Thesis Title   Monte Carlo Method for Detecting Type I Error and Power of test in

Statistics for Pearson Product Moment and Spearman Rank Correlation

Coefficients with Small Sample Size and Various Distributions

Author   Miss Jarunee   Chaimoon

M.Ed.   Research and Statistics in Education

Examining Committee

Assoc.Prof.Dr.Tay   Chiengchee   Chairman

Assoc.Prof.Uthen   Panyo   Member

Assoc.Prof.Dr.Suthan   Janhom   Member

Abstract

The purposes of this research were to study (1) The ability to control Type I error in
statistics for testing the significance of Pearson Product Moment and Spearman Rank
Correlation coefficients with small sample Size and Various Distributions when the
correlation coefficients of population is equal to 0.00 (2) The power of test in statistics for
Pearson product moment and Spearman Rank Correlation coefficient when the correlation
coefficients of population are equal to 0.50 and 0.90.

This research is an Experimental research by The Monte Carlo Method using the
Basic Programming language to random population, using the Pascal Programming
language to compute and improve .The population used attributed as the vaious
distribution having correlation coefficient of 0.00, 0.50 and 0.90. The Sample size of
the study were 10, 15, 20 and 25.

Research findings were as follows:

1. The result in the performance of the ability to control Type I error of statistics for testing the significance of Pearson Product Moment and Spearman Rank Correlation coefficients of population is 0.00 and specifing the level of significance (α) at .05 and .01 show that they could control Type I error following as the level of significance specified both at .05 and .01 in every sample size and every distribution.

2. The result in the Power of test in statistics for Pearson Product Moment and Spearman Rank Correlation coefficients when the correlation coefficients of population is 0.50 and specifing the level of significance (α) at .05 and .01 were not different and the correlation coefficients of population is 0.90 with specifying the level of significant (α) at .05 were Pearson Product Moment and Spearman Rank Correlation coefficients have the Power of test as 1.000 when the sample size are 25 in every distribution.