

Ordinary Least Squares Regression Research Training

Bringing to life the most widely used quantitative measurements and statistical techniques in marketing, this book is packed with user-friendly descriptions, examples and study applications. The process of making marketing decisions is frequently dependent on quantitative analysis and the use of specific statistical tools and techniques which can be tailored and adapted to solve particular marketing problems. Any student hoping to enter the world of marketing will need to show that they understand and have mastered these techniques. A bank of downloadable data sets to compliment the tables provided in the textbook are provided free for you here

Starting from simple hypothesis testing and then moving towards model-building, this valuable book takes readers through the basics of multivariate analysis including: which tests to use on which data; how to run analyses in SPSS for Windows and GLIM4; how to interpret results; and how to report and present the reports appropriately. Using a unified conceptual framework (based around the Generalized Linear Model) the authors explain the commonalities and relationships between methods that include both the analysis of categorical and continuous data.

Electronic Inspection Copy available for instructors here A must-have reference resource for quantitative management researchers, the Dictionary contains over 100 entries covering the fundamentals of quantitative methodologies; covering both analysis and implementation and examples of use, as well as detailed graphics to aid understanding. Every entry Features: -An introduction to the topic, -Key relevant features, -A worked example, -A concise summary and a selection of further reading suggestions -Cross-references to associated concepts within the dictionary

Score your highest in econometrics? Easy. Econometrics can prove challenging for many students unfamiliar with the terms and concepts discussed in a typical econometrics course. Econometrics For Dummies eliminates that confusion with easy-to-understand explanations of important topics in the study of economics. Econometrics For Dummies breaks down this complex subject and provides you with an easy-to-follow course supplement to further refine your understanding of how econometrics works and how it can be applied in real-world situations. An excellent resource for anyone participating in a college or graduate level econometrics course Provides you with an easy-to-follow introduction to the techniques and applications of econometrics Helps you score high on exam day If you're seeking a degree in economics and looking for a plain-English guide to this often-intimidating course, Econometrics For Dummies has you covered.

An Intuitive Guide for Using and Interpreting Linear Models

Applied Generalized Linear Models And Multilevel Models in R

Introduction to Linear Regression Analysis

Applied Econometrics with R

Least Squares Regression Analysis in Terms of Linear Algebra

Linear Regression Analysis

This book had its conception in 1975in a friendly tavern near the School of Businessand PublicAdministration at the UniversityofMissouri-Columbia. Two of the authors (Fomby and Hill) were graduate students of the third (Johnson), and were (and are) concerned about teaching econometrics effectively at the graduate level. We decided then to write a book to serve as a comprehensive text for graduate econometrics. Generally, the material included in the bookand itsorganization have been governed by the question, " Howcould the subject be best presented in a graduate class?" For content, this has meant that we have tried to cover " all the bases " and yet have not attempted to be encyclopedic. The intended purpose has also affected the levelofmathematical rigor. We have tended to prove only those results that are basic and/or relatively straightforward. Proofs that would demand inordinant amounts of class time have simply been referenced. The book is intended for a two-semester course and paced to admit more extensive treatment of areas of specific interest to the instructor and students. We have great confidence in the ability, industry, and persistence of graduate students in ferreting out and understanding the omitted proofs and results. In the end, this is how one gains maturity and a fuller appreciation for the subject in any case. It is assumed that the readers of the book will have had an econometric methods course, using texts like J. Johnston's Econometric Methods, 2nd ed.

"This volume presents in detail the fundamental theories of linear regression analysis and diagnosis, as well as the relevant statistical computing techniques so that readers are able to actually model the data using the techniques described in the book. This book is suitable for graduate students who are either majoring in statistics/biostatistics or using linear regression analysis substantially in their subject area." --Book Jacket.

Communication research is evolving and changing in a world of online journals, open-access, and new ways of obtaining data and conducting experiments via the Internet. Although there are generic encyclopedias describing basic social science research methodologies in general, until now there has been no comprehensive A-to-Z reference work exploring methods specific to communication and media studies. Our entries, authored by key figures in the field, focus on special considerations when applied specifically to communication research, accompanied by engaging examples from the literature of communication, journalism, and media studies. Entries cover every step of the research process, from the creative development of research topics and questions to literature reviews, selection of best methods (whether quantitative, qualitative, or mixed) for analyzing research results and publishing research findings, whether in traditional media or via new media outlets. In addition to expected entries covering the basics of theories and methods traditionally used in communication research, other entries discuss important trends influencing the future of that research, including contemporary practical issues students will face in communication professions, the influences of globalization on research, use of new recording technologies in fieldwork, and the challenges and opportunities related to studying online multi-media environments. Email, texting, cellphone video, and blogging are shown not only as topics of research but also as means of collecting and analyzing data. Still other entries delve into considerations of accountability, copyright, confidentiality, data ownership and security, privacy, and other aspects of conducting an ethical research program. Features: 652 signed entries are contained in an authoritative work spanning four volumes available in choice of electronic or print formats. Although organized A-to-Z, front matter includes a Reader's Guide grouping entries thematically to help students interested in a specific aspect of communication research to more easily locate directly related entries. Back matter includes a Chronology of the development of the field of communication research; a Resource Guide to classic books, journals, and associations; a Glossary introducing the terminology of the field; and a detailed Index. Entries conclude with References/Further Readings and Cross-References to related entries to guide students further in their research journeys. The Index, Reader's Guide themes, and Cross-References combine to provide robust search-and-browse in the e-version.

