the effectiveness of the proposed approach.

The main results of thesis are presented in the 9 international scientific and research conferences and are reflected in 15 scientific publications.

The thesis consists of introduction, 4 chapters and conclusions. It has 122 pages, 42 formulas, 10 illustrations, 18 tables in the main body, 2 appendixes and 133 publication titles in the list of bibliography.