พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสีเขียวนี้เพียงแผ่นเดียว

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SOMPOL JARUTHANASAKKOON : A COMPARISON OF PARAMETERS ESTIMATING METHODS IN MULTIPLE REGRESSION ANALYSIS BY LEAST SQUARE METHOD, RIDGE REGRESSION WITH PRIOR INFORMATION METHOD, AND GENERALIZED LIU KEJIAN METHOD WHEN EXISTING MULTICOLLINEARITY AMONG INDEPENDENT VARIABLES. THESIS ADVISOR : ASSIST. PROF. THEERAPORN VERATHAWORN, Ph.D. 204 pp. ISBN 974-636-284-4.

The objective of this research is to compare multiple regression coefficients estimating methods when existing multicollinearity among independent variables by comparing Least Square method (LS), Ridge Regression with Prior Information method (RP) and Generalized Liu Kejian method (LK). The criterion of comparison is the ratio of average value of mean square error. This research used sample sizes of 12, 30, 50 and 100. The residuals are randomized sample groups from population have normal distribution with mean of 1.0 , standard deviation of 0.05, 0.10, 0.15, respectively , contaminated-normal distribution with scale factors of 3, 10 and percent contaminations of 5, 10 and lognormal distribution with mean of 1.0 , standard deviation of 0.2264, 0.5915, 1.0069, respectively. The level of correlations among independent variables equal (0.30), (0.60), (0.90), (0.99) for the number of independent variables of 3 and equal (0.30,0.30), (0.60,0.60), (0.90,0.90), (0.99,0.99) for the number of independent variables of 5. The data is obtained through simulation using Monte Carlo technique, and repeating 500 times for each case.

The results of this research are that level of correlations, distribution of residuals, number of independent variables and sample sizes have effect to efficiency of multiple regression coefficients estimating three methods. The efficiency have better trend when sample sizes increases but have worse trend when level of correlations, scale factors, standard deviation, number of independent variables and percent contaminations increases by ranging effect from most to least.

Ridge Regression with Prior Information method have the best efficiency every distribution of residuals except for lognormal distribution in case of level of correlations = (0.30) (every sample sizes) and (0.60) (sample sizes = 30, 50, 100) which standard deviation = 0.2264 , number of independent variables = 3 and level of correlations = (0.30,0.30) (sample sizes = 50, 100) which standard deviation = 0.2264, number of independent variables = 5 in these cases Least Square method have the best efficiency because Least Square method have good efficiency when distribution of residuals close to normal distribution.

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สาขาวิชา.......สถิติ...........................   ลายมือชื่ออาจารย์ที่ปรึกษา...........................

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