Estimating bias and RMSE of indirect effects using rescaled residual bootstrap in mediation analysis.

ABSTRACT

It is a common practice to estimate the parameters of mediation model by using the Ordinary Least Squares (OLS) method. The construction of T statistics and confidence interval estimates for making inferences on the parameters of a mediation model, particularly the indirect effect, is usually are based on the assumption that the estimates are normally distributed. Nonetheless, in practice many estimates are not normal and have a heavy tailed istribution which may be the results of having outliers in the data. An alternative approach is to use bootstrap method which does not rely on the normality assumption. In this paper, we proposed a new bootstrap procedure of indirect effect in mediation model which is resistant to outliers. The proposed approach was based on residual bootstrap which incorporated rescaled studentized residuals, namely the Rescaled Studentized Residual Bootstrap using Least Squares (ReSRB). The Monte Carlo simulations showed that the ReSRB is more efficient than some existing methods in the presence of outliers.