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Number of Replications Required in Control Chart Monte Carlo Simulation Studies






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Abstract

Monte Carlo simulations have been used extensively in studying the performance of control charts. Researchers have used various numbers of replications in their studies, but almost none of them provided justifications for the number of replications used. Currently, there are no empirically based recommendations regarding the required number of replications to ensure accurate results. This research examined six recently published studies to develop recommendations for the minimum number of replications necessary to ensure accuracy. The results of the study show that a sample size of 5,000 replications is required for the results to be accurate. In addition, the number of replications required to use in future Monte Carlo simulation studies.

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