The second edition of a comprehensive state-of-the-art graduate level text on microeconomic methods, substantially revised and updated. The second edition of this acclaimed graduate text provides a unified treatment of two methods used in contemporary econometric research, cross section and data panel methods. By focusing on assumptions that can be given behavioral content, the book maintains an appropriate level of rigor while emphasizing intuitive thinking. The analysis covers both linear and nonlinear models, including models with dynamics and/or individual heterogeneity. In addition to general estimation frameworks (particular methods of moments and maximum likelihood), specific linear and nonlinear methods are covered in detail, including probit and logit models and their multivariate, Tobit models, models for count data, censored and missing data schemes, causal (or treatment) effects, and duration analysis. Econometric Analysis of Cross Section and Panel Data was the first graduate econometrics text to focus on microeconomic data structures, allowing assumptions to be separated into population and sampling assumptions. This second edition has been substantially updated and revised. Improvements include a broader class of models for missing data problems; more detailed treatment of cluster problems, an important topic for empirical researchers; expanded discussion of "generalized instrumental variables" (GIV) estimation; new coverage (based on the author's own recent research) of inverse probability weighting; a more complete framework for estimating treatment effects with panel data, and a firmly established link between econometric approaches to nonlinear panel data and the "generalized estimating equation" literature popular in statistics and other fields. New attention is given to explaining when particular econometric methods can be applied; the goal is not only to tell readers what does work, but why certain "obvious" procedures do not. The numerous included exercises, both theoretical and computer-based, allow the reader to extend methods covered in the text and discover new insights.

A Mathematical Introduction

A Research Tool

Statistical and Optimization Perspectives Workshop, SLSFS 2005 Bohinj, Slovenia, February 23–25, 2005, Revised Selected Papers

Best Practices and Modern Methods

Data Analysis Using the Method of Least Squares

Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences

When testing for the equality of regression slopes based on ordinary least squares (OLS) estimation, extant research has shown that the standard F performs poorly when the critical assumption of homoscedasticity is violated, resulting in increased Type I error rates and reduced statistical power (Box, 1954; DeShon & Alexander, 1996; Wilcox, 1997). Overton (2001) recommended weighted least squares estimation, demonstrating that it outperformed OLS and performed comparably to various statistical approximations. However, Overton's method was limited to two groups. In this study, a generalization of Overton's method is described. Then, using a Monte Carlo simulation, its performance was compared to three alternative weight estimators and three other methods. The results suggest that the generalization provides power levels comparable to the other methods without sacrificing control of Type I error rates. Moreover, in contrast to the statistical approximations, the generalization (a) is computationally simple, (b) can be conducted in commonly available statistical software, and (c) permits post hoc analyses. Various unique findings are discussed. In addition, implications for theory and practice in psychology and future research directions are discussed.

This bestseller will help you learn regression-analysis methods that you can apply to real-life problems. It highlights the role of the computer in contemporary statistics with numerous printouts and exercises that you can solve using the computer. The authors continue to emphasize model development, the intuitive logic and assumptions that underlie the techniques covered, the purposes, advantages, and disadvantages of the techniques, and valid interpretations of those techniques.

Drawing on the authors' substantial expertise in modeling longitudinal and clustered data, Quasi-Least Squares Regression provides a thorough treatment of quasi-least squares (QLS) regression—a computational approach for the estimation of correlation parameters within the framework of generalized estimating equations (GEEs). The authors present a detailed evaluation of QLS methodology, demonstrating the advantages of QLS in comparison with alternative methods. They describe how QLS can be used to extend the application of the traditional GEE approach to the analysis of unequally spaced longitudinal data, familial data, and data with multiple sources of correlation. In some settings, QLS also allows for improved analysis with an unstructured correlation matrix. Special focus is given to goodness-of-fit analysis as well as new strategies for selecting the appropriate working correlation structure for QLS and GEE. A chapter on longitudinal binary data tackles recent issues raised in the statistical literature regarding the appropriateness of semi-parametric methods, such as GEE and QLS, for the analysis of binary data; this chapter includes a comparison with the first-order Markov maximum-likelihood (MARK1ML) approach for binary data. Examples throughout the book demonstrate each topic of discussion. In particular, a fully worked out example leads readers from model building and interpretation to the planning stages for a future study (including sample size calculations). The code provided enables readers to replicate many of the examples in Stata, often with corresponding R, SAS, or MATLAB® code offered in the text or on the book's website.

