Introduction To Propensity Score Analysis

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Analysis of Observational Health Care Data Using SAS SAS Institute
From the reviews of the First Edition. "An interesting, useful, and well-written book on logistic regression models . . . Hosmer and Lemeshow have used very little mathematics, have presented difficult concepts heuristically and through illustrative examples, and have included references." —Choice "Well written, clearly organized, and comprehensive . . . the authors carefully walk the reader through the estimation of interpretation of coefficients from a wide variety of logistic regression models . . . their careful explication of the quantitative re-expression of coefficients from these various models is excellent." —Contemporary Sociology "An extremely well-written book that will certainly prove an invaluable acquisition to the practicing statistician who finds other literature on analysis of discrete data hard to follow or heavily theoretical." —The Statistician In this revised and updated edition of their popular book, David Hosmer and Stanley Lemeshow continue to provide an amazingly accessible introduction to the logistic regression model while incorporating advances of the last decade, including a variety of software packages for the analysis of data sets. Hosmer and Lemeshow extend the discussion from biostatistics and epidemiology to cutting-edge applications in data mining and machine learning, guiding readers step-by-step through the use of modeling techniques for dichotomous data in diverse fields. Ample new topics and expanded discussions of existing material are accompanied by a wealth of real-world examples-with extensive data sets available over the Internet.
Multiple Imputation of Missing Data Using SAS SAGE Publications
R is a powerful and free software system for data analysis and graphics, with over 5,000 add-on packages available. This book introduces R using SAS and SPSS terms with which you are already familiar. It demonstrates which of the add-on packages are most like SAS and SPSS and compares them to R's built-in functions. It steps through over 30 programs written in all three packages, comparing and contrasting the packages' differing approaches. The programs and practice datasets are available for download. The glossary defines over 50 R terms using SAS/SPSS jargon and again using R jargon. The table of contents and the index allow you to find equivalent R functions by looking up both SAS statements and SPSS commands. When finished, you will be able to import data, manage and transform it, create publication quality graphics, and perform basic statistical analyses. This new edition has updated programming, an expanded index, and even more statistical methods covered in over 25 new sections.

Impact Evaluation Springer Science & Business Media
Now in its third edition, this classic book is widely considered the leading text on Bayesian methods, lauded for its accessible, practical approach to analyzing data and solving research problems. Bayesian Data Analysis, Third Edition continues to take an applied approach to analysis using up-to-date Bayesian methods. The authors—all leaders in the statistics community—introduce basic concepts from a data-analytic perspective before presenting advanced methods. Throughout the text, numerous worked examples drawn from real applications and research emphasize the use of Bayesian inference in practice. New to the Third Edition Four new chapters on nonparametric modeling Coverage of weakly informative priors and boundary-avoiding priors Updated discussion of cross-validation and predictive information criteria Improved convergence monitoring and effective sample size calculations for iterative simulation Presentations of Hamiltonian Monte Carlo, variational Bayes, and expectation propagation New and revised software code The book can be used in three different ways. For undergraduate students, it introduces Bayesian inference starting from first principles. For graduate students, the text presents effective current approaches to Bayesian modeling and computation in statistics and related fields. For researchers, it provides an assortment of Bayesian methods in applied statistics. Additional materials, including data sets used in the examples, solutions to selected exercises, and software instructions, are available on the book's web page.
Bayesian Data Analysis, Third Edition Springer Nature
This text presents statistical methods for studying causal effects and discusses how readers can assess such effects in simple randomized experiments. *Propensity Score Methods and Applications* Cambridge University

Press

This book brings together the best contributions of the Applied Statistics and Policy Analysis Conference 2019. Written by leading international experts in the field of statistics, data science and policy evaluation. This book explores the theme of effective policy methods through the use of big data, accurate estimates and modern computing tools and statistical modelling.

