

Semiparametric Regression For The Social Sciences

[#semiparametric regression](#) [#social sciences statistics](#) [#data analysis methods](#) [#statistical modeling](#) [#quantitative social research](#)

Discover the power of semiparametric regression, an advanced statistical method ideal for complex data analysis in the social sciences. This technique offers a flexible approach, combining parametric and nonparametric models to uncover nuanced relationships and make robust inferences, significantly enhancing quantitative social research outcomes.

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Semiparametric Regression for the Social Sciences

An introductory guide to smoothing techniques, semiparametric estimators, and their related methods, this book describes the methodology via a selection of carefully explained examples and data sets. It also demonstrates the potential of these techniques using detailed empirical examples drawn from the social and political sciences. Each chapter includes exercises and examples and there is a supplementary website containing all the datasets used, as well as computer code, allowing readers to replicate every analysis reported in the book. Includes software for implementing the methods in S-Plus and R.

Semiparametric Regression

Semiparametric regression is concerned with the flexible incorporation of non-linear functional relationships in regression analyses. Any application area that benefits from regression analysis can also benefit from semiparametric regression. Assuming only a basic familiarity with ordinary parametric regression, this user-friendly book explains the techniques and benefits of semiparametric regression in a concise and modular fashion. The authors make liberal use of graphics and examples plus case studies taken from environmental, financial, and other applications. They include practical advice on implementation and pointers to relevant software. The 2003 book is suitable as a textbook for students with little background in regression as well as a reference book for statistically oriented scientists such as biostatisticians, econometricians, quantitative social scientists, epidemiologists, with a good working knowledge of regression and the desire to begin using more flexible semiparametric models. Even experts on semiparametric regression should find something new here.

Regression Analysis for the Social Sciences

The book provides graduate students in the social sciences with the basic skills that they need to estimate, interpret, present, and publish basic regression models using contemporary standards. Key features of the book include: interweaving the teaching of statistical concepts with examples developed for the course from publicly-available social science data or drawn from the literature. thorough integration of teaching statistical theory with teaching data processing and analysis. teaching of both SAS and Stata "side-by-side" and use of chapter exercises in which students practice programming and interpretation on the same data set and course exercises in which students can choose their own research questions and data set. This book is for a one-semester course. For a two-semester course, see www.routledge.com/books/details/9780415875363/

Regression Analysis for Social Sciences

Regression Analysis for Social Sciences presents methods of regression analysis in an accessible way, with each method having illustrations and examples. A broad spectrum of methods are included: multiple categorical predictors, methods for curvilinear regression, and methods for symmetric regression. This book can be used for courses in regression analysis at the advanced undergraduate and beginning graduate level in the social and behavioral sciences. Most of the techniques are explained step-by-step enabling students and researchers to analyze their own data. Examples include data from the social and behavioral sciences as well as biology, making the book useful for readers with biological and biometrical backgrounds. Sample command and result files for SYSTAT are included in the text. Presents accessible methods of regression analysis Includes a broad spectrum of methods Techniques are explained step-by-step Provides sample command and result files for SYSTAT

Semiparametric Regression with R

This easy-to-follow applied book on semiparametric regression methods using R is intended to close the gap between the available methodology and its use in practice. Semiparametric regression has a large literature but much of it is geared towards data analysts who have advanced knowledge of statistical methods. While R now has a great deal of semiparametric regression functionality, many of these developments have not trickled down to rank-and-file statistical analysts. The authors assemble a broad range of semiparametric regression R analyses and put them in a form that is useful for applied researchers. There are chapters devoted to penalized splines, generalized additive models, grouped data, bivariate extensions of penalized splines, and spatial semi-parametric regression models. Where feasible, the R code is provided in the text, however the book is also accompanied by an external website complete with datasets and R code. Because of its flexibility, semiparametric regression has proven to be of great value with many applications in fields as diverse as astronomy, biology, medicine, economics, and finance. This book is intended for applied statistical analysts who have some familiarity with R.

