

## **Adjusted Linear Estimator : An Application to Farm Management Data**

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For errors in variables problem, an Adjusted Linear Estimator (ALE) of parameter vector of linear model is proposed when the true variables and errors follow different distributions under the assumption that linearity is maintained, at least approximately, in the observed variables. The main objective of this paper is to see how this ALE is useful as an estimator of the parameter vector of the linear model in non-normal case. Extensive Monte Carlo Study is made using Extended Ridge Method (ERM).

From the point of view of Bias and Mean Square Error (MSE), the performance of ALE is found to be better than OLE. This paper also examines the application of an Adjusted Linear Estimator to the analysis of Farm Management Data. The problem of estimation of Errors in variables linear model is discussed for a Cobb-Douglas Production Function. The Adjusted Linear Estimates of input elasticities are computed and then compared with the corresponding Ordinary Least Squares estimates. It is also proved that the estimated variance of Adjusted Linear Estimator is smaller than that of the Ordinary Least Squares Estimator.

### **Introduction**

In social sciences, particularly in Economics, most of the data contain observational errors. This is a serious problem to researchers. It is well-known that errors in variables play a critical role in Econometrics. It remained a challenging problem for theoreticians in Econometrics. The advent of computers has helped to renew the attack. In recent times, most of the researchers have done Monte Carlo Method to study the properties of the estimators of the parameters of Errors-in-Variables Linear Models.

When the true variables and errors follow normal distribution the linearity in the observed model is maintained (Lindley, 1947; Pix, 1949). Under this assumption and Adjusted Linear Estimator (ALE) is proposed by Lankipalle and et al. (1983), and it is shown that the ALE is better than the Ordinary Least Square Estimator (OLE).

In this paper, the case of non-normal variables is considered. When the true variables and errors follow different distributions under the assumption that linearity is maintained, at least