Encyclopedia of Epidemiologic Methods Routledge

Social epidemiology is the study of how social interactions—social norms, laws, institutions, conventia, social conditions and behavior—affect the health of populations. This practical, comprehensive introduction to methods in social epidemiology is written by experts in the field. It is perfectly timed for the growth in interest among those in public health, community health, preventive medicine, sociology, political science, social work, and other areas of social research. Topics covered are: Introduction: Advancing Methods in Social Epidemiology The History of Methods of Social Epidemilogy to 1965 Indicators of Socioeconomic Position Measuring and Analyzing 'Race' Racism and Racial Discrimination Measuring Poverty Measuring Health Inequalities A Conceptual Framework for Measuring Segregation and its Association with Population Outcomes Measures of Residential Community Contexts Using Census Data to Approximate Neighborhood Effects Community-based Participatory Research: Rationale and Relevance for Social Epidemiology Network Methods in Social Epidemiology Identifying Social Interactions: A Review, Multilevel Studies Experimental Social Epidemiology: Controlled Community Trials Propensity Score Matching Methods for Social Epidemiology Natural Experiments and Instrumental Variable Analyses in Social Epidemiology and Using Causal Diagrams to Understand Common Problems in Social Epidemiology. "Publication of this highly informative textbook clearly reflects the coming of age of many social epidemiology methods, the importance of which rests on their potential contribution to significantly improving the effectiveness of the population-based approach to prevention. This book should be of great interest not only to more advanced epidemiology students but also to epidemiologists in general, particularly those concerned with health policy and the translation of epidemiologic findings into public health practice. The cause of achieving a 'more complete' epidemiology envisaged by the editors has been significantly advanced by this excellent textbook." —Moyses Szklo, professor of epidemiology and editor-in-chief, American Journal of Epidemiology, Johns Hopkins University "Social epidemiology is a comparatively new field of inquiry that seeks to describe and explain the social and geographic distribution of health and of the determinants of health. This book considers the major methodological challenges facing this important field. Its chapters, written by experts in a variety of disciplines, are most often authoritative, typically provocative, and often debatable, but always worth reading." —Stephen W. Raudenbush, Lewis-Sebring Distinguished Service Professor, Department of Sociology, University of Chicago "The roadmap for a new generation of social epidemiologists. The publication of this treatise is a significant event in the history of the discipline." —Ichiro Kawachi, professor of social epidemiology, Department of Society, Human Development, and Health, Harvard University "Methods in Social Epidemiology not only illuminates the difficult questions that future generations of social epidemiologists must ask, it also identifies the paths they must boldly travel in the pursuit of answers, if this exciting interdisciplinary science is to realize its full potential. This beautifully edited volume appears at just the right moment to exert a profound influence on the field." —Sherman A. James, Susan B. King Professor of Public Policy Studies, professor of Community and Family Medicine, professor of African-American Studies, Duke University

Propensity Score Analysis Oxford University Press

Analysis of Correlated Data with SAS and R: 4th edition presents an applied treatment of recently developed statistical models and methods for the analysis of hierarchical binary, count and continuous response data. It explains how to use procedures in SAS and packages in R for exploring data, fitting appropriate models, presenting programming codes and results. The book is designed for senior undergraduate and graduate students in the health sciences, epidemiology, statistics, and biostatistics as well as clinical researchers, and consulting statisticians who can apply the methods with their own data analyses. In each chapter a brief description of the foundations of statistical theory needed to understand the methods is given, thereafter the author illustrates the applicability of the techniques by providing sufficient number of examples. The last three chapters of the 4th edition contain introductory material on propensity score analysis, meta-analysis and the treatment of missing data using SAS and R. These topics were not covered in previous editions. The main reason is that

there is an increasing demand by clinical researchers to have these topics covered at a reasonably understandable level of complexity. Mohamed Shoukri is principal scientist and professor of biostatistics at The National Biotechnology Center, King Faisal Specialist Hospital and Research Center and Al-Faisal University, Saudi Arabia. Professor Shoukri's research includes analytic epidemiology, analysis of hierarchical data, and clinical biostatistics. He is an associate editor of the 3Biotech journal, a Fellow of the Royal Statistical Society and an elected member of the International Statistical Institute.

Longitudinal Data Analysis CRC Press

The second edition of the Impact Evaluation in Practice handbook is a comprehensive and accessible introduction to impact evaluation for policy makers and development practitioners. First published in 2011, it has been used widely across the development and academic communities. The book incorporates real-world examples to present practical guidelines for designing and implementing impact evaluations. Readers will gain an understanding of impact evaluations and the best ways to use them to design evidence-based policies and programs. The updated version covers the newest techniques for evaluating programs and includes state-of-the-art implementation advice, as well as an expanded set of examples and case studies that draw on recent development challenges. It also includes new material on research ethics and partnerships to conduct impact evaluation. The handbook is divided into four sections: Part One discusses what to evaluate and why; Part Two presents the main impact evaluation methods; Part Three addresses how to manage impact evaluations; Part Four reviews impact evaluation sampling and data collection. Case studies illustrate different applications of impact evaluations. The book links to complementary instructional material available online, including an applied case as well as questions and answers. The updated second edition will be a valuable resource for the international development community, universities, and policy makers looking to build better evidence around what works in development.

Secondary Analysis of Electronic Health Records Cambridge University Press

Public programs are designed to reach certain goals and beneficiaries. Methods to understand whether such programs actually work, as well as the level and nature of impacts on intended beneficiaries, are main themes of this book.

