

Applied Regression An Introduction Quantitative Applications In The Social Sciences

Introducing time series methods and their application in social science research, this practical guide to time series models is the first in the field written for a non-econometrics audience. Giving readers the tools they need to apply models to their own research, *Introduction to Time Series Analysis*, by Mark Pickup, demonstrates the use of—and the assumptions underlying—common models of time series data including finite distributed lag; autoregressive distributed lag; moving average; differenced data; and GARCH, ARMA, ARIMA, and error correction models. “This volume does an excellent job of introducing modern time series analysis to social scientists who are already familiar with basic statistics and the general linear model.” —William G. Jacoby, Michigan State University

This book takes a fresh look at applying regression analysis in the behavioural sciences by introducing the reader to regression analysis through a simple model-building approach. The authors start with the basics and begin by re-visiting the mean, and the standard deviation, with which most readers will already be familiar, and show that they can be thought of as a least squares model. The book then shows that this least squares model is actually a special case of a regression analysis and can be extended to deal with first one, and then more than one independent variable. Extending the model from the mean to a regression analysis provides a powerful, but simple, way of thinking about what students believe are the more complex aspects of regression analysis. The authors gradually extend the model to include aspects of regression analysis such as non-linear regression, logistic regression, and moderator and mediator analysis. These approaches are often presented in terms that are too mathematical for non-statistically inclined students to deal with. Throughout the book maintains a conceptual, non-mathematical focus. Most equations are placed in an appendix, where a detailed explanation is given, to avoid disrupting the flow of the main text. This book will be indispensable for anyone using regression and correlation from undergraduates doing projects to postgraduate and researchers.

This book is an introduction to regression analysis, focusing on the practicalities of doing regression analysis on real-life data. Contrary to other textbooks on regression, this book is based on the idea that you do not necessarily need to know much about statistics and mathematics to get a firm grip on regression and perform it to perfection. This non-technical point of departure is complemented by practical examples of real-life data analysis using statistics software such as Stata, R and SPSS. Parts 1 and 2 of the book cover the basics, such as simple linear regression, multiple linear regression, how to interpret the output from statistics programs, significance testing and the key regression assumptions. Part 3 deals with how to practically handle violations of the classical linear regression assumptions, regression modeling for categorical y-variables and instrumental variable (IV) regression. Part 4 puts the various purposes of, or motivations for, regression into the wider context of writing a scholarly report and points to some extensions to related statistical techniques. This book is written primarily for those who need to do regression analysis in practice, and not only to understand how this method works in theory. The book's accessible approach is recommended for students from across the social sciences.

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.

This book provides an introduction to the analysis of interaction effects in logistic regression by focusing on the interpretation of the coefficients of interactive logistic models for a wide range of situations encountered in the research literature. The volume is oriented toward the applied researcher with a rudimentary background in multiple regression and logistic regression and does not include complex formulas that could be intimidating to the applied researcher.

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.

Providing beginners with a background to the frequently-used technique of linear regression, this text provides a heuristic explanation of the procedures and terms used in regression analysis and has been written at the most elementary level.

Using a friendly, nontechnical approach, the Second Edition of *Regression Basics* introduces readers to the fundamentals of regression. Accessible to anyone with an introductory statistics background, this book builds from a simple two-variable model to a model of greater complexity. Author Leo H. Kahane weaves four engaging examples throughout the text to illustrate not only the techniques of regression but also how this empirical tool can be applied in creative ways to consider a broad array of topics. New to the Second Edition

- Offers greater coverage of simple panel-data estimation: Because the availability of panel data has increased over the past decade, this new edition includes coverage of estimation with multiple cross-sections of data across time.
- Provides an introductory discussion of omitted variables bias: As a problem that frequently arises, this issue is important for those new to regression analysis to understand.
- Includes up-to-date advances: Chapter 7 is expanded to include recent developments in regression.
- Uses a diverse selection of examples: Engaging examples illustrate the wide application of regression analysis from baseball salaries to presidential voting to British

crime rates to U.S. abortion rates and more. • Includes more end-of-chapter problems: This edition offers new questions at the end of chapters that are based on the new examples woven through the book. • Illustrates examples using software programs: Appendix B now includes screenshots to further aid readers working with Microsoft Excel® and SPSS. Intended Audience This is an ideal core or supplemental text for advanced undergraduate and graduate courses such as Regression and Correlation, Sociological Research Methods, Quantitative Research Methods, and Statistical Methods in the fields of economics, public policy, political science, sociology, public affairs, urban planning, education, and geography.

