Event History Analysis With Stata

Serving as both a student textbook and a professional reference/handbook, this volume explores the statistical methods of examining time intervals between successive state transitions or events. Examples include: survival rates of patients in medical studies, unemployment periods in economic studies, or the period of time it takes a criminal to break the law after his release in a criminological study. The authors illustrate the entire research path required in the application of event-history analysis, from the initial problems of recording event-oriented data to the specific questions of data organization, to the concrete application of available program packages and the interpretation of the obtained results. Event History Analysis: * makes didactically accessible the inclusion of covariates in semi-parametric and parametric regression models based upon concrete examples * presents the unabbreviated close relationship underlying statistical theory * details parameter-free methods of analysis of event-history data and the possibilities of their graphical presentation * discusses specific problems of multi-state and multi-episode models * introduces time-varying covariates and the question of unobserved population heterogeneity * demonstrates, through examples, how to implement hypotheses tests and how to choose the right model.

Drawing on recent "event history" analytical methods from biostatistics, engineering, and sociology, this clear and comprehensive monograph explains how longitudinal data can be used to study the causes of deaths, crimes, wars, and many other human events. Allison shows why ordinary multiple regression is not suited to analyze event history data, and demonstrates how innovative regression - like methods can overcome this problem. He then discusses the particular new methods that social scientists should find useful.

Including new developments and publications which have appeared since the publication of the first edition in 1995, this second edition: *gives a comprehensive introductory account of event history modeling techniques and their use in applied research in economics and the social sciences; *demonstrates that event history modeling is a major step forward in causal analysis. To do so the authors show that event history models employ the time-path of changes in states and relate changes in causal variables in the past to changes in discrete outcomes in the future; and *introduces the reader to the computer program Transition Data Analysis (TDA). This software estimates the sort of models most frequently used with longitudinal data, in particular, discrete-time and continuous-time event history data. Techniques of Event History Modeling can serve as a student textbook in the fields of statistics, economics, the social sciences, psychology, and the political sciences. It can also be used as a reference for scientists in all fields of research.

A unique and invaluable reference resource for those working in survival analysis. Survival analysis is concerned with studying the time between entry to a study and a subsequent event. Originally the analysis was concerned with time from treatment until death, hence the name, but survival analysis is applicable to many areas in addition to mortality, such as recidivism or the efficacy of drugs. The techniques can also be used in engineering and quality control (e.g. how long is a particular component likely to last?). Arranged in an A-Z format, Survival and Event History Analysis edited by Niels Keiding and Per Kragh Andersen contains 96 articles written by over 60 distinguished authors. The articles are taken from the Encyclopedia of Biostatistics, 2nd Edition. This book gives the reader a thorough grounding in the subject area and the extensive references at the end of each article provide a comprehensive source of information for further information in more depth.

Integrating a contemporary approach to econometrics with the powerful computational tools offered by Stata, An Introduction to Modern Econometrics Using Stata focuses on the role of method-of-moments estimators, hypothesis testing, and specification analysis and provides practical examples that show how the theories are applied to real data sets using Stata. As an expert in Stata, the author successfully guides readers from the basic elements of Stata to the core econometric topics. He first describes the fundamental components needed to effectively use Stata. The book then covers the multiple linear regression model, linear and nonlinear Wald tests, constrained least-squares estimation, Lagrange multiplier tests, and hypothesis testing of nonnested models. Subsequent chapters center on the consequences of failures of the linear regression model's assumptions. The book also examines indicator variables, interaction effects, weak instruments, underidentification, and generalized method-of-moments estimation. The final chapters introduce panel-data analysis and discrete- and limited-dependent variables and the two appendices discuss how to import data into Stata and Stata programming. Presenting many of the econometric theories used in modern empirical research, this introduction illustrates how to apply these concepts using Stata. The book serves both as a supplementary text for undergraduate and graduate students and as a clear guide for economists and financial analysts.