Spatial Regression Models for the Social Sciences

Spatial Regression Models for the Social Sciences shows researchers and students how to work with spatial data without the need for advanced mathematical statistics. Focusing on the methods that are commonly used by social scientists, Guangqing Chi and Jun Zhu explain what each method is and when and how to apply it by connecting it to social science research topics. Throughout the book they use the same social science example to demonstrate applications of each method and what the results can tell us.

Semiparametric Regression

Even experts on semiparametric regression should find something new here.

Quantile Regression

Quantile Regression, the first book of Hao and Naiman's two-book series, establishes the seldom recognized link between inequality studies and quantile regression models. Though separate methodological literature exists for each subject, the authors seek to explore the natural connections between this increasingly sought-after tool and research topics in the social sciences. Quantile regression as a method does not rely on assumptions as restrictive as those for the classical linear regression; though more traditional models such as least squares linear regression are more widely utilized, Hao and Naiman show, in their application of quantile regression to empirical research, how this model yields

a more complete understanding of inequality. Inequality is a perennial concern in the social sciences, and recently there has been much research in health inequality as well. Major software packages have also gradually implemented quantile regression. Quantile Regression will be of interest not only to the traditional social science market but other markets such as the health and public health related disciplines. Key Features: Establishes a natural link between quantile regression and inequality studies in the social sciences Contains clearly defined terms, simplified empirical equations, illustrative graphs, empirical tables and graphs from examples Includes computational codes using statistical software popular among social scientists Oriented to empirical research

Regression Models

This book provides an introduction to the regression models needed, where an outcome variable for a sample is not representative of the population from which a generalized result is sought.

Regression

The aim of this book is an applied and unified introduction into parametric, non- and semiparametric regression that closes the gap between theory and application. The most important models and methods in regression are presented on a solid formal basis, and their appropriate application is shown through many real data examples and case studies. Availability of (user-friendly) software has been a major criterion for the methods selected and presented. Thus, the book primarily targets an audience that includes students, teachers and practitioners in social, economic, and life sciences, as well as students and teachers in statistics programs, and mathematicians and computer scientists with interests in statistical modeling and data analysis. It is written on an intermediate mathematical level and assumes only knowledge of basic probability, calculus, and statistics. The most important definitions and statements are concisely summarized in boxes. Two appendices describe required matrix algebra, as well as elements of probability calculus and statistical inference.

Statistical Modeling and Inference for Social Science

Written specifically for graduate students and practitioners beginning social science research, Statistical Modeling and Inference for Social Science covers the essential statistical tools, models and theories that make up the social scientist's toolkit. Assuming no prior knowledge of statistics, this textbook introduces students to probability theory, statistical inference and statistical modeling, and emphasizes the connection between statistical procedures and social science theory. Sean Gailmard develops core statistical theory as a set of tools to model and assess relationships between variables - the primary aim of social scientists - and demonstrates the ways in which social scientists express and test substantive theoretical arguments in various models. Chapter exercises guide students in applying concepts to data, extending their grasp of core theoretical concepts. Students will also gain the ability to create, read and critique statistical applications in their fields of interest.

Social Science Applications of Regression for Categorical Outcomes Using R

"This book covers the main models within the GLM (i.e., logistic, Poisson, negative binomial, ordinal, and multinomial). For each model, estimations, interpretations, model fit, diagnostics, and how to convey results graphically are provided. There is a focus on graphic displays of results as these are a core strength of using R for statistical analysis. Many in the social sciences are transitioning away from using Stata, SPSS and SAS, to using R, and this book uses statistical models which are relevant to the social sciences. Social Science Applications of Regression for Categorical Outcomes Using R will be useful for graduate students in the social sciences who are looking to expand their statistical knowledge, and for Quantitative social scientists due to it's ability to act as a practitioners guide"--

Interpreting and Using Regression

Interpreting and Using Regression sets out the actual procedures researchers employ, places them in the framework of statistical theory, and shows how good research takes account both of statistical theory and real world demands. Achen builds a working philosophy of regression that goes well beyond the abstract, unrealistic treatment given in previous texts.

