

Thesis Title A Comparative Study on the Methods of Estimating
Parameters for Testing Distribution of Population
Giving Minimal Chi-Square Value.

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ABSTRACT

The purpose of the study was to compare the various methods of estimating parameter for testing distribution of population giving minimal chi-square value. Three methods, the estimation from directed data, the Powell's univariate search method, the Hooke-Jeeves Pattern search method, were compared. Data were generated from exponential distribution, binomial distribution and Poisson distribution. This is processed by computer simulation.

The findings of the study were as follows:

Firstly, it was found that the value of estimated parameter β from all of the methods was close to the real value in case of the data were generated from exponential distribution. The Hooke-Jeeves Pattern search method gave the minimal chi-square value. In addition, the χ^2 goodness of fit test from each methods shows nonsignificance.

Secondly, the directed data method gave the best estimating value $\hat{\lambda}$ in Poisson distribution case. The Hooke-Jeeves Pattern search method gave the estimating value as the second best. Also, the Hooke-Jeeves Pattern search method gave the minimal chi-square value. In addition, the χ^2 goodness of fit test from each methods shows nonsignificance.

Thirdly, the directed data method gave the best estimating value \hat{P} in binomial distribution case. The Hooke-Jeeves Pattern search method gave the estimating value as the second best. Also, the Hooke-Jeeves Pattern search method gave the minimal chi-square value. In addition, the χ^2 goodness of fit test from each methods shows nonsignificance. Although, binomial distribution was estimated by normal distribution or Poisson distribution, the conclusion is not different.