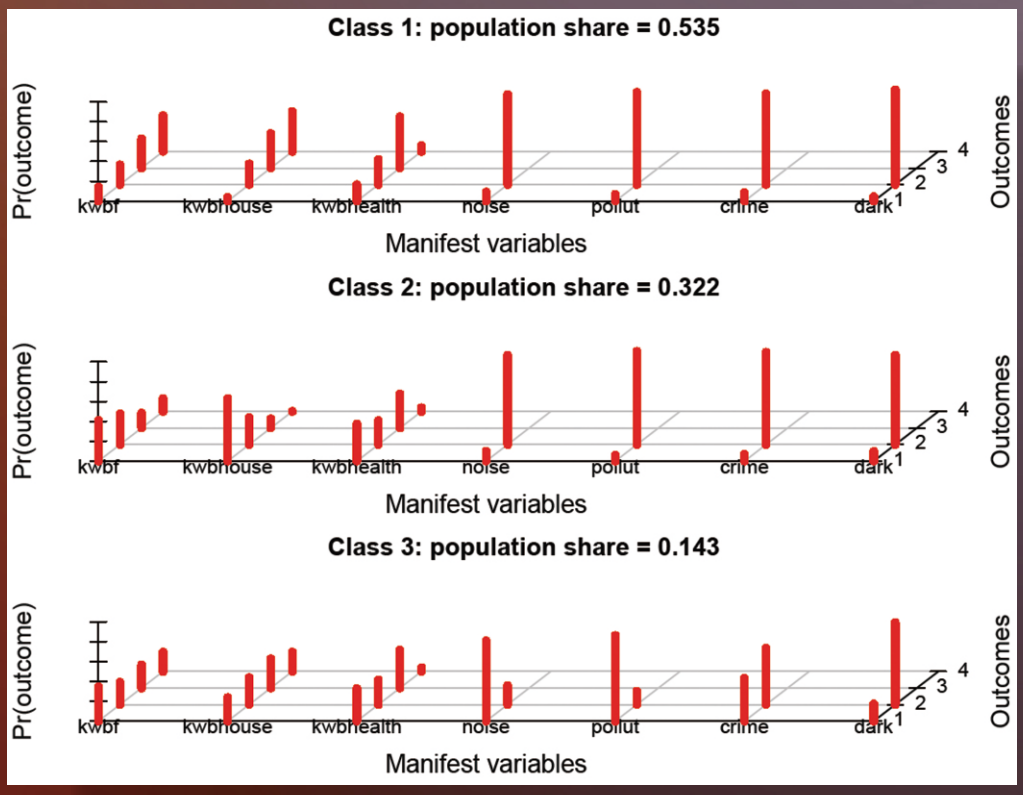
ISSN: 2161-718X Vol. 4, No. 5, August 2014

Scientific Research

Open Journal of Statistics



ISSN: 2161-718X
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ISSN 2161-718X (Print) ISSN 2161-7198 (Online)
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Open Journal of Statistics, 2014, 4, 319-434
Published Online August 2014 in SciRes. http://www.scirp.org/journal/ojs

Table of Contents

Volume 4 Number 5 August 2014

The figure on the front cover is from the article published in Open Journal of Statistics, 2014, Vol. 4, No. 5, pp. 319-329 by Francesca Giambona, Mariano Porcu and Isabella Sulis.

Open Journal of Statistics (OJS)

Journal Information

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Open Journal of Statistics, 2014, 4, 355-366
Published Online August 2014 in SciRes. http://www.scirp.org/journal/ojs
http://dx.doi.org/10.4236/ojs.2014.45035

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

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Received 23 May 2014; revised 26 June 2014; accepted 10 July 2014

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

How to cite this paper: Kung'u, J., Chumba G. and Odongo, L. (2014) Mixture Regression Estimators Using Multi-Auxiliary Variables and Attributes in Two-Phase Sampling. *Open Journal of Statistics*, **4**, 355-366.
http://dx.doi.org/10.4236/ojs.2014.45035

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ISSN 2161-718X (Print) ISSN 2161-7198 (Online)
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