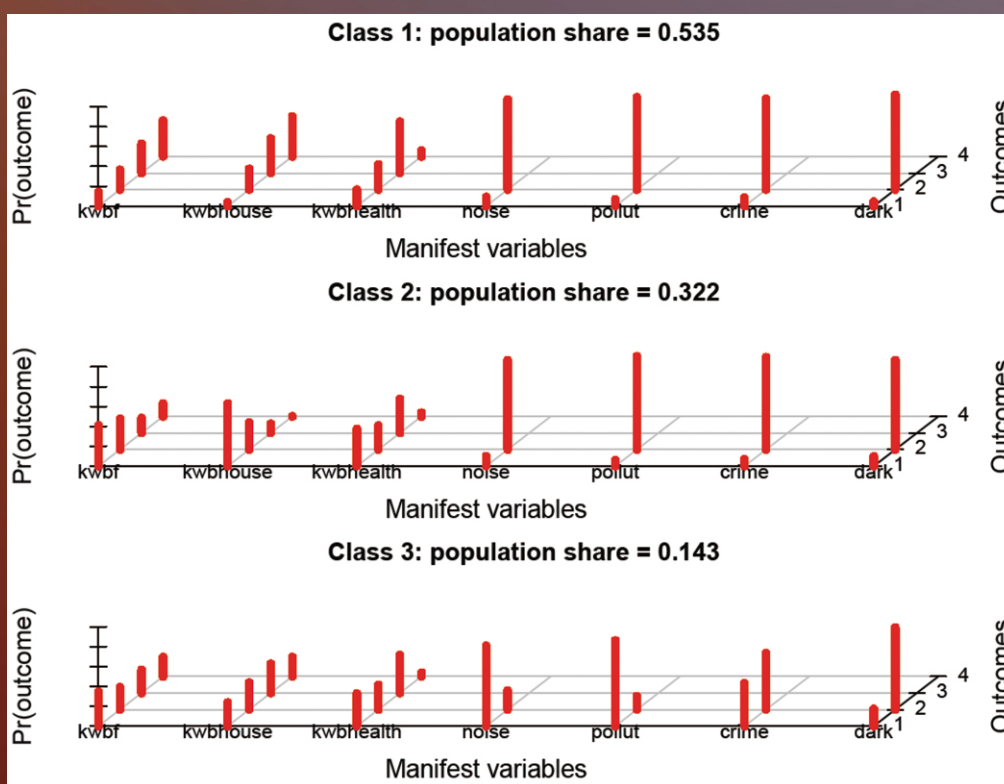




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Mixture Regression Estimators Using Multi-Auxiliary Variables and Attributes in Two-Phase Sampling

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Abstract

In this paper, we have developed estimators of finite population mean using Mixture Regression estimators using multi-auxiliary variables and attributes in two-phase sampling and investigated its finite sample properties in full, partial and no information cases. An empirical study using natural data is given to compare the performance of the proposed estimators with the existing estimators that utilizes either auxiliary variables or attributes or both for finite population mean. The Mixture Regression estimators in full information case using multiple auxiliary variables and attributes are more efficient than mean per unit, Regression estimator using one auxiliary variable or attribute, Regression estimator using multiple auxiliary variable or attributes and Mixture Regression estimators in both partial and no information case in two-phase sampling. A Mixture Regression estimator in partial information case is more efficient than Mixture Regression estimators in no information case.

Keywords

Regression Estimator, Multiple Auxiliary Variables, Multiple Auxiliary Attributes, Two-Phase Sampling, Bi-Serial Correlation Coefficient

1. Introduction

The history of using auxiliary information in survey sampling is as old as the history of survey sampling. The work of Neyman [1] may be referred to as the initial work where auxiliary information has been used to estimate population parameters. Hansen and Hurwitz [2] also suggested the use of auxiliary information in selecting the sample with varying probabilities. The concept of ratio estimation was introduced in sample survey by Cochran



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