

The book cover features a white background decorated with a pattern of green circles and white outlines of circles. The author's name is printed at the top in a black, sans-serif font.

Dankit K. Nassiuma

# SURVEY SAMPLING

Theory and Methods

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# SURVEY SAMPLING THEORY AND METHODS

DANKIT K. NASSIUMA

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## Preface

Surveys are inseparable from research and planning. This necessitates the teaching of sampling methods as well as their application not only at college and university level, but also to applied researchers.

It is the objective of this book to introduce the language, methods and application of sampling from a practical, mathematical perspective. It is expected that the reader will be enabled to plan and execute surveys and also be capable of evaluating estimates of various parameters especially the location and scale parameters as well as their standard errors.

The book is divided into nine chapters with the first chapter introducing the language of sampling and an overview of research projects, proposal writing and experimentation. The material in this chapter has a social science and educational research flair and is thus easy to apply in a wide range of situations including market research and opinion polls. The second chapter introduces the simple random sampling procedure which is the most basic sampling technique. This is followed by a study on methods of sample size determination in chapter three. This chapter is based mainly on the assumption that a simple random sampling procedure is used but it can easily be extended to other sampling procedures. Chapters four to eight focus on the unequal probability, systematic sampling, stratified sampling, ratio and regression estimation, and cluster sampling procedures. Elaborate proofs for various procedures are given in these chapters. In chapter nine, three topics in sampling are briefly discussed. These are aspects which are usually ignored in most books on sampling and include multiphase sampling, successive sampling and the estimation of population size.

In chapters two to nine, a cook-book kind of option is availed for those who may be interested in applications of the various methods.

Important functions for the estimates and their standard errors are highlighted in boxes so that the rest of the formulae can be skipped.

The material presented in this text when used for teaching at undergraduate level should be covered in two semesters. It is expected that the student has already taken some basic first and second year undergraduate mathematics courses. In the case of researchers interested in the applications aspect, a basic knowledge and appreciation of statistical inference is assumed.

It is hoped that this book will be friendly and invaluable to the researcher, lecturer and the student for the understanding and application of sampling procedures to a wide range of problems.