Smithson first introduces the basis of the confidence interval framework and then provides the criteria for "best" confidence intervals, along with the trade-offs between confidence and precision. Next, using a reader-friendly style with lots of worked out examples from various disciplines, he covers such pertinent topics as: the transformation principle whereby a confidence interval for a parameter may be used to construct an interval for any monotonic transformation of that parameter; confidence intervals on distributions whose shape changes with the value of the parameter being estimated; and, the relationship between confidence interval and significance testing frameworks, particularly regarding power.

What is the probability that something will occur, and how is that probability altered by a change in an independent variable? To answer these questions, Tim Futing Liao introduces a systematic way of interpreting commonly used probability models. Since much of what social scientists study is measured in noncontinuous ways and, therefore, cannot be analyzed using a classical regression model, it becomes necessary to model the likelihood that an event will occur. This book explores these models first by reviewing each probability model and then by presenting a systematic way for interpreting the results from each.

Known for its readability and clarity, this Second Edition of the best-selling Applied Regression provides an accessible introduction to regression analysis for social scientists and other professionals who want to model quantitative data. After covering the basic idea of fitting a straight line to a scatter of data points, the text uses clear language to explain both the mathematics and assumptions behind the simple linear regression model. The authors then cover more specialized subjects of regression analysis, such as multiple regression, measures of model fit, analysis of residuals, interaction effects, multicollinearity, and prediction. Throughout the text, graphical and applied examples help explain and demonstrate the power and broad applicability of regression analysis for answering scientific questions.

'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.' - John Fox, Professor, Department of Sociology, McMaster University 'The 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.' - Ben Jann, Executive Director, Institute of Sociology, University of Bern 'Best and Wolf have put together a powerful collection, especially valuable in its separate discussions of uses for both cross-sectional and panel data analysis.' -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.

After showing why ordinary regression analysis is not appropriate for investigating dichotomous or otherwise 'limited' dependent variables, this volume examines three techniques which are well suited for such data. It reviews the linear probability model and discusses alternative specifications of non-linear models.

"Written at a level appropriate for the advanced undergraduate course on data analysis, this accessible volume introduces the reader to the "art" of data analysis from data-gathering to multiple regression in which a dependent variable is influenced by several independent variables. The book focuses on the interpretation of a statistical result, in particular those that come from nonexperimental social research. Using a consistent data set throughout the book in order to illustrate the various analytic techniques, the author covers such topics as univariate statistics, measures of association, the statistical significance of the relationship between two variables, and simple regression where the dependent variable is influenced by a single independent variable. The last chapter offers analysis recommendations. Data Analysis will provide social science researchers with the tools to select and evaluate statistical tests appropriate for their particular research question."--Pub. desc.

Berry and Feldman provide a systematic treatment of many of the major problems encountered in using regression analysis. Since it is likely that the assumptions of the regression model will be violated in empirical analysis, the ability to know when problems exist and when to take appropriate action ensures the proper use of the procedure.

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Interaction Effects in Multiple Regression has provided students and researchers with a readable and practical introduction to conducting analyses of interaction effects in the context of multiple regression. The new addition will expand the coverage on the analysis of three way interactions in multiple regression analysis. Learn more about "The Little Green Book" - QASS Series! [Click Here](#)

Emphasizing the parallels between linear and logistic regression, Scott Menard explores logistic regression analysis and demonstrates its usefulness in analyzing dichotomous, polytomous nominal, and polytomous ordinal dependent variables. The book is aimed at readers with a background in bivariate and multiple linear regression.

Through the use of careful explanation and examples, Berry demonstrates how to consider whether the assumptions of multiple regression are actually satisfied in a particular research project. Beginning with a brief review of the regression assumptions as they are typically presented in text books, he moves on to explore in detail the substantive meaning of each assumption; for example, lack of measurement error, absence of specification error, linearity, homoscedasticity, and lack of auto-correlation.

