

A Class Of Regression Type Estimators Using Mean And Variance Of Auxiliary Variable

Shashi Bhushan¹, Praveen Mishra² and R. Karan Singh³

ABSTRACT

In this paper, a regression type estimator representing a class of estimators is proposed to estimate the population mean of the study variable. The bias and mean square error of the proposed estimator are obtained. Also the optimizing value of the unknown parameter is derived and the expression of minimum mean square error is obtained. Further since the proposed estimator is biased, a jackknife estimator is proposed. The jackknife estimator is shown to be almost unbiased while retaining the same mean square error. As the optimizing value of the parameter involves certain unknown population parameters, an estimator based on the estimated value of the parameter is also proposed. Also, a comparative study is done with some commonly used estimators. Finally, an empirical study involving various populations is included as illustration.

Keywords: Regression type estimator, Jack – knife technique, Mean square error.