Problems caused by multicollinearity and outlier presence

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Abstract

This poster is an illustration of problems caused by multicollinearity and outlier presence in the data. Through simple examples we can see behaviour of classical least squares method but also behaviour of robust least trimmed squares (LTS) method in different situations. The most interesting is investigation of functionality of just mentioned LTS in revealing outliers in the situation where majority of the data suffers from multicollinearity. This is closely knit with the possibility of using LTS (or its generalization LWS) as a tool for multicollinearity detection. We are going to present also a proposal of a new method which can be potential candidate for solving both problems (multicollinearity as well as outlier presence) together. Our proposal is logical combination of techniques used for dealing with multicollinearity and techniques used for dealing with outliers.

Keywords

Multicollinearity, Ridge regression, Least trimmed squares.