PhD program in Statistics

DSS Statistics Seminar

December 18, 2023, 12:30

In person **Room V "Tommaso Salvemini" (CU002)**

Webinar **https://uniroma1.zoom.us/j/86881977368?pwd=SWRFcVFjMDZTa0lXZk05TE1zNm5adz09**

Passcode: 432940

Statistical inference for the cross-product ratio of binomial proportions under different sampling schemes

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We consider a general problem of the interval estimation for a cross-product ratio $\rho = [p_1(1-p_2)]/[p_2(1-p_1)]$ according to data from two independent samples. Each sample may be obtained in the framework of direct or inverse Binomial sampling schemes. Asymptotic confidence intervals are constructed in accordance with different types of sampling schemes, with parameter estimators demonstrating exponentially decreasing bias. Our goal is to investigate the cases when the normal approximations (which are relatively simple) for estimators of the cross-product ratio are reliable for the construction of confidence intervals and logarithmic confidence intervals. We use the closeness of the confidence coefficient to the nominal confidence level as our main evaluation criterion, and use the Monte-Carlo method to investigate the key probability characteristics of intervals corresponding to all possible combinations of sampling schemes. We present estimations of the coverage probability, mean width and standard deviation of interval widths in tables and provide some recommendations for applying each obtained interval.

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