

**Estimation of confidence intervals for quantiles under unequal probability sampling
using a new empirical likelihood approach**

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We propose a new empirical likelihood approach which can be used to construct non-parametric (design-based) confidence intervals for quantiles which do not rely on the normality of the point estimator. The proposed approach does not rely on variance estimates, design-effects, re-sampling or linearisation. We show that the proposed approach gives suitable confidence intervals even when the estimator of a quantile is biased. The proposed approach also deals with large sampling fractions. Bootstrap is an alternative approach which can be used to derive non-parametric confidence intervals for quantiles. The proposed approach is less computationally intensive than the bootstrap. We compare our proposed approach with alternative approaches such as linearisation, bootstrap and the Woodruff approach.

Key Words: Design-based approach, Estimating equations, Regression estimator, Unequal inclusion probabilities.