

Finite population total estimation with measurement errors

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We consider measurement errors on linear regression estimates of the finite population total. A general case of the linear regression estimates with unbiased measurement errors where the effect of biases on the simple and correlated response variances is analyzed. A simulation study to investigate the effect of these biases on the variance of the finite population total is done. From the results, the variance of the finite population total increases as the proportion of the systematic errors increase.

Keywords: Measurement Errors; Linear Regression; Finite Population; Variance.