The authors have improved on their widely used first edition by providing updated examples, adding material on how to do ANOVA using statistical packages for microcomputers, linking the use of ANOVA to regression analysis, and enhancing their discussion on using ANOVA for experimentally gathered data.

This accessible introduction to data analysis focuses on the interpretation of statistical results, in particular those which come from nonexperimental social research. It will provide social science researchers with the tools necessary to select and evaluate statistical tests appropriate for their research question. Using a consistent data-set throughout the book to illustrate the various analytic techniques, Michael Lewis-Beck covers topics such as univariate statistics, measures of association, the statistical significance of the relationship between two variables, simple regression in which the dependent variable is

influenced by a single independent variable, and multiple regression.

Provides readers with a clear and concise introduction to the why, what, and how of the comparative method

With the rise of "big data," there is an increasing demand to learn the skills needed to undertake sound quantitative analysis without requiring students to spend too much time on high-level math and proofs. This book provides an efficient alternative approach, with more time devoted to the practical aspects of regression analysis and how to recognize the most common pitfalls. By doing so, the book will better prepare readers for conducting, interpreting, and assessing regression analyses, while simultaneously making the material simpler and more enjoyable to learn. Logical and practical in approach, Regression Analysis teaches: (1) the tools for conducting regressions; (2) the concepts needed to design optimal regression models (based on avoiding the pitfalls); and (3) the proper interpretations of regressions. Furthermore, this book emphasizes honesty in research, with a prevalent lesson being that statistical significance is not the goal of research. This book is an ideal introduction to regression analysis for anyone learning quantitative methods in the social sciences, business, medicine, and data analytics. It will also appeal to researchers and academics looking to better understand what regressions do, what their limitations are, and what they can tell us. This will be the most engaging book on regression analysis (or Econometrics) you will ever read! A collection of author-created supplementary videos are available at: https://www.youtube.com/channel/UCenm3BWqQyXA2JRKB_QXGyw

Heteroskedasticity in Regression: Detection and Correction, by Robert Kaufman, covers the commonly ignored topic of heteroskedasticity (unequal error variances) in regression analyses and provides a practical guide for how to proceed in terms of testing and correction. Emphasizing how to apply diagnostic tests and corrections for heteroskedasticity in actual data analyses, the monograph offers three approaches for dealing with heteroskedasticity: (1) variance-stabilizing transformations of the dependent variable; (2) calculating robust standard errors, or heteroskedasticity-consistent standard errors; and (3) generalized least squares estimation coefficients and standard errors. The detection and correction of heteroskedasticity is illustrated with three examples that vary in terms of sample size and the types of units analyzed (individuals, households, U.S. states). Intended as a supplementary text for graduate-level courses and a primer for quantitative researchers, the book fills the gap between the limited coverage of heteroskedasticity provided in applied regression textbooks and the more theoretical statistical treatment in advanced econometrics textbooks.

"The first encyclopedia to cover inclusively both quantitative and qualitative research approaches, this set provides clear explanations of 1,000 methodologies, avoiding mathematical equations when possible with liberal cross-referencing and bibliographies. Each volume includes a list of works cited, and the third contains a comprehensive index and lists of person names, organizations, books, tests, software, major concepts, surveys, and methodologies."--"Reference that rocks," American Libraries, May 2005.

Trying to determine when to use a logistic regression and how to interpret the coefficients? Frustrated by the technical writing in other books on the topic? Pampel's book offers readers the first "nuts and bolts" approach to doing logist

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.

This book, first published in 2007, is for the applied researcher performing data analysis using linear and nonlinear regression and multilevel models.

An R Companion to Applied Regression is a broad introduction to the R statistical computing environment in the context of applied regression analysis. John Fox and Sanford Weisberg provide a step-by-step guide to using the free statistical software R, an emphasis on integrating statistical computing in R with the practice of data analysis, coverage of generalized linear models, and substantial web-based support materials. The Third Edition has been reorganized and includes a new chapter on mixed-effects models, new and updated data sets, and a de-emphasis on statistical programming, while retaining a general introduction to basic R programming. The authors have substantially updated both the car and effects packages for R for this edition, introducing additional capabilities and making the software more consistent and easier to use. They also advocate an everyday data-analysis workflow that encourages reproducible research. To this end, they provide coverage of RStudio, an interactive development environment for R that allows readers to organize and document their work in a simple and intuitive fashion, and then easily share their results with others. Also included is coverage of R Markdown, showing how to create documents that mix R commands with explanatory text.

