

Empirical likelihood is a very powerful nonparametric tool that does not require any distributional assumptions. Lazar (2003) showed that in Bayesian inference, if one replaces the usual likelihood with the empirical likelihood, then posterior inference is still valid when the functional of interest is a smooth function of the posterior mean. However, it is not clear whether similar conclusions can be obtained for parameters defined in terms of U -statistics. We propose the so-called Bayesian jackknife empirical likelihood, which replaces the likelihood component with the jackknife empirical likelihood. We show, both theoretically and empirically, the validity of the proposed method as a general tool for Bayesian inference. Empirical analysis shows that the small-sample performance of the proposed method is better than its frequentist counterpart. Analysis of a case-control study for pancreatic cancer is used to illustrate the new approach.

Key words: Bayesian; Empirical likelihood; Jackknife