Causal Inference in Statistics John Wiley & Sons

An accessible, contemporary introduction to the methods for determining cause and effect in the social sciences "Causation versus correlation has been the basis of arguments--economic and otherwise--since the beginning of time. Causal Inference: The Mixtape uses legit real-world examples that I found genuinely thought-provoking. It's rare that a book prompts readers to expand their outlook; this one did for me."--Marvin Young (Young MC) Causal inference encompasses the tools that allow social scientists to determine what causes what. In a messy world, causal inference is what helps establish the causes and effects of the actions being studied--for example, the impact (or lack thereof) of increases in the minimum wage on employment, the effects of early childhood education on incarceration later in life, or the influence on economic growth of introducing malaria nets in developing regions. Scott Cunningham introduces students and practitioners to the methods necessary to arrive at meaningful answers to the questions of causation, using a range of modeling techniques and coding instructions for both the R and the Stata programming languages.

Econometric Analysis of Cross Section and Panel Data, second edition SAGE Publications

An observational study is an empiric investigation of effects caused by treatments when randomized experimentation is unethical or infeasible. Observational studies are common in most fields that study the effects of treatments on people, including medicine, economics, epidemiology, education, psychology, political science and sociology. The quality and strength of evidence provided by an observational study is determined largely by its design. Design of Observational Studies is both an introduction to statistical inference in observational studies and a detailed discussion of the principles that guide the design of observational studies. Design of Observational Studies is divided into four parts. Chapters 2, 3, and 5 of Part I cover concisely, in about one hundred pages, many of the ideas discussed in Rosenbaum's

Observational Studies (also published by Springer) but in a less technical fashion. Part II discusses the practical aspects of using propensity scores and other tools to create a matched comparison that balances many covariates. Part II includes a chapter on matching in R. In Part III, the concept of design sensitivity is used to appraise the relative ability of competing designs to distinguish treatment effects from biases due to unmeasured covariates. Part IV discusses planning the analysis of an observational study, with particular reference to Sir Ronald Fisher's striking advice for observational studies, "make your theories elaborate." The second edition of his book, Observational Studies, was published by Springer in 2002.

Matched Sampling for Causal Effects CRC Press

This two-volume handbook on current best-practices in quantitative methods as practiced in the social, behavioral, and educational sciences covers philosophical and ethical issues, theory construction, model building and types of models, survey and experiment design, measurement issues, observational methods, statistical methods, types of analysis, types of data, and common research fallacies.

The context of natural forest management and FSC certification in Brazil World Bank Publications

Matched sampling is often used to help assess the causal effect of some exposure or intervention, typically when randomized experiments are not available or cannot be conducted. This book presents a selection of Donald B. Rubin's research articles on matched sampling, from the early 1970s, when the author was one of the major researchers involved in establishing the field, to recent contributions to this now extremely active area. The articles include fundamental theoretical studies that have become classics, important extensions, and real applications that range from breast cancer treatments to tobacco litigation to studies of criminal tendencies. They are organized into seven parts, each with an introduction by the author that provides historical and personal context and discusses the relevance of the work today. A concluding essay offers advice to investigators designing observational studies. The book provides an accessible introduction to the study of matched sampling and will be an indispensable reference for students and researchers.

Handbook on Impact Evaluation No Starch Press

A concise, introductory text, Propensity Score Methods and Applications describes propensity score methods (PSM) and how they are used to balance the distributions of observed covariates between treatment conditions as a means to reduce selection bias. This new QASS title specifically focuses on the procedures of implementing PSM for research in social sciences, instead of merely demonstrating the effectiveness of the method. Using succinct and approachable language to introduce the basic concepts of PSM, authors Haiyan Bai and M. H. Clark present basic concepts, assumptions, procedures, available software packages, and step-by-step examples for implementing PSM using real-world data, with exercises at the end of each chapter allowing readers to replicate examples on their own.

Methods in Social Epidemiology CRC Press

This book is designed to help researchers better design and analyze observational data from quasi-experimental studies and improve the validity of research on causal claims. It provides clear guidance on the use of different propensity score analysis (PSA) methods, from the fundamentals to complex, cutting-edge techniques. Experts in the field introduce underlying concepts and current issues and review relevant software programs for PSA. The book addresses the steps in propensity score estimation, including the use of generalized boosted models, how to identify which matching methods work best with specific types of data, and the evaluation of balance results on key background covariates after matching. Also covered are applications of PSA with complex data, working with missing data, controlling for unobserved confounding, and the extension of PSA to prognostic score analysis for causal inference. User-friendly features include statistical program codes and application examples. Data and software code for the examples are available at the companion website (www.guilford.com/pan-materials).

