

On the Small-Sample Optimality of Multiple-Regeneration Estimators

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We describe a simulation output analysis methodology suitable for stochastic processes that are regenerative with respect to multiple regeneration sequences. Our method exploits this structure to construct estimators that are more efficient than those that are obtained with the standard regenerative method. We illustrate the method in the setting of discrete-time Markov chains on a countable state space, and we present a result showing that the estimator is the uniform minimum variance unbiased estimator for finite-state space discrete-time Markov chains. Some empirical results are given.