Understanding Multivariate Research

Although nearly all major social science departments offer graduate students training in quantitative methods, the typical sequencing of topics generally delays training in regression analysis and other multivariate techniques until a student's second year. William Berry and Mitchell Sanders's *Understanding Multivariate Research* fills this gap with a concise introduction to regression analysis and other multivariate techniques. Their book is designed to give new graduate students a grasp of multivariate analysis sufficient to understand the basic elements of research relying on such analysis that they must read prior to their formal training in quantitative methods. Berry and Sanders effectively cover the techniques seen most commonly in social science journals--regression (including nonlinear and interactive models), logit, probit, and causal models/path analysis. The authors draw on illustrations from across the social sciences, including political science, sociology, marketing and higher education. All topics are developed without relying on the mathematical language of probability theory and statistical inference. Readers are assumed to have no background in descriptive or inferential statistics, and this makes the book highly accessible to students with no prior graduate course work.

Semiparametric Regression for the Applied Econometrician

This book provides an accessible collection of techniques for analyzing nonparametric and semiparametric regression models. Worked examples include estimation of Engel curves and equivalence scales, scale economies, semiparametric Cobb-Douglas, translog and CES cost functions, household gasoline consumption, hedonic housing prices, option prices and state price density estimation. The book should be of interest to a broad range of economists including those working in industrial organization, labor, development, urban, energy and financial economics. A variety of testing procedures are covered including simple goodness of fit tests and residual regression tests. These procedures can be used to test hypotheses such as parametric and semiparametric specifications, significance, monotonicity and additive separability. Other topics include endogeneity of parametric and nonparametric effects, as well as heteroskedasticity and autocorrelation in the residuals. Bootstrap procedures are provided.

Event History Analysis

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.

The Oxford Handbook of Applied Nonparametric and Semiparametric Econometrics and Statistics

This volume, edited by Jeffrey Racine, Liangjun Su, and Aman Ullah, contains the latest research on nonparametric and semiparametric econometrics and statistics. Chapters by leading international econometricians and statisticians highlight the interface between econometrics and statistical methods for nonparametric and semiparametric procedures.

The SAGE Handbook of Regression Analysis and Causal Inference

The editors of the new SAGE Handbook of Regression Analysis and Causal Inference have assembled a wide-ranging, high-quality, and timely collection of articles on topics of central importance to quantitative social research, many written by leaders in the field. Everyone engaged in statistical analysis of social-science data will find something of interest in this book.² - John Fox, Professor, Department of Sociology, McMaster University ²The authors do a great job in explaining the various statistical methods in a clear and simple way - focussing on fundamental understanding, interpretation of results, and practical application - yet being precise in their exposition.² - Ben Jann, Executive Director, Institute

of Sociology, University of Bern 2Best and Wolf have put together a powerful collection, especially valuable in its separate discussions of uses for both cross-sectional and panel data analysis.² -Tom Smith, Senior Fellow, NORC, University of Chicago Edited and written by a team of leading international social scientists, this Handbook provides a comprehensive introduction to multivariate methods. The Handbook focuses on regression analysis of cross-sectional and longitudinal data with an emphasis on causal analysis, thereby covering a large number of different techniques including selection models, complex samples, and regression discontinuities. Each Part starts with a non-mathematical introduction to the method covered in that section, giving readers a basic knowledge of the method's logic, scope and unique features. Next, the mathematical and statistical basis of each method is presented along with advanced aspects. Using real-world data from the European Social Survey (ESS) and the Socio-Economic Panel (GSOEP), the book provides a comprehensive discussion of each method's application, making this an ideal text for PhD students and researchers embarking on their own data analysis.