The linear regression model is the most commonly used statistical method in the social sciences. This book considers regression models that are appropriate when the dependent variable is censored, truncated, binary, ordinal, nominal, or count. I refer to these variables as categorical and limited dependent variables (hereafter CLDVs). Until recently, the greatest obstacle in using models for CLDVs was the lack of software that was flexible, stable, and easy to use. This limitation no longer applies since these models can be estimated routinely with standard software. Now, the greatest impediment is the complexity of the models and the difficulty in interpreting the results. The difficulties arise because most models for CLDVs are nonlinear.

This book is an accessible, practical and comprehensive guide for researchers from multiple disciplines including biomedical, epidemiology, engineering and the social sciences. Written for accessibility, this book will appeal to students and researchers who want to understand the basics of survival and event history analysis and apply these methods without getting entangled in mathematical and theoretical technicalities. Inside, readers are offered a blueprint for their entire research project from data preparation to model selection and diagnostics. Engaging, easy to read, functional and packed with enlightening examples, 'hands-on' exercises, conversations with key scholars and resources for both students and instructors, this text allows researchers to quickly master advanced statistical techniques. It is written from the perspective of the 'user', making it suitable as both a self-learning tool and graduate-level textbook. Also included are up-to-date innovations in the field, including advancements in the assessment of model fit, unobserved heterogeneity, recurrent events and multilevel event history models. Practical instructions are also included for using the statistical programs of R, STATA and SPSS, enabling readers to replicate the examples described in the text.

A fundamental book for social researchers. It provides a first-class, reliable guide to the basic issues in data analysis. Scholars and students can turn to it for teaching and applied needs with confidence.

Highly recommended by the Journal of Official Statistics, The American Statistician, and other journals, Applied Survey Data Analysis, Second Edition provides an up-to-date overview of state-of-the-art approaches to the analysis of complex sample survey data. Building on the

wealth of material on practical approaches to descriptive analysis and regression modeling from the first edition, this second edition expands the topics covered and presents more step-by-step examples of modern approaches to the analysis of survey data using the newest statistical software. Designed for readers working in a wide array of disciplines who use survey data in their work, this book continues to provide a useful framework for integrating more in-depth studies of the theory and methods of survey data analysis. An example-driven guide to the applied statistical analysis and interpretation of survey data, the second edition contains many new examples and practical exercises based on recent versions of real-world survey data sets. Although the authors continue to use Stata for most examples in the text, they also continue to offer SAS, SPSS, SUDAAN, R, WesVar, IVEware, and Mplus software code for replicating the examples on the book's updated website.

Logistic Regression is designed for readers who have a background in statistics at least up to multiple linear regression, who want to analyze dichotomous, nominal, and ordinal dependent variables cross-sectionally and longitudinally.

With an emphasis on social science applications, Event History Analysis with R presents an introduction to survival and event history analysis using real-life examples. Keeping mathematical details to a minimum, the book covers key topics, including both discrete and continuous time data, parametric proportional hazards, and accelerated failure times. Features Introduces parametric proportional hazards models with baseline distributions like the Weibull, Gompertz, Lognormal, and Piecewise constant hazard distributions, in addition to traditional Cox regression Presents mathematical details as well as technical material in an appendix Includes real examples with applications in demography, econometrics, and epidemiology Provides a dedicated R package, eha, containing special treatments, including making cuts in the Lexis diagram, creating communal covariates, and creating period statistics A much-needed primer, Event History Analysis with R is a didactically excellent resource for students and practitioners of applied event history and survival analysis.

Social science and behavioral science students and researchers are often confronted with data that are categorical, count a phenomenon, or have been collected over time. Sociologists examining the likelihood of interracial marriage, political scientists studying voting behavior, criminologists counting the number of offenses people commit, health scientists studying the number of suicides across neighborhoods, and psychologists modeling mental health treatment success are all interested in outcomes that are not continuous. Instead, they must measure and analyze these events and phenomena in a discrete manner. This book provides an introduction and overview of several statistical models designed for these types of outcomes—all presented with the assumption that the reader has only a good working knowledge of elementary algebra and has taken introductory statistics and linear regression analysis. Numerous examples from the social sciences demonstrate the practical applications of these models. The chapters address logistic and probit models, including those designed for ordinal and nominal variables, regular and zero-inflated Poisson and negative binomial models, event history models, models for longitudinal data, multilevel models, and data reduction techniques such as principal components and factor analysis. Each chapter discusses how to utilize the models and test their assumptions with the statistical software Stata, and also includes exercise sets so readers can practice using these techniques. Appendices show how to estimate the models in SAS, SPSS, and R; provide a review of regression assumptions using simulations; and discuss missing data. A companion website includes downloadable versions of all the data sets used in the book.

