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A SHORT REVIEW OF ESTIMATION OF POPULATION VARIANCE THROUGH RATIO ESTIMATORS

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Dedicated to Prof. K. Srinivasa Rao on his 75^{th} ***Birth Anniversary***

Abstract: The present manuscript is a short review of the ratio type estimators of population variance of the study variable using auxiliary information on a single auxiliary variable. In this paper various ratio type estimators of population variance in the literature have been given in chronological order. The large sample properties that is biases and the mean squared errors of these ratio type estimators of population variance have been given up to the first order of approximation. The expressions of the bias and the mean squared error of every mentioned estimator have been given up to the first order of approximation.

Keywords and Phrases: Auxiliary variable, Parameter, Estimator, Bias, Mean Squared Error, Efficiency.

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1. Introduction

The variance is one of the important measures of dispersion of the main characteristic under study for the homogeneous units. The most suitable estimator for the estimation of the population parameter under consideration is the corresponding statistic and therefore the most appropriate estimator for population variance is the sample variance of the main variable under study. Although the sample variance is an unbiased estimator of population variance but it has a reasonably large amount of variation. That is its sampling distribution is not very much concentrated round the population variance. Our aim is to find the estimator