GENERALIZING BARTLETT CORRECTIONS

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Cordeiro and Ferrari (1991) derived a general formula for Bartlett-type corrections to improve test statistics whose null asymptotic distributions are chi-squared. We show that the improved statistics can be obtained by evaluating the first three moments of the unmodified statistics up to order n^{-1}, where n is the sample size. We also get closed-form expressions for these corrections in a variety of tests and discuss the performances of the modified statistics by simulation.

REFERENCE

Cordeiro, G.M. and Ferrari, S.L.P. (1991) A modified score test statistic having chi-squared distribution to order n^{-1}. Biometrika 78, 573-582.