Raktapha Kuhaphattanakul 2009: A Comparative Study of Confidence Interval Estimation Methods for the Parameter of a Binomial Distribution. Master of Science (Statistics), Major Field: Statistics, Department of Statistics. Thesis Advisor: Mrs.Ampai Thongteeraparp, Ph.D. 114 pages.

The objective of this study is to compare the confidence interval estimation methods for the parameter of a Binomial Distribution. The five estimation methods are Normal method, Score method, Adjusted Wald method, Exact method and Rigorous Formula method. In this research, the sample sizes are very small (n = 5, 10), small (n = 20, 30), medium (n = 70, 100), and large (n = 500, 1000) while parameters p equal to 0.05, 0.07, 0.09, 0.1, 0.2, 0.3, 0.4 and 0.5 with confidence levels 90%, 95%, 99% and 99.9%. The datas were generated through simulation technique an each case was repeated 2000 times. Comparative criterias were based on the confidence coefficient and the average width of the confidence interval. The conclusions of this study are as follows:

When sample size is very small and small, the confidence coefficient of Score method is not lower than the specified confidence coefficient and the average confidence interval width are the lowest.

For medium sample size, Score method is recommended for p between 0.05 to 0.1, whereas Rigorous Formula method would be the suggest method for value of p between 0.2 to 0.5.

For large sample size, Normal method and Rigorous Formula method are suitable for value of p between 0.05 to 0.1 and value of p between 0.2 to 0.5 respectively.

Rigorous Formula method has the confidence coefficient not lower than the specified confidence coefficient for all sample sizes and parameters p but the average confidence interval width from this method is not the lowest for some sample sizes and some parameters.

The study on the factors that affect the confidence interval shows that the average confidence interval width of five estimation methods tend to be narrow when sample size was increased but the average confidence interval width tend to be wide when parameter p close to 0.5.

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