



## A NEW OPTIMAL SELECTION OF A RIDGE REGRESSION PARAMETER

MAGDA M. M. HAGGAG

Department of Statistics, Mathematics, and Insurance, Faculty of Commerce, Damanhour University, Egypt

### ABSTRACT

In this paper, a new ridge regression parameter is proposed for the ridge regression estimator. The idea of this proposal is based on combining the best well known ridge parameter estimators and sample size. The superiority of the new biasing parameter estimator is investigated through the mean squared error criterion (MSE) criterion, and the relative efficiency criterion. Therefore, simulation experiments are conducted and found that the new ridge estimator has less bias, and smallest MSE, in all degrees of multicollinearity, in all levels of error variances, and for all sample sizes. Also, it is found that the length of the new proposed estimator converges to the length of the true regression parameter. The results of the new ridge estimator are compared to the ordinary least squares (OLS) estimator and all the ridge estimators considered in the new estimator and some other recent ridge estimators. It can be concluded that our new estimator has a little bias and it is a consistent estimator than other ridge estimators considered in this paper and the OLS estimator.

**KEYWORDS:** Bias, Consistency, Mean Squared Error (MSE), Multicollinearity, Ordinary Least Squares (OLS), Ridge Parameters, Ridge Estimators