KATECHAN PATCHARINSAK : A COMPARISON ON NONPARAMETRIC METHODS FOR HYPOTHESIS TESTING CONCERNING NORMAL DISTRIBUTION. THESIS ADVISOR : ASSO. PROF. SORACHAI BHISALBUTRA, Ph.D. 222 PP.

The objective of this study is to compare the power of tests for normality using six methods ie. Shapiro-Wilk statistic (W), Cramer-von Mises statistic(W^2), Anderson-Darling statistic (A^2), Watson statistic (U^2), Kuiper statistic (V) and Durbin statistic (D). These statistics are made under two population distributions (normal and skewed) and five sample sizes (10 20 30 50 and 100). The data for this study were obtained through simulation using the Monte Carlo Technique. A computer program was designed to calculate the probability of type I error and the power of tests in 1,000 replications for each test. Considering the ability to control type I error W^2 and A^2 are the best statistics. Using 0.01 level of significance, W statistic dominates the other test statistics except when population distribution is Symmetric Short-Tailed and the sample sizes are 10 20 and 30 inwhich the dominate test statistic is V. When the level of significances are 0.05 and 0.10, A^2 statistic dominates all other test statistics. W^2 statistic has high power of test only when population distributions are Asymmetric Short-Tailed and Asymmetric Long-Tailed, U^2 statistic in Symmetric Short-Tailed; while D statistic has the least powerful in most of all situations.

In conclusion of this study at 0.01 level of significance, when population distribution is Symmetric Short-Tailed and the sample size is less than or equal to 30, we should use V statistic and A^2 statistic when sample size is larger than 30. For other skewed distributions, we should use W statistic when the sample size is less than or equal to 50 and using A^2 statistic when sample size is greater than 50. At 0.05 and 0.10 level of significances, we should use A^2 statistic since it had high power of test.