Event History Analysis with StataPsychology Press

The authors illustrate the entire research path required in the application of event-history analysis, from the initial problems of recording event-oriented data, to data organization, to applications using the software, to the interpretation of results. The book also demonstrates, through example, how to implement hypotheses tests and how to choose the right model. The strengths and limitations of various techniques are emphasized in each example, along with an introduction to the model, details on how to input data, and the related Stata commands. Each application is accompanied by a brief explanation of the underlying statistical concept.

By charting changes over time and investigating whether and when events occur, researchers reveal the temporal rhythms of our lives. Event History Analysis With Stata provides an introduction to event history modeling techniques using Stata (version 9), a widely used statistical program that provides tools for data analysis. The book emphasizes the usefulness of event history models for causal analysis in the social sciences and the application of continuous-time models. The authors illustrate the entire research path required in the application of event-history analysis, from the initial problems of recording event-oriented data, to data organization, to applications using the software, to the interpretation of results. The book also demonstrates, through example, how to implement hypotheses tests and how to choose the right model. The strengths and limitations of various techniques are emphasized in each example, along with an introduction to the model, details on how to input data, and the related Stata commands. Each application is accompanied by a brief explanation of the underlying statistical concept. Readers are offered the unique opportunity to easily run and modify all of the book's application examples on a computer, by visiting the author's Web site at http://www.uni-bamberg.de/sowi/soziologie-i/eha/. Examples include survival rates of patients in medical studies; unemployment periods in economic studies; and the time it takes a criminal to break the law after his release in a criminological study. This new book supplements Event History Analysis, by Blossfeld et al, and Techniques of Event History Modeling, by Blossfeld and Rohwer, extending on their coverage of practical applications and statistical theory. Intended for researchers in a variety of fields such as statistics, economics, psychology, sociology, and political science, Event History Analysis With Stata also serves as a text, in combination with the authors' other two books, for courses on event history analysis.

"This book is remarkable in its accessible treatment of interaction effects. Although this concept can be challenging for students (even those with some background in statistics), this book presents the material in a very accessible manner, with plenty of examples to help the reader understand how to interpret their results." –Nicole Kalaf-Hughes, Bowling Green State University Offering a clear set of workable examples with data and explanations, Interaction Effects in Linear and Generalized Linear Models is a comprehensive and accessible text that provides a unified approach to interpreting interaction effects. The book develops the statistical basis for the general principles of interpretive tools and applies them to a variety of examples, introduces the ICALC Toolkit for Stata, and offers a series of start-to-finish application examples to show students how to interpret interaction effects for a variety of different techniques of analysis, beginning with OLS regression. The author's website at www.icalcrlk.com provides a downloadable toolkit of Stata® routines to produce the calculations, tables, and graphics for each interpretive tool discussed. Also available are the Stata® dataset files to run the examples in the book.

Readers will find in the pages of this book a treatment of the statistical analysis of clustered survival data. Such data are encountered in many scientific disciplines including human and veterinary medicine, biology, epidemiology, public health and demography. A typical example is the time to death in cancer patients, with patients clustered in hospitals. Frailty models provide a powerful tool to analyze clustered survival data. In this book different methods based on the frailty model are described and it is demonstrated how they can be used to analyze clustered survival data. All programs used for these examples are available on the Springer website.

