

BCa-JaB Method as a Diagnostic Tool for Linear Regression Models

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Abstract

Jackknife-after-bootstrap (JaB) has first been proposed by [3] then used by [4] and [1] to detect influential observations in linear regression models. This method uses the percentile confidence interval to provide cut-off values for the measures. In order to improve JaB, we propose using Bias Corrected and accelerated (BCa) confidence interval introduced by [2]. In this study, the performance of BCa-JaB and conventional JaB methods are compared for DFFITS, Welsch's distance, modified Cook's distance and t-star statistics. Comparisons are based on both real world examples and simulation study. The results reveal that under considered scenarios proposed method provides more symmetric threshold values which give more accurate and reliable results.

Keywords: Bootstrap, BCa confidence interval, influential observation, regression diagnostics.

AMS subject classifications: 62F40; 62G09; 62J05; 62J20

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