A Package for Inference about Ratios of Normal Means

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Abstract

Inferences concerning ratios of means of normally distributed random variables arise in a variety of problems in the biological sciences. For example, in tests for non-inferiority of two or more treatments, it is often easier to define and also to interpret the non-inferiority margins as percentage changes. This talk aims to introduce an R package called *MRatio* which can perform inferences about one or more ratio parameters. For two-sample problems, the package is capable of constructing Fieller confidence interval and perform Sasabuchi test when the variances are homogeneous or heterogeneous. The package can also construct simultaneous confidence intervals for multiple ratios, performs multiple tests, and calculates the sample sizes required in many-to-one comparisons based on ratios. The functionality of the package will be demonstrated using real data examples.