ABSTRACT

Traditional ordinary least square (OLS) regression is commonly utilized to develop regression-ratio type estimators with traditional measures of location. Abid et al. (2016) extended this idea and developed regression-ratio-type estimators with traditional and non-traditional measures of location. It is worth noting that this class is based on OLS regression coefficient which is not suitable when extreme values present in the data set. Later on, by extending the idea of Abid et al. (2016b) the quantile regression (which is robust to outliers) with traditional and non-traditional measures of location is utilized by Shahzad et al. (2020b) and a class of ratio type mean estimators was proposed. By adapting the idea of Shahzad et al. (2020b) in the present study, we proposed an efficient family of exponential quantile regression-ratio type estimators by using the auxiliary information for estimating the finite population mean under simple random sampling scheme. Mathematical expressions such as bias, mean squared error (MSE) and minimum mean squared error are derived. To support theoretical findings, three real data collections originating from different sources are used for numerical illustration. The results are showing the superiority of proposed family of exponential estimators compared to the existing estimators in the light of MSE and percentage relative efficiency (PRE).