

Anchulee Pinthongpan 2014: Comparison of The Goodness of Fit Tests for Normality. Master of Science (Statistics), Major Field: Statistics, Department of Statistics. Thesis Advisor: Assistant Professor Ampai Thongteeraparp, Ph.D. 151 pages.

The purpose of this research is to compare the observed type I error and power of the test of β_3^2 based on polynomial regression, Anderson-Darling Statistic based on the likelihood ratio, Anderson-Darling, Shapiro-Wilk Statistic and Shapiro-Francia Statistic in testing normality. The studies data are composed of normal distribution, t-distribution, chi-square distribution, beta distribution and weibull distribution. The sample sizes are 20, 50 and 100. The specified significance levels are 0.01, 0.05 and 0.10. Each case is repeated 1,000 times. The simulation studies show that Anderson-Darling Statistic based on the likelihood ratio and Anderson-Darling can control the type I error at the specified one for all sample size. The β_3^2 based on polynomial regression and Shapiro-Wilk Statistic cannot control the type I error when sample size is 100. Shapiro-Francia Statistic cannot control the type I error at the specified one for all sample size. For power of the test, most cases the power of Anderson-Darling Statistic based on the likelihood ratio is the highest. Next in rank is Anderson-Darling. β_3^2 based on polynomial regression and Shapiro-Wilk Statistic are not different in terms of power of the test. In conclusion, β_3^2 and Shapiro-Wilk Statistic are recommended for normality test when sample sizes are 20 and 50 because they can control the type I error at the specified one and they provide the highest power of test. For sample size is 100, Anderson-Darling Statistic based on the likelihood ratio is recommended.

Student's signature

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