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Mixture regression estimators of population mean under stratified random sampling

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By

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Research Completion Certificate

It is certified that the research work contained in the thesis **"Mixture Regression Estimator under Stratified Random Sampling"** has been conducted under my supervision to my satisfaction by **Miss. Madiha Fatima, ID, 14002203013,** of MS Applied Statistics program.

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Date _____

Dedication

I dedicate my dissertation work to my family, whose words of encouragement and push for tenacity ring in my earsand they never left my side.

At last, but not least I would like to dedicate this work to "Dr. Muhammad Moeen Butt", most cooperative teacher.

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SUMMARY

In this study, Mixture Regression Estimators for single phase sampling under stratified random sampling have been proposed, by incorporating the simultaneous use of information on auxiliary variables and attributes. The estimators have been proposed for three different cases and their mean square errors have been derived mathematically. A Simulation study has been done by using simulated data, to check the distribution of proposed estimators. This study shows that proposed estimators, seems to follow the normal distribution. An empirical study has also been done by considering two natural data sets. Mean square errors (MSE's) for the proposed estimators have also been computed and Efficiency comparisons made with single phase mixture regression estimators proposed by Moeen et al. (2012). On the basis of MSE's computed through simulation and empirical studies, it is to be concluded that proposed estimators are more efficient than that of estimators proposed by Moeen et al. (2012) for simple random sampling.

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Chapter 1

1. Introduction

"Research is to search or investigate exhaustively" (Webster, 1985). It is a brief and clear inquiry which is based on the objectives to discover facts and approved theories & laws are being altered in the light of new facts. The necessity for statistical information appeared to be infinite in modern civilization. One of the most important tools of data collection for satisfying such need is sample survey. Incomplete investigation for finite population is known as Sample survey.