

1. Record Nr.	UNINA9910847073403321
Autore	Chaudhuri Arijit
Titolo	Randomized Response Techniques : Certain Thought-Provoking Aspects
Pubbl/distr/stampa	Singapore : , : Springer Singapore Pte. Limited, , 2024 ©2024
ISBN	981-9996-69-4
Edizione	[1st ed.]
Descrizione fisica	1 online resource (199 pages)
Altri autori (Persone)	PalSanghamitra PatraDipika
Disciplina	001.433
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Preface -- References -- Acknowledgements -- Contents -- About the Authors -- 1 Genesis, Background and the Need for Randomized Response Techniques (RRT) -- 1.1 Introduction -- 1.2 Warner's (1965) Device -- 1.3 Unrelated Response Model -- References -- 2 Reviews of Background Material on RRT -- 2.1 Introduction -- 2.2 Motivation -- 2.3 Qualitative and Quantitative Characteristics -- 2.4 Parameters to Estimate -- 2.5 Devices to Generate RR Data -- 2.6 Sample-Selection Procedures-Equal and Varying Probabilities -- 2.7 Estimation Procedures -- 2.7.1 Hansen-Hurwitz (1943) Estimator -- 2.7.2 Rao et al. (1962) Estimator -- 2.7.3 Des Raj (1956) Estimator from a PPSWOR Sample -- 2.7.4 Murthy's (1957) Estimator -- 2.7.5 Horvitz-Thompson (1952) Estimator -- References -- 3 How to Use Randomized Response Survey Data Obtained by a Specific Procedure to Judge Its Efficiency Relative to a Possible Rival -- 3.1 Introduction -- 3.2 Estimators Under RRT Sampling Procedures -- 3.2.1 PPSWR Sampling with Hansen-Hurwitz Estimator Versus SRSWR with Expansion Estimator -- 3.2.2 PPSWOR Sampling with Des Raj Estimator Versus SRSWOR with Expansion Estimator -- 3.2.3 RHC Sampling and Estimation Versus SRSWOR Expansion Estimator -- 3.2.4 Lahiri-Midzuno-Sen (LMS) Horvitz-Thompson Estimator Versus SRSWOR Expansion Estimator -- 3.2.5 Lahiri-Midzuno-Sen (LMS) Ratio Estimator Versus SRSWOR Expansion Estimator -- 3.3 Numerical Computations