Review of the First Edition: The authors strive to reduce theory to a minimum, which makes it a self-learning text that is comprehensible for biologists, physicians, etc. who lack an advanced mathematics background. Unlike in many other textbooks, R is not introduced with meaningless toy examples; instead the reader is taken by the hand and shown around some analyses, graphics, and simulations directly relating to meta-analysis... A useful hands-on guide for practitioners who want to familiarize themselves with the fundamentals of meta-analysis and get started without having to plough through theorems and proofs. —Journal of Applied Statistics Statistical Meta-Analysis with R and Stata, Second Edition provides a thorough presentation of statistical meta-analyses (MA) with step-by-step implementations using R/Stata. The authors develop analysis step by step using appropriate R/Stata functions, which enables readers to gain an understanding of

meta-analysis methods and R/Stata implementation so that they can use these two popular software packages to analyze their own meta-data. Each chapter gives examples of real studies compiled from the literature. After presenting the data and necessary background for understanding the applications, various methods for analyzing meta-data are introduced. The authors then develop analysis code using the appropriate R/Stata packages and functions. What's New in the Second Edition: Adds Stata programs along with the R programs for meta-analysis Updates all the statistical meta-analyses with R/Stata programs Covers fixed-effects and random-effects MA, meta-regression, MA with rare-event, and MA-IPD vs MA-SS Adds five new chapters on multivariate MA, publication bias, missing data in MA, MA in evaluating diagnostic accuracy, and network MA Suitable as a graduate-level text for a meta-data analysis course, the book is also a valuable reference for practitioners and biostatisticians (even those with little or no experience in using R or Stata) in public health, medical research, governmental agencies, and the pharmaceutical industry.

This timely, thoughtful book provides a clear introduction to using panel data in research. It describes the different types of panel datasets commonly used for empirical analysis, and how to use them for cross sectional, panel, and event history analysis. Longhi and Nandi then guide the reader through the data management and estimation process, including the interpretation of the results and the preparation of the final output tables. Using existing data sets and structured as hands-on exercises, each chapter engages with practical issues associated with using data in research. These include: Data cleaning Data preparation Computation of descriptive statistics Using sample weights Choosing and implementing the right estimator Interpreting results Preparing final output tables Graphical representation Written by experienced authors this exciting textbook provides the practical tools needed to use panel data in research.

"[This book] provides new researchers with the foundation for understanding the various approaches for analyzing time-to-event data. This book serves not only as a tutorial for those wishing to learn survival analysis but as a ... reference for experienced researchers ..."--Book jacket.

This comprehensive text introduces regression, the general linear model, structural equation modeling, the hierarchical linear model, growth curve models, panel data, and event history models, and includes discussion of published implementations of each technique showing how it was used to address substantive and interesting research questions. It takes a step-by-step approach in the presentation of each topic, using mathematical derivations where necessary, but primarily emphasizing how the methods involved can be implemented, are used in addressing representative substantive problems than span a number of disciplines, and can be interpreted in words. The book demonstrates the analyses in STATA and SAS. Generalizing the Regression Model provides students with a bridge from the classroom to actual research practice and application. A website for the book at https://edge.sagepub.com/wheaton1e (coming soon!) includes resources for instructors. Publisher Description

This book demonstrates how to estimate and interpret fixed-effects models in a variety of different modeling contexts: linear models, logistic models, Poisson models, Cox regression models, and structural equation models. Both advantages and disadvantages of fixed-effects models will be considered, along with detailed comparisons with random-effects models. Written at a level appropriate for anyone who has taken a year of statistics, the book is appropriate as a supplement for graduate courses in regression or linear regression as well as an aid to researchers who have repeated measures or cross-sectional data. Learn more about "The Little Green Book" - QASS Series! Click Here

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A must-have volume for every communication researcher's library, The SAGE Sourcebook of Advanced Data Analysis Methods for Communication Research provides an introductory treatment of various advanced statistical methods applied to research in the field of communication. Written by authors who use these methods in their own research, each chapter gives a non-technical overview of what the method is and how it can be used to answer communication-related questions or aide the researcher dealing with difficult data problems. Students and faculty interested in diving into a new statistical topic—such as latent growth modeling, multilevel modeling, propensity scoring, or time series analysis—will find each chapter an excellent springboard for acquiring the background needed to jump into more advanced, technical readings.

