Slice sampler algorithm for generalized pareto distribution

ABSTRACT

In this paper, we developed the slice sampler algorithm for the generalized Pareto distribution (GPD) model. Two simulation studies have shown the performance of the peaks over given threshold (POT) and GPD density function on various simulated data sets. The results were compared with another commonly used Markov chain Monte Carlo (MCMC) technique called Metropolis-Hastings algorithm. Based on the results, the slice sampler algorithm provides closer posterior mean values and shorter 95% quantile based credible intervals compared to the Metropolis-Hastings algorithm. Moreover, the slice sampler algorithm presents a higher level of stationarity in terms of the scale and shape parameters compared with the Metropolis-Hastings algorithm. Finally, the slice sampler algorithm was employed to estimate the re- turn and risk values of investment in Malaysian gold market.