and Simulation -- 3.4 Conclusion -- References -- 4 Fixing the Size of a Varying Probability Sample in a Direct and a Randomized Response Survey -- 4.1 Introduction -- 4.2 A Few Illustrative RR Devices -- 4.2.1 Warner's RR Device -- 4.2.2 URL RRT -- 4.2.3 Kuk's RRT -- 4.2.4 Forced Response RRT -- 4.2.5 Device I -- 4.2.6 Eriksson's RRT -- 4.3 A Few Illustrative Varying Probability Sampling Schemes. 4.3.1 Probability Proportional to Size with Replacement (PPSWR) Sampling -- 4.3.2 Inclusion Probability Proportional to Size (IPPS) Sampling -- 4.3.3 Rao, Hartley and Cochran (RHC) Sampling -- 4.4 Sample-Sizes: DR, RR Surveys -- 4.4.1 Sample-Size in Direct Surveys with SRSWR and SRSWOR -- 4.4.2 Sample-Size in RR Surveys with SRSWR and SRSWOR -- 4.4.3 Sample-Size in DR Surveys with Varying Probability Sampling -- 4.4.4 Sample-Size in RR Surveys with Varying Probability Sampling -- 4.5 Recommendation and Conclusion -- References -- 5 Likelihood Approach and Its Ramifications -- 5.1 Introduction -- 5.2 Maximum Likelihood Estimation (MLE) -- 5.2.1 MLE in Warner's Model -- 5.2.2 Revised MLE -- 5.2.3 MLE in RR Surveys with Varying Probability Sampling: Chaudhuri's Approach -- 5.3 Bayes Estimation -- 5.3.1 Bayes Linear Estimators for RR Models -- 5.3.2 Warner's RR Model: A Bayesian Approach -- 5.4 Empirical Bayes (EB) Estimation -- 5.4.1 EB Estimation for Qualitative Data -- 5.4.2 EB Estimation for Quantitative Data -- References -- 6 Optional Randomized Response Technique (ORRT) -- 6.1 Introduction -- 6.2 Different Approaches-Equal and Varying Probabilities -- 6.2.1 Chaudhuri and Mukerjee (1985) -- 6.2.2 Chaudhuri and Mukerjee (1988) -- 6.2.3 Gupta et al. (2002) -- 6.2.4 Arnab (2004) -- 6.2.5 Chaudhuri and Saha (2005) -- 6.2.6 Pal (2008) -- 6.2.7 Chaudhuri and Dihidar (2009) -- 6.3 Qualitative Characteristics -- 6.3.1 ORRT Using Warner's RRT -- 6.3.2 ORRT Using Greenberg et al.'s RRT -- 6.3.3 ORRT Using Boruch's RRT -- 6.3.4 ORRT Using Kuk's RRT -- 6.4 Quantitative Characteristics -- 6.4.1 ORR Using Eichhorn and Hayre's RR Device -- 6.4.2 ORR Using Chaudhuri's RR Device I -- 6.4.3 ORR Using Chaudhuri's RR Device II -- References -- 7 Protection of Privacy -- 7.1 Introduction -- 7.2 Protection of Privacy Measures for Qualitative RRTs. 7.2.1 Leysieffer and Warner (1976)'s Protection Measure -- 7.2.2 Lanke (1976)'s Protection Measure -- 7.2.3 Anderson (1975a)'s Privacy Measure -- 7.2.4 Nayak (1994)'s Privacy Measure (Qualitative) -- 7.2.5 Chaudhuri et al. (2009)'s Privacy Measure (Qualitative) -- 7.3 Protection of Privacy Measures for Quantitative RRTs -- 7.3.1 Anderson (1977)'s Privacy Measure -- 7.3.2 Eichhorn and Hayre (1983)'s Privacy Measure -- 7.3.3 Yan et al. (2008)'s Privacy Measure -- 7.3.4 Diana et al. (2013)'s Privacy Measure -- 7.3.5 Chaudhuri and Christofides (2013)'s Privacy Measure -- 7.3.6 Bose (2015)'s Privacy Measure (Discrete Sensitive Variable) -- 7.3.7 Bose and Dihidar (2018)'s Privacy Measure (Continuous Sensitive Variable) -- 7.4 Protection of Privacy Measures for Qualitative ORRT -- 7.4.1 Pal et al. (2020)'s Privacy Measure -- 7.5 Protection of Privacy Measures for Quantitative ORRT -- 7.5.1 Patra and Pal (2019)'s Privacy Measure (Quantitative) -- References -- 8 Variation from Classical Data Generating Procedures by Repeated Drawing -- 8.1 Introduction -- 8.2 Repeated Draws with or Without Replacement -- 8.2.1 Singh and Grewal's (2013) Approach-Drawing Sample with Replacement -- 8.2.2 Chaudhuri and Dihidar's (2014) Approach-General Sampling Design -- 8.2.3 Singh and Sedory's (2013) Approach -- 8.2.4 Dihidar's (2016) Modification on Singh and Sedory's Work for General Sampling Design -- 8.2.5 Generating Randomized Response by Inverse Bernoulli Trials -- References -- 9 Other Topics Beyond Chaudhuri (2011) and Chaudhuri and Christofides (2013) --

9.1 Introduction -- 9.2 Franklin's (1989) RRT Model -- 9.3 Practical Implementation of Franklin's (1989) RRT by Marcheselli and Barabesi (2006) -- 9.4 Barabesi's (2008) Simultaneous Estimation of  $\rho$ ,  $t$  -- 9.5 Scrambling RR -- 9.6 Arnab's (2004) Modification -- 9.7 Huang's (2010) Approach.  
9.8 Diana and Perri's (2010) Approach -- References -- 10 Topics Covered in the Literature Subsequent to Chaudhuri (2011) -- 10.1 Introduction -- 10.2 Quatember's (2016) Mixture of True and Randomized Responses -- 10.3 Inverse RRTs -- 10.4 Three Ensuing Messages -- References -- 11 Alternatives to RRT in Studying Sensitive and Stigmatizing Issues -- 11.1 Introduction -- 11.2 Non-randomized Techniques -- 11.2.1 Triangular Model -- 11.2.2 Crosswise Models -- 11.2.3 Parallel Model -- 11.2.4 General Sampling by Three Non-randomized Response (NRR) Schemes -- 11.3 Item Count Techniques (ICT) -- 11.3.1 ICT for General Sampling Design -- 11.3.2 ICT for Quantitative Sensitive Characteristic -- 11.3.3 Option Between RR and ICT in Surveys -- 11.4 Nominative Technique -- 11.4.1 Miller's (1985) Nominative Technique -- 11.4.2 Chaudhuri and Christofides's (2008) Modification on Nominative Technique -- References -- 12 An Epilogue -- References.

---