The high-level language of R is recognized as one of the most powerful and flexible statistical software environments, and is rapidly becoming the standard setting for quantitative analysis, statistics and graphics. R provides free access to unrivalled coverage and cutting-edge applications, enabling the user to apply numerous statistical methods ranging from simple regression to time series or multivariate analysis. Building on the success of the author's bestselling Statistics: An Introduction using R, The R Book is packed with worked examples, providing an all inclusive guide to R, ideal for novice and more accomplished users alike. The book assumes no background in statistics or computing and introduces the advantages of the R environment, detailing its applications in a wide range of disciplines. Provides the first comprehensive reference manual for the R language, including practical guidance and full coverage of the graphics facilities. Introduces all the statistical models covered by R, beginning with simple classical tests such as chi-square and t-test. Proceeds to examine more advance methods, from regression and analysis of variance, through to generalized linear models, generalized mixed models, time series, spatial statistics, multivariate statistics and much more. The R Book is aimed at undergraduates, postgraduates and professionals in science, engineering and medicine. It is also ideal for students and professionals in statistics, economics, geography and the social sciences.

Fully updated to reflect the most recent changes in the field, the Second Edition of Propensity Score Analysis provides an accessible, systematic review of the origins, history, and statistical foundations of propensity score analysis, illustrating how it can be used for solving evaluation and causal-inference problems. With a strong focus on practical applications, the authors explore various strategies for employing PSA, discuss the use of PSA with alternative types of data, and delineate the limitations of PSA under a variety of constraints. Unlike existing textbooks on program evaluation and causal inference, this book delves into statistical concepts, formulas, and models within the context of a robust and engaging focus on application.

Nowadays, event history analysis can draw on a well-established set of statistical tools for the description and causal analysis of event history data. The second edition of Event History Analysis with Stata provides an updated introduction to event history modeling, along with many instructive Stata examples. Using the latest Stata software, each of these practical examples develops a research question, refers to useful substantive background information, gives a short

exposition of the underlying statistical concepts, describes the organization of the input data and the application of the statistical Stata procedures, and assists the reader in performing a substantive interpretation of the obtained results. Emphasising the strengths and limitations of event history model techniques in each field of application, this book demonstrates that event history models provide a useful approach with which to uncover causal relationships or to map out a system of causal relations. It demonstrates how long-term processes can be studied and how changing context information on the micro, meso, and macro levels can be integrated easily into a dynamic analysis of longitudinal data. Event History Analysis with Stata is an invaluable resource for both novice students and researchers who need an introductory textbook and experienced researchers (from sociology, economics, political science, pedagogy, psychology, or demography) who are looking for a practical handbook for their research.

THE MOST PRACTICAL, UP-TO-DATE GUIDE TO MODELLING AND ANALYZING TIME-TO-EVENT DATA—NOW IN A VALUABLE NEW EDITION Since publication of the first edition nearly a decade ago, analyses using time-to-event methods have increase considerably in all areas of scientific inquiry mainly as a result of model-building methods available in modern statistical software packages. However, there has been minimal coverage in the available literature to9 guide researchers, practitioners, and students who wish to apply these methods to health-related areas of study. Applied Survival Analysis, Second Edition provides a comprehensive and up-to-date introduction to regression modeling for time-to-event data in medical, epidemiological, biostatistical, and other health-related research. This book places a unique emphasis on the practical and contemporary applications of regression modeling rather than the mathematical theory. It offers a clear and accessible presentation of modern modeling techniques supplemented with real-world examples and case studies. Key topics covered include: variable selection, identification of the scale of continuous covariates, the role of interactions in the model, assessment of fit and model assumptions, regression diagnostics, recurrent event models, frailty models, additive models, competing risk models, and missing data. Features of the Second Edition include: Expanded coverage of interactions and the covariate-adjusted survival functions The use of the Worchester Heart Attack Study as the main modeling data set for illustrating discussed concepts and techniques New discussion of variable selection with multivariable fractional polynomials Further exploration of time-varying covariates, complex with examples Additional treatment of the exponential, Weibull, and log-logistic parametric regression models Increased emphasis on interpreting and using results as well as utilizing multiple imputation methods to analyze data with missing values New examples and exercises at the end of each chapter Analyses throughout the text are performed using Stata® Version 9, and an accompanying FTP site contains the data sets used in the book. Applied Survival Analysis, Second Edition is an ideal book for graduate-level courses in biostatistics, statistics, and epidemiologic methods. It also serves as a valuable reference for practitioners and researchers in any health-related field or for professionals in insurance and government.

