

INTRODUCTION TO SURVEY QUALITY

Presented for the
2009 Summer Institute
July 13 - July 17

Instructor
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INTRODUCTION TO SURVEY QUALITY

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Objectives

1. Provide an overview of the basic principles and concepts of survey measurement quality with particular emphasis on sampling and nonsampling error.
2. Develop the background for the continued study of survey measurement quality through readings in the literature on survey methodology.
3. Identify issues related to the improvement of survey measurement quality that are encountered in survey work and provide a basic foundation for resolving them.

Course Design

The target audience for the course is persons who perform tasks associated with surveys and may work with survey data but are not necessarily trained survey researchers. These are survey project directors, data collection managers, survey specialists, statisticians, data processors, interviewers, and other operations personnel who would benefit from a better understanding of the concepts of survey data quality, including: sampling error and confidence intervals, validity, reliability, mean square error, cost-error tradeoffs in survey design, nonresponse error, frame error, measurement error, specification error, data processing error, methods for evaluating survey data, and how to reduce these errors by the best use of survey resources.

The course is not designed to provide an in-depth study of any one topic, but rather to provide an introduction to the field of survey measurement quality. It includes reviews of well-established as well as recently developed principles and concepts in the field, and examines important issues that are still unresolved today and which are being actively pursued in the current survey methods literature.

The course will span a range of topics dealing with the quality of data collected through the survey process. *Total survey error*, as measured by the *mean square error* and its component parts, is the primary criterion for assessing the quality of the survey data. The course begins with a discussion of total survey error and its relationship to survey costs and provides a number of measures of measurement quality that will be used throughout the course. Then the major sources of survey error are discussed in some detail. In particular, we examine a) the origins of each error source (i.e., its root causes), b) the most successful methods that have been proposed for reducing the errors emanating from these error sources, and c) methods that are most often used in practice for evaluating the effects of the source on total survey error.

Course Text and Materials

Biemer, P. and Lyberg, L. (2003). *Introduction to Survey Quality*, John Wiley & Sons, Inc., NY

In addition, each course participant will receive a copy of the course slides as well as any materials or handouts used in the course.

Course Schedule

The course will be taught daily from July 12 through July 17 from 1:00 p.m. to 4:00 p.m. from Ann Arbor. Students at the University of Maryland will view the course at a video classroom facility. A final exam will be distributed on July 16 to students taking the course for credit. This will be a take-home final that will be due back to the instructor by the end of class on July 17. The final is optional for students not taking the course for credit.

INTRODUCTION TO SURVEY MEASUREMENT QUALITY

Course Introduction

Course Objectives, Schedule, and Other Logistics

1. The Evolution of Survey Data Quality

- 1.1 The Concept of Survey
- 1.2 Types of Surveys
- 1.3 A Brief History of Survey Methodology
- 1.4 The Quality Revolution
- 1.5 Definitions of Quality and Quality in Statistical Organizations
- 1.6 Measuring Quality
- 1.7 Improving Quality
- 1.8 Quality in a Nutshell

2. The Survey Process and Data Quality

- 2.1 Overview of the Survey Process
- 2.2 Data Quality and Total Survey Error
- 2.3 Decomposing Nonsampling Error into Its Component Parts
- 2.4 Gauging the Magnitude of Total Survey Error
- 2.5 Mean Squared Error
- 2.6 An Illustration of the Concepts

3. Coverage and Nonresponse

- 3.1 Coverage Error
- 3.2 Measures of Coverage Bias
- 3.3 Reducing Coverage Bias
- 3.4 Unit Nonresponse Error
- 3.5 Calculating Response Rates
- 3.6 Reducing Nonresponse Bias

4. The Measurement Process and Its Implications for Questionnaire Design

- 4.1 The Components of Measurement Error
- 4.2 Errors Arising from the Design of the Questionnaire
- 4.3 Understanding the Response Process

5. Errors Due to Interviewers and Interviewing

- 5.1 The Role of the Interviewer
- 5.2 Interviewer Variability
- 5.3 Design Factors that Influence Interviewer Effects
- 5.4 Evaluation of Interviewer Performance

6. Data Collection Modes and Associated Errors

- 6.1 The Modes of Data Collection
- 6.2 The Decision Regarding Mode
- 6.3 Some Examples of Mode Effects

7. Data Processing: Errors and Their Control

- 7.1 Overview of Data Processing Steps
- 7.2 The Nature of Data Processing Error
- 7.3 Data Capture Errors
- 7.4 Post-Data Capture Editing
- 7.5 Coding
- 7.6 File Preparation
- 7.7 Applications of Continuous Quality Improvement (CQI): The Case of Coding Error
- 7.8 Integration Activities

8. An Overview of Survey Error Evaluation Methods

- 8.1 Purposes of Survey Error Evaluation
- 8.2 Evaluation Methods for Designing and Pretesting Surveys
- 8.3 Methods for Monitoring and Controlling Data Quality
- 8.4 Post-Survey Evaluations
- 8.5 Post-Survey Evaluations

9. Sampling Error (skipped)

10. Practical Survey Design for Minimizing Total Survey Error

- 9.1 The Balance Between Survey Cost, Survey Error, and Other Quality Features
- 9.2 Planning a Survey for Optimal Quality
- 9.3 Documenting Survey Quality
- 9.4 Organizational Issues Related to Survey Quality

Wrap up

- Concluding Remarks
- Course Evaluations