CALIBRATED APPROXIMATIONS FOR L-STATISTICS

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We propose two methods to approximate the distribution function of a Studentized linear combination of order statistics for a simple random sample drawn without replacement from a finite population. Using auxiliary data available for the population units, the first method modifies a nonparametric bootstrap approximation, and the second one corrects an empirical saddlepoint approximation based on the bootstrap. We conclude from simulations that, on the tails of distribution of interest, both approximations improve their initial versions and alternative Edgeworth approximations. These results were obtained in Čiginas and Pumputis (2019a, 2019b).

References

Čiginas, A., Pumputis, D. (2019a). Calibrated Edgeworth expansions of finite population L-statistics. *Mathematical Population Studies*, pp. 1–22, http://dx.doi.org/10.1080/08898480.2018.1553408

Čiginas, A., Pumputis, D. (2019b). Calibrated bootstrap and saddlepoint approximations of finite population L-statistics. *Lithuanian Mathematical Journal* (to appear)