



FEATURE SELECTION PROCESS FOR THE EVALUATION OF EUROPEAN COUNTRIES' INNOVATIVENESS

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Abstract:

The authors have analyzed methods which can be helpful for identification of determinants of European countries' innovativeness. It was assumed that innovative measure can have a form of: continuous variable, nominal variable representing results of classification, ranking of objects, and ranking of sets. An attempt of determinants identification was made using relatively wide set of feature selection methods (sequential forward and backward selection algorithms, genetic algorithms, simulated annealing methods, ant colony algorithm, some filter methods based on statistical measures and others). First, for every possible form of independent variable, an appropriate set of feature selection methods was chosen. Next, the set of best determinants was selected. And, finally, the relationship between the form of independent variable and the results of feature selection process was studied.

The analysis was conducted for two popular innovation measures: the European Innovation Scoreboard (EIS) and the Global Innovation Index (GII). All calculations were designed and implemented by the authors in R and Python language.

Keywords: feature selection, genetic algorithms, innovation, innovativeness evaluation, The European Innovation Scoreboard (EIS), Global Innovation Index (GII)