
Documents

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New weighted information criteria to select the true regression model

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Abstract

This article considers the analysis of multiple linear regressions (MLR) that is used frequently in practice. We propose new weighted information criteria (WIC) could be used to guide the selection of the "true" regression model for different sample size. Usually, weighted information criterion is calculated by summing weighted different selection criteria when the weights of the weighted information criterion are determined heuristically. In this study, we used simulation study to compare three new weighted information criteria with other seven model selection criteria in terms of their ability to identify the "true" model. The comparison of the ten model selection criteria was in terms of their percentage of number of times that they identify the true model. The simulation results indicate that overall, the first proposed weighted information criterion (PWIC-I) showed very good performance over all where it provided the second best performance after SBC criterion and in some cases it is the best one. The main result of our article is that we recommend considering the new weighted information criterion (PWIC-I) as a reliably criterion to identify the true model.

Author Keywords

Bootstrap procedure; Information criteria; Multiple linear regression; Principal component procedure

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