Applied Regression Models in the Social Sciences

This accessible and practical textbook gives students the perfect guide to the use of regression models in testing and evaluating hypotheses dealing with social relationships. A range of statistical methods suited to a wide variety of dependent variables is explained, which will allow students to read, understand, and interpret complex statistical analyses of social data. Each chapter contains example applications using relevant statistical methods in both Stata and R, giving students direct experience of applying their knowledge. A full suite of online resources - including statistical command files, datasets and results files, homework assignments, class discussion topics, PowerPoint slides, and exam questions - supports the student to work independently with the data, and the instructor to deliver the most effective possible course. This is the ideal textbook for advanced undergraduate and beginning graduate students taking courses in applied social statistics.

Robustness Tests for Quantitative Research

The uncertainty that researchers face in specifying their estimation model threatens the validity of their inferences. In regression analyses of observational data, the 'true model' remains unknown, and researchers face a choice between plausible alternative specifications. Robustness testing allows researchers to explore the stability of their main estimates to plausible variations in model specifications. This highly accessible book presents the logic of robustness testing, provides an operational definition of robustness that can be applied in all quantitative research, and introduces readers to diverse types of robustness tests. Focusing on each dimension of model uncertainty in separate chapters, the authors provide a systematic overview of existing tests and develop many new ones. Whether it be uncertainty about the population or sample, measurement, the set of explanatory variables and their functional form, causal or temporal heterogeneity, or effect dynamics or spatial dependence, this book provides guidance and offers tests that researchers from across the social sciences can employ in their own research.

Multiple and Generalized Nonparametric Regression

This book builds on John Fox's previous volume in the QASS Series, Non Parametric Simple Regression. In this book, the reader learns how to estimate and plot smooth functions when there are multiple independent variables.

Spatial Regression Models

'Spatial Regression Models' illustrates concepts using well known international, comparative, and national examples of spatial regression analysis. Each example is presented alongside relevant data and code.

Regression with Dummy Variables

It is often necessary for social scientists to study differences in groups, such as gender or race differences in attitudes, buying behavior, or socioeconomic characteristics. When the researcher seeks to estimate group differences through the use of independent variables that are qualitative, dummy variables allow the researcher to represent information about group membership in quantitative terms without imposing unrealistic measurement assumptions on the categorical variables. Beginning with

the simplest model, Hardy probes the use of dummy variable regression in increasingly complex specifications, exploring issues such as: interaction, heteroscedasticity, multiple comparisons and significance testing, the use of effects or contrast coding, testing for curvilinearity, and estimating a piecewise linear regression.

Regression Analysis

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Corporate Social Responsibility

This Edited Volume Corporate Social Responsibility is a collection of reviewed and relevant research chapters, offering a comprehensive overview of recent developments in corporate behavior. The book comprises single chapters authored by various researchers and edited by an expert in the field. All chapters are complete in themselves but united under a common research study topic. This publication aims at providing a thorough overview of the latest research efforts by international authors and opening new possible research paths for further novel developments.

International Encyclopedia of Political Science

Developed in partnership with the International Political Science Association this must-have, authoritative political science resource, in eight volumes, provides a definitive picture of all aspects of political life.

Nonparametric and Semiparametric Models

The statistical and mathematical principles of smoothing with a focus on applicable techniques are presented in this book. It naturally splits into two parts: The first part is intended for undergraduate students majoring in mathematics, statistics, econometrics or biometrics whereas the second part is intended to be used by master and PhD students or researchers. The material is easy to accomplish since the e-book character of the text gives a maximum of flexibility in learning (and teaching) intensity.

Interaction Effects in Multiple Regression

This is a practical introduction to conducting analyses of interaction effects in the context of multiple regression. This new edition expands coverage on the analysis of three-way interactions in multiple regression analysis.

