

Thoranin Sujjaviriyasup, Acting SubLt. 2010: The Comparison of Efficiency for Quality Control Charts to Detect Mean Shift in Production Process. Master of Science (Statistics), Major Field: Statistics, Department of Statistics. Thesis Advisor: Associate Professor Apinya Hirunwong, Ph.D. 92 pages.

The objective of this research is to compare the efficiency of detection mean shifts in production process for four quality control charts such as RUNSUM, EWMA, Synthetic and Fuzzy p-chart. There are three conditions of the research, subgroups (l) are 20, 40 and 60, sample size are 2 to 10 increased by 1 and mean shift are 0.2σ to 2.0σ increased by 0.2σ respectively. Results of the simulation study indicate that the approximation of ARL seemed to have no difference from the theoretical ARL for large subgroups. Moreover the detection mean shifts to be favorable when sample sizes (n) and mean shifts (γ) tend to increase. RUNSUM is the most efficient control chart when mean shifts between 0.2σ and 0.6σ for sample sizes between 2 and 6. Synthetic 300 and 370 are the most efficient control chart when mean shifts between 0.8σ and 1.8σ in sample sizes between 1.6σ to 2.0σ in sample sizes between 8 and 10. Moreover, all control charts are the most efficient control chart when mean shifts is greater than 2.0σ

Student's signature

Thesis Advisor's signature