

ABSTRACT

SIMULATION STUDY OF MODIFIED TWO-PARAMETER LIU ESTIMATOR (MTPLE) METHOD TO OVERCOME MULTICOLLINEARITY IN THE POISSON REGRESSION MODEL

By

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This study aims to evaluate the performance of the Modified Two-Parameter Liu Estimator (MTPLE) method in dealing with multicollinearity and compare the performance of MLE, Liu Estimator, and MTPLE. It uses simulated data with $n=30, 50, 75, 150, \text{ and } 300$ in a Poisson regression model ($p=4,6,8$) with $\rho = 0.89, 0.95, \text{ and } 0.99$. The performance is evaluated using the mean square error (MSE) criterion. The results showed the superiority of MTPLE over the other estimators as it has the smallest MSE value.

Keywords: Modified Two-Parameter Liu Estimator, Liu Estimator, MLE, Multicollinearity, Poisson Regression Model.

ABSTRAK

STUDI SIMULASI METODE *MODIFIED TWO-PARAMETER LIU ESTIMATOR* (MTPLE) DALAM MENGATASI MULTIKOLINEARITAS PADA MODEL REGRESI POISSON

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Penelitian ini bertujuan untuk mengevaluasi kinerja metode Modified Two-Parameter Liu Estimator (MTPLE) dalam menangani multikolinearitas dan membandingkan kinerja MLE, Liu Estimator, dan MTPLE. Penelitian ini menggunakan data simulasi dengan $n=30, 50, 75, 150$, dan 300 dalam model regresi Poisson ($p=4,6,8$) dengan $\rho = 0,89, 0,95$, dan $0,99$. Kinerja dievaluasi menggunakan kriteria mean square error (MSE). Hasil penelitian menunjukkan keunggulan MTPLE dibandingkan estimator lainnya karena memiliki nilai MSE terkecil.

Kata Kunci: *Modified Two-Parameter Liu Estimator, Liu Estimator, MLE, Multikolinearitas, Model Regresi Poisson.*