Regression

Now in its second edition, this textbook provides an applied and unified introduction to parametric, nonparametric and semiparametric regression that closes the gap between theory and application. The most important models and methods in regression are presented on a solid formal basis, and their appropriate application is shown through numerous examples and case studies. The most important definitions and statements are concisely summarized in boxes, and the underlying data sets and code are available online on the book's dedicated website. Availability of (user-friendly) software has been a major criterion for the methods selected and presented. The chapters address the classical linear model and its extensions, generalized linear models, categorical regression models, mixed models, nonparametric regression, structured additive regression, quantile regression and distributional regression models. Two appendices describe the required matrix algebra, as well as elements of probability calculus and statistical inference. In this substantially revised and updated new edition the overview on regression models has been extended, and now includes the relation between regression models and machine learning, additional details on statistical inference in structured additive regression models have been added and a completely reworked chapter augments the presentation of quantile regression with a comprehensive introduction to distributional regression models. Regularization approaches are now more extensively discussed in most chapters of the book. The book primarily targets an audience that includes students, teachers and practitioners in social, economic, and life sciences, as well as students and teachers in statistics programs, and mathematicians and computer scientists with interests in statistical modeling and data analysis. It is written at an intermediate mathematical level and assumes only knowledge of basic probability, calculus, matrix algebra and statistics.

Advances in Social Science Research Using R

Quantitative social science research has been expanding due to the availability of computers and data over the past few decades. Yet the textbooks and supplements for researchers do not adequately highlight the revolution created by the R software [2] and graphics system. R is fast becoming the lingua franca of quantitative research with some 2000 free specialized packages, where the latest versions can be downloaded in seconds. Many packages such as “car” [1] developed by social scientists are popular among all scientists. An early 2009 article [3] in the New York Times notes that statisticians, engineers and scientists without computer programming skills find R “easy to use.” A common language R can readily promote deeper mutual respect and understanding of unique problems facing quantitative work in various social sciences. Often the solutions developed in one field can be extended and used in many fields. This book promotes just such exchange of ideas across many social sciences. Since Springer has played a leadership role in promoting R, we are fortunate to have Springer publish this book. A Conference on Quantitative Social Science Research Using R was held in New York City at the Lincoln Center campus of Fordham University, June 18–19, 2009. This book contains selected papers presented at the conference, representing the “Proceedings” of the conference.

Current Concepts in Forensic Entomology

Forensic Entomology deals with the use of insects and other arthropods in medico legal investigations. We are sure that many people know this or a similar definition, maybe even already read a scientific or popular book dealing with this topic. So, do we really need another book on Forensic Entomology? The answer is 13, 29, 31, 38, and 61. These are not some golden bingo numbers, but an excerpt of the increasing amount of annual publications in the current decade dealing with Forensic Entomology. Comparing them with 89 articles which were published during the 1990s it illustrates the growing interest in this very special intersection of Forensic Science and Entomology and clearly underlines the statement: Yes, we need this book because Forensic Entomology is on the move with so many new things happening every year. One of the most attractive features of Forensic Entomology is that it is multidisciplinary. There is almost no branch in natural science which cannot find its field of activity here. The chapters included in this book highlight this variety of researches and would like to give the impetus for future work, improving the development of Forensic Entomology, which is clearly needed by the scientific community. On its way to the courtrooms of the world this discipline needs a sound and serious scientific background to receive the acceptance it deserves.