Across the social sciences, there is widespread agreement that quantitative longitudinal research designs offer analysts powerful scientific data resources. But, to date, many texts on analysing longitudinal social analysis surveys have been written from a statistical, rather than a social science data analysis perspective and they lack adequate coverage of common practical challenges associated with social science data analyses. This book provides a practical and up-to-date introduction to influential approaches to quantitative longitudinal data analysis in the social sciences. The book introduces definitions and terms, explains the relative attractions of such a longitudinal design, and offers an introduction to the main techniques of analysis, explaining their requirements, statistical properties and their substantive contribution. The book is designed for postgraduates and researchers across the social sciences considering the use of quantitative longitudinal data resources in their research. It will also be an excellent text for undergraduate and postgraduate courses on advanced quantitative methods.

This book explains the principles and theory of statistical modelling in an intelligible way for the non-mathematical social scientist looking to apply statistical modelling techniques in research. The book also serves as an introduction for those wishing to develop more detailed knowledge and skills in statistical modelling. Rather than present a limited number of statistical models in great depth, the aim is to provide a comprehensive overview of the statistical models currently adopted in social research, in order that the researcher can make appropriate choices and select the most suitable model for the research question to be addressed. To facilitate application, the book also offers practical guidance and instruction in fitting models using SPSS and Stata, the most popular statistical computer software which is available to most social researchers. Instruction in using MLwiN is also given. Models covered in the book include; multiple regression, binary, multinomial and ordered logistic regression, log-linear models, multilevel models, latent variable models (factor analysis), path analysis and simultaneous equation models and models for longitudinal data and event histories. An accompanying website hosts the datasets and further exercises in order that the reader may practice developing statistical models. An ideal tool for postgraduate social science students, research students and practicing social researchers in universities, market research, government social research and the voluntary sector.

"Princeton University Press published Imai's textbook, Quantitative Social Science: An Introduction, an introduction to quantitative methods and data science for upper level undergrads and graduates in professional programs, in February 2017. What is distinct about the book is how it leads students through a series of applied examples of statistical methods, drawing on real examples from social science research. The original book was prepared with the statistical software R, which is freely available online and has gained in popularity in recent years. But many existing courses in statistics and data sciences, particularly in some subject areas like sociology and law, use STATA, another general purpose package that has been the market leader since the 1980s. We've had several requests for STATA versions of the text as many programs use it by default. This is a "translation" of the original text, keeping all the current pedagogical text but inserting the necessary code and outputs from STATA in their place"--

Social sequence analysis includes a diverse and rapidly growing body of methods that social scientists have developed to help study complex ordered social processes, including chains of transitions, trajectories and other ordered phenomena. Social sequence analysis is not limited by content or time scale and can be used in many different fields, including sociology, communication, information science and psychology. Social Sequence Analysis aims to bring together both foundational and recent theoretical and methodological work on social sequences from the last thirty years. A unique reference book for a new generation of social scientists, this book will aid demographers who study life-course trajectories and family histories, sociologists who study career paths or work/family schedules, communication scholars and micro-sociologists who study conversation, interaction structures and small-group dynamics, as well as social epidemiologists.

With each new release of Stata, a comprehensive resource is needed to highlight the improvements as well as discuss the fundamentals of the software. Fulfilling this need, A Handbook of Statistical Analyses Using Stata, Fourth Edition has been fully updated to provide an introduction to Stata version 9. This edition covers many

Through real-world case studies, this book shows how to use Stata to estimate a class of flexible parametric survival models. It discusses the modeling of time-dependent and continuous covariates and looks at how relative survival can be used to measure mortality associated with a particular disease when the cause of death has not been recorded. The book describes simple quantification of differences between any two covariate patterns through calculation of time-dependent hazard ratios, hazard differences, and survival differences.

An Introduction to Statistics and Data Analysis Using Stata® by Lisa Daniels and Nicholas Minot provides a step-by-step introduction for statistics, data analysis, or research methods classes with Stata. Concise descriptions emphasize the concepts behind statistics for students rather than the derivations of the formulas. With real-world examples from a variety of disciplines and extensive detail on the commands in Stata, this text provides an integrated approach to research design, statistical analysis, and report writing for social science students.