Daniels, L. & Minot, N. W. (2019). An introduction to statistics and data analysis using Stata. Sage Publications, Inc.

Zerin Jannat[A]   [A]   Department of Economics, Stockholm University, Sweden

This is a phenomenal book that provides a stepwise introduction to the research process via an extensive use of the statistical software called Stata. Intended for undergraduate students of the social sciences, itis also useful for graduate students and researchers. Devoid of jargon, its simplicity of language and content are its greatest strength; any individual with basic English skills and an interest in research will obtain much benefit from reading this book.

The book is divided into five parts and part one begins with Chapter 1 that succinctly describes the overall research process. All the steps of the research process such as literature perusal, identification of gaps, theory examination, formulating the research question and hypotheses, questionnaire design, using and analyzing data and finally, report writing are concisely explained. The chapter also provides a list of databases that contain scholarly literature from different fields within the Social Sciences. Chapter 2 begins with an absorbing article on the most prominent polling mistake in US history and it is evaluated insightfully to highlight the importance of sampling. The chapter then describes basic concepts of sampling and elaborates on different sampling methods. It concludes with calculations and the use of sampling weights. Chapter 3 provides and discusses guidelines on designing a questionnaire. It focuses especially on structured questionnaires and close-ended questions. Ample information is provided on question order, phrasing, and recording responses of respondents. The chapter concludes discussing ethical issues related to research and the mandatory approval that research plans must obtain from review boards before they are conducted.

Part two of the book focuses on data description. Chapter 4 offers an introduction to the widely-used statistical software Stata with special emphasis on do and log files. Chapter 5 emphasizes on cleaning data which includes checking every variable for missing data, outliers, and errors. Descriptive statistics, i.e. statistics used to describe or summarize data, are broadly covered in chapter 6. The chapter concludes with bar graphs, pie charts, box plots, and histograms to pictorially describe data.

Part three consists of five chapters that are dedicated to testing of hypotheses. It opens with chapter 7 that provides a detailed explanation of the normal distribution, central limit theorem, standard scores and errors as well as sampling distribution. The chapter then discusses the identification of the research question and the formulation of hypotheses, testing for statistical significance and when (or when not) to reject a null hypothesis. Chapters 8 and 9 are dedicated to testing of hypotheses about a single mean and two independent means, respectively. Chapter 10 elaborates on the One-Way Analysis of Variance (ANOVA). Cross-tabulation and chi-squared tests are reviewed in chapter 11.

Part four explores relationships among variables. Chapter 12 discusses the use of regression analysis(and when to use it). After providing a clear explanation of correlation, the chapter then proceeds with a description of simple and multiple regression analysis. Chapter 13 is a momentous chapter as it elaborates on regression errors such as specification and measurement errors, multicollinearity, endogeneity, heteroskedasticity from which biased estimates ensue. Furthermore, suggestions and methods are provided to avoid or overcome these issues when conducting regression analysis. Lastly, chapter 14 explores regression methods that involve binary dependent variables. Logit and probit models are explained in detail and are well illustrated using Stata.

Part five consists of a sole chapter that is the most distinguishing feature of the book. In chapter 15, all the components of a research paper are discussed with examples from different published research articles for each section. The chapter provides easily comprehensible instructions on how to present statistics using APA (American Psychological Association) style and it emphasizes on using an active voice as well as first-person pronouns. Overall, the chapter broadly instructs step-by-step on how to write a good research paper, something which is rarely found in other books on research methodology.

An Introduction to Statistics and Data Analysis Using Stata is unique in several aspects. Interesting yet easily comprehensible examples are used for almost every concept mentioned in the book. From part two to part four, Stata

commands and codes are used extensively for data analysis and a detailed explanation is provided for every output. Most chapters use engaging case studies to conduct analysis with data sets readily available online for readers to perform their own analysis and generate output. At the end of each chapter, instructions are provided along with examples on how to report and represent the results to both technical and non-technical audiences. The authors have attempted to succinctly cover almost every aspect related to research methods in the book, and they also mention additional sources for readers to explore any topic in more depth. Its most distinctive features are the decision tree that helps choose the right statistical method in chapter 8 and the detailed explanation of each section of a research paper in Chapter 15 with engaging examples. However, the absence of information on abstracts in chapter 15 is notable and its inclusion could tremendously help researchers interested in publishing their articles in journals. Nevertheless, its simplicity and coherence of language as well as its extensive coverage of research methods renders this book a priceless addition to the existing literature in the field of the social sciences. Readers from any part of the world, with basic English skills and some knowledge of research, will be able to benefit immensely from this engaging and informative book.