Time Counts

How to study the past using data Quantitative Analysis for Historical Social Science advances historical research in the social sciences by bridging the divide between qualitative and quantitative analysis. Gregory Wawro and Ira Katznelson argue for an expansion of the standard quantitative methodological toolkit with a set of innovative approaches that better capture nuances missed by more commonly used statistical methods. Demonstrating how to employ such promising tools, Wawro and Katznelson address the criticisms made by prominent historians and historically oriented social scientists regarding the shortcomings of mainstream quantitative approaches for studying the past. Traditional statistical methods have been inadequate in addressing temporality, periodicity, specificity, and context—features central to good historical analysis. To address these shortcomings, Wawro and Katznelson argue for the application of alternative approaches that are particularly well-suited to incorporating these features in empirical investigations. The authors demonstrate the advantages of these techniques with replications of research that locate structural breaks and uncover temporal evolution. They develop new practices for testing claims about path dependence in time-series data, and they discuss the promise and perils of using historical approaches to enhance causal inference. Opening a dialogue among traditional qualitative scholars and applied quantitative social scientists focusing on history, Quantitative Analysis for Historical Social Science illustrates powerful ways to move historical social science research forward.

Robustness Tests for Quantitative Research

This highly accessible book presents robustness testing as the methodology for conducting quantitative analyses in the presence of model uncertainty.

New Statistical Procedures for the Social Sciences

This unique volume addresses the inadequacies of basic statistical methods that standard textbooks tend to ignore. The author introduces new procedures with accompanying tables that illustrate the practicality of the methods. Concentrating on basic experimental designs that are central to research in the social sciences, Wilcox describes new nonparametric techniques, two-way ANOVA designs, and new results related to the analysis of covariance and repeated measure design. This book serves as the ideal reference and supplement to standard texts by making the statistical advances of the last thirty years accessible to graduate students and researchers.

Voters and Voting in Context

This volume examines and assesses the role of context in affecting electoral behaviour.

Multiple Regression in Practice

The authors provide a systematic treatment of the major problems involved in using regression analysis. They clearly and concisely discuss the consequences of violating the assumptions of the regression model, procedures for detecting violations, and strategies for dealing with these problems.

Means, Motives and Opportunities

Illuminates how governors, motivated by political issues, shape budgets according to the opportunities interest groups provide them.

The Social Science Encyclopedia

The Social Science Encyclopedia, first published in 1985 to acclaim from social scientists, librarians and students, was thoroughly revised in 1996, when reviewers began to describe it as a classic. This third edition has been radically recast. Over half the entries are new or have been entirely rewritten, and most of the balance have been substantially revised. Written by an international team of contributors, the Encyclopedia offers a global perspective on the key issues within the social sciences. Some 500 entries cover a variety of enduring and newly vital areas of study and research methods. Experts review theoretical debates from neo-evolutionism and rational choice theory to poststructuralism, and address the great questions that cut across the social sciences. What is the influence of genes on behaviour? What is the nature of consciousness and cognition? What are the causes of poverty and wealth? What are the roots of conflict, wars, revolutions and genocidal violence? This authoritative reference work is aimed at anyone with a serious interest in contemporary academic thinking about the individual in society.

Applied Regression

Applied regression allows social scientists who are not specialists in quantitative techniques to arrive at clear verbal explanations of their numerical results. Provides a lucid discussion of more specialized subjects: analysis of residuals, interaction effects, specification error, multicollinearity, standardized coefficients, and dummy variables.

Multiple Regression

Multiple Regression: A Practical Introduction is a text for an advanced undergraduate or beginning graduate course in statistics for social science and related fields. Also, students preparing for more advanced courses can self-study the text to refresh and solidify their statistical background. Drawing on decades of teaching this material, the authors present the ideas in an approachable and nontechnical manner, with no expectation that readers have more than a standard introductory statistics course as background. Multiple regression asks how a dependent variable is related to, or predicted by, a set of independent variables. The book includes many interesting example analyses and interpretations, along with exercises. Each dataset used for the examples and exercises is small enough for readers to easily grasp the entire dataset and its analysis with respect to the specific statistical techniques covered. A website for the book at <https://edge.sagepub.com/roberts1e> includes SPSS, Stata, SAS, and R code and commands for each type of analysis or recoding of variables in the book. Solutions to two of the end-of-chapter exercise types are also available for students to practice. The instructor side of the site contains editable PowerPoint slides, other solutions, and a test bank.