Handbook of Quantitative Criminology World Bank Publications

Propensity Score Analysis Guilford Publications

SAGE Quantitative Research Methods MIT Press

Featuring articles from the prestigious Encyclopedia of Biostatistics, many of which have been revised and updated to include recent developments, the Encyclopedia of Epidemiologic Methods also includes newly commissioned articles reflecting the latest thinking in Cancer Registries Birth Defect Registries Meta Analysis of Epidemiologic Studies Epidemiology Overview Sample Size Sex Ratio at Birth Software Design and Analysis Featuring contributions from leading experts in academia, government and industry, the Encyclopedia of Epidemiologic Methods has been designed to complement existing texts on the subject by providing further extensive, up-to-date coverage of specialised topics and by introducing the reader to the research literature. Offering a wealth of information in a single resource, the Encyclopedia of Epidemiologic Methods Offers an excellent introduction to a vast array of specialised topics Includes in-depth coverage of the statistical underpinnings of contemporary epidemiologic methods Provides concise definitions and introductions to numerous concepts found in the current literature Uses extensive cross-references, helping to facilitate further research, and enabling the reader to locate definitions and related concepts In addition to featuring extensive articles in the areas of descriptive and analytic epidemiology, the Encyclopedia also provides the reader with articles on case-control design and offers substantial coverage of allied statistical methods.

Causal Inference SAGE Publications

This book trains the next generation of scientists representing different disciplines to leverage the data generated during routine patient care. It formulates a more complete lexicon of evidence-based recommendations and support shared, ethical decision making by doctors with their patients. Diagnostic and therapeutic technologies continue to evolve rapidly, and both individual practitioners and clinical teams face increasingly complex ethical decisions. Unfortunately, the current state of medical knowledge does not provide the guidance to make the majority of clinical decisions on the basis of evidence. The present research infrastructure is inefficient and frequently produces unreliable results that cannot be replicated. Even randomized controlled trials (RCTs), the traditional gold standards of the research reliability hierarchy, are not without limitations. They can be costly, labor intensive, and slow, and can return results that are seldom generalizable to every patient population. Furthermore, many pertinent but unresolved clinical and medical systems issues do not seem to have attracted the interest of the research enterprise, which has come to focus instead on cellular and molecular investigations and single-agent (e.g., a drug or device) effects. For clinicians, the end result is a bit of a "data desert" when it comes to making decisions. The new research infrastructure proposed in this book will help the medical profession to make ethically sound and well informed decisions for their patients.

Statistics for Data Science and Policy Analysis Cambridge University Press

Quantitative criminology has certainly come a long way since I was ?rst introduced to a largely qualitative criminology some 40 years ago, when I was recruited to lead a task force on science and technology for the President's Commission on Law Enforcement and Administration of Justice. At that time, criminology was a very limited activity, depending almost exclusively on the Uniform Crime Reports (UCR) initiated by the FBI in 1929 for measurement of crime based on victim reports to the police and on police arrests. A ty-cal mode of analysis was simple bivariate correlation. Marvin Wolfgang and colleagues were making an important advance by tracking longitudinal data on arrests in Philadelphia, an in-vation that was widely appreciated. And the ?eld was very small: I remember attending my ?rst meeting of the American Society of Criminology in about 1968 in an anteroom at New York University; there were about 25–30 people in attendance, mostly sociologists with a few lawyers thrown in. That Society today has over 3,000 members, mostly now drawn from criminology which has established its own clear identity, but augmented by a wide variety of disciplines that include statisticians, economists, demographers, and even a few engineers. This Handbook provides a remarkable testimony to the growth of that ?eld. Following the maxim that "if you can't measure it, you can't understand it," we have seen the early dissatisfaction with the UCR replaced by a wide variety of new approaches to measuring crime victimization

and offending.

<u>Fundamentals of Causal Inference</u> Propensity Score Analysis
Although many books currently available describe statistical models and
methods for analyzing longitudinal data, they do not highlight
connections between various research threads in the statistical literature.
Responding to this void, Longitudinal Data Analysis provides a clear,
comprehensive, and unified overview of state-of-the-art theory and
applications. It also focuses on the assorted challenges that arise in
analyzing longitudinal data. After discussing historical aspects, leading
researchers explore four broad themes: parametric modeling,
nonparametric and semiparametric methods, joint models, and
incomplete data. Each of these sections begins with an introductory
chapter that provides useful background material and a broad outline to
set the stage for subsequent chapters. Rather than focus on a narrowly
defined topic, chapters integrate important research discussions from the
statistical literature. They seamlessly blend theory with applications and
include examples and case studies from various disciplines. Destined to
become a landmark publication in the field, this carefully edited collection
emphasizes statistical models and methods likely to endure in the future.
Whether involved in the development of statistical methodology or the
analysis of longitudinal data, readers will gain new perspectives on the
field.