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KEY WORD: SURVIVAL FUNCTION / RIGHT-CENSORED DATA / TYPE I CENSORING.

NUNTAPORN ARAYASAKULWONG : ESTIMATION OF SURVIVAL FUNCTION FOR RIGHT-CENSORED DATA. THESIS ADVISOR: ASST. PROF. CAPT. MANOP VARAPHAKDI, M.S. 343 pp. ISBN 974-636-003-5.

The objective of this study is to compare the estimation methods of survival function by nonparametric estimation. The estimation methods under consideration in this study are Product Limit Method, Hazard Function Method and Bayes Method using a prior distribution in 2 processes, Gamma Process and Dirichlet Process. In this study, Right-Censored data considered is Type I Censoring, the distributions of survival time are Weibull and Lognormal, sample sizes are 10, 20, 30, 40 and 50, percentages of censoring are 10%, 20%, 30% and 40%, predetermined censored times are mean±0%, 25%, 50%, 75% of mean of distribution respectively. The experimentations are repeated 1,000 times using Monte Carlo simulation method in each given situation. To estimate survival function, survival time starting from 0.25 to predetermined censored time, three estimation methods are employed. Then mean absolute percentage errors (MAPE) is used as a criterion to compare the estimated survival function. The lowest MAPE indicates the most efficient estimated method.

The results of this study are as follows. For each predetermined censored times that less than mean of distribution. The MAPE of all three methods will decrease while percentage of censoring increase and Hazard Function Method has lowest MAPE in all level of the sample sizes and percentage of censoring. When predetermined censored times equal or greater than mean of distribution, MAPE of all three methods will decrease at one level of percentage of censoring and then increase when larger percentage of censoring. In situation that MAPE decrease in each percentage of censoring, Hazard Function Method has lowest MAPE. Bayes Method has lowest MAPE in situation that MAPE increase in each percentage of censoring. When sample size increases, MAPE's of all three methods decrease and the differences in magnitude of MAPE tend to become small.

ภาควิชา..... สถิติ  
สาขาวิชา..... การประกันภัย  
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