The focus in this Second Edition is on logistic regression models for individual level (but aggregate or grouped) data. Multiple cases for each possible combination of values of the predictors are considered in detail and examples using SAS and SPSS included. New to this edition: · More detailed consideration of grouped as opposed to casewise data throughout the book · Updated discussion of the properties and appropriate use of goodness of fit measures, R² analogues, and indices of predictive efficiency · Discussion of the misuse of odds ratios to represent risk ratios, and of overdispersion and underdispersion for grouped data · Updated coverage of unordered and ordered polytomous logistic regression models.

A practical approach to using regression and computation to solve real-world problems of estimation, prediction, and causal inference.

The theoretical importance of Bayesian inference, if not its practical validity, are generally acknowledged; but a reason for the lag in applications is that empirical researchers have lacked a grounding in the methodology. Iversen's volume provides this introduction.

Explaining the techniques needed for exploring problems that comprise a regression analysis, and for determining whether certain assumptions appear reasonable, this book covers such topics as the problem of collinearity in multiple regression, non-normality of errors, and discrete data.

While regression analysis traces the dependence of the distribution of a response variable to see if it bears a particular (linear) relationship to one or more of the predictors, nonparametric regression analysis makes minimal assumptions about the form of relationship between the average response and the predictors. This makes nonparametric regression a more useful technique for analyzing data in which there are several predictors that may combine additively to influence the response. (An example could be something like birth order/gender/and temperament on achievement motivation). Unfortunately, researchers have not had accessible information on nonparametric regression analysis--until now. Beginning with presentation of nonparametric regression based on dividing the data into bins and averaging

the response values in each bin, Fox introduces readers to the techniques of kernel estimation, additive nonparametric regression, and the ways nonparametric regression can be employed to select transformations of the data preceding a linear least-squares fit. The book concludes with ways nonparametric regression can be generalized to logit, probit, and Poisson regression.

Damodar N. Gujarati's *Linear Regression: A Mathematical Introduction* presents linear regression theory in a rigorous, but approachable manner that is accessible to students in all social sciences. This concise title goes step-by-step through the intricacies, and theory and practice of regression analysis. The technical discussion is provided in a clear style that doesn't overwhelm the reader with abstract mathematics. End-of-chapter exercises test mastery of the content and advanced discussion of some of the topics is offered in the appendices. Data sets accompanying this book are available for download: Chapter 4 Data: Wages for Workers Chapter 6 Data: Earnings and Educational Attainment Definitions of Variables: Chapter 4 and Chapter 6 Data

Understanding Regression Analysis: An Introductory Guide presents the fundamentals of regression analysis, from its meaning to uses, in a concise, easy-to-read, and non-technical style. It illustrates how regression coefficients are estimated, interpreted, and used in a variety of settings within the social sciences, business, law, and public policy. Packed with applied examples and using few equations, the book walks readers through elementary material using a verbal, intuitive interpretation of regression coefficients, associated statistics, and hypothesis tests. The Second Edition features updated examples and new references to modern software output.

Regression diagnostics are methods for determining whether a regression model that has been fit to data adequately represents the structure of the data. For example, if the model assumes a linear (straight-line) relationship between the response and an explanatory variable, is the assumption of linearity warranted? Regression diagnostics not only reveal deficiencies in a regression model that has been fit to data but in many instances may suggest how the model can be improved. The Second Edition of this bestselling volume by John Fox considers two important classes of regression models: the normal linear regression model (LM), in which the response variable is quantitative and assumed to have a normal distribution conditional on the values of the explanatory variables; and generalized linear models (GLMs) in which the conditional distribution of the response variable is a member of an exponential family. R code and data sets for examples within the text can be found on an accompanying website at <https://tinyurl.com/RegDiag>.

Ordinal measures provide a simple and convenient way to distinguish among possible outcomes. The book provides practical guidance on using ordinal outcome models.

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