The essential introduction to the theory and application of linear models—now in a valuable new edition Since most advanced statistical tools are generalizations of the linear model, it is neces-sary to first master the linear model in order to move forward to more advanced concepts. The linear model remains the main tool of the applied statistician and is central to the training of any statistician regardless of whether the focus is applied or theoretical. This completely revised and updated new edition successfully develops the basic theory of linear models for regression, analysis of variance, analysis of covariance, and linear mixed models. Recent advances in the methodology related to linear mixed models, generalized linear models, and the Bayesian linear model are also addressed. Linear Models in Statistics, Second Edition includes full coverage of advanced topics, such as mixed and generalized linear models, Bayesian linear models, two-way models with empty cells, geometry of least squares, vector-matrix calculus, simultaneous inference, and logistic and nonlinear regression. Algebraic, geometrical, frequentist, and Bayesian approaches to both the inference of linear models and the analysis of variance are also illustrated. Through the expansion of relevant material and the inclusion of the latest technological developments in the field, this book provides readers with the theoretical foundation to correctly interpret computer software output as well as effectively use, customize, and understand linear models. This modern Second Edition features: New chapters on Bayesian linear models as well as random and mixed linear models Expanded discussion of two-way models with empty cells Additional sections on the geometry of least squares Updated coverage of simultaneous inference The book is complemented with easy-to-read proofs, real data sets, and an extensive bibliography. A thorough review of the requisite matrix algebra has been addedfor transitional purposes, and numerous theoretical and applied problems have been incorporated with selected answers provided at the end of the book. A related Web site includes additional data sets and SAS® code for all numerical examples. Linear Model in Statistics, Second Edition is a must-have book for courses in statistics, biostatistics, and mathematics at the upper-undergraduate and graduate levels. It is also an invaluable reference for researchers who need to gain a better understanding of regression and analysis of variance.

The Analysis of Spatially Varying Relationships

Generalized Least Squares

Regression Analysis

Theory, Methods and Applications

The SAGE Dictionary of Quantitative Management Research

Tobit Analysis

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.

The technique of regression analysis is used so often in business and economics today that an understanding of its use is necessary for almost everyone engaged in the field. This book will teach you the essential elements of building and understanding regression models in a business/economic context in an intuitive manner. The authors take a non-theoretical treatment that is accessible even if you have a limited statistical background. It is specifically designed to teach the correct use of regression, while advising you of its limitations and teaching about common pitfalls. This book describes exactly how regression models are developed and evaluated —where real data is used, instead of contrived textbook-like problems. Completing this book will allow you to understand and build basic business/economic models using regression analysis. You will be able to interpret the output of those models and you will be able to evaluate the models for accuracy and shortcomings. Even if you never build a model yourself, at some point in your career it is likely that you will find it necessary to interpret one; this book will make that possible. Included are instructions for using Microsoft Excel to build business/economic models using regression analysis with an appendix using screen shots and step-by-step instructions.

*Geographical Weighted Regression (GWR) is a new local modelling technique for analysing spatial analysis. This technique allows local as opposed to global models of relationships to be measured and mapped. This is the first and only book on this technique, offering comprehensive coverage on this new 'hot' topic in spatial analysis. * Provides step-by-step examples of how to use the GWR model using data sets and examples on issues such as house price determinants, educational attainment levels and school performance statistics * Contains a broad discussion of and basic concepts on GWR through to ideas on statistical inference for GWR models * uniquely features accompanying author-written software that allows users to undertake sophisticated and complex forms of GWR within a user-friendly, Windows-based, front-end (see book for details).*

In a conversational tone, Regression & Linear Modeling provides conceptual, user-friendly coverage of the generalized linear model (GLM). Readers will become familiar with applications of ordinary least squares (OLS) regression, binary and multinomial logistic regression, ordinal regression, Poisson regression, and loglinear models. The author returns to certain themes throughout the text, such as testing assumptions, examining data quality, and, where appropriate, nonlinear and non-additive effects modeled within different types of linear models. Available with Perusall—an eBook that makes it easier to prepare for class Perusall is an award-winning eBook platform featuring social annotation tools that allow students and instructors to collaboratively mark up and discuss their SAGE textbook. Backed by research and supported by technological innovations developed at Harvard University, this process of learning through collaborative annotation keeps your students engaged and makes teaching easier and more effective. Learn more.

Applied Regression Analysis and Generalized Linear Models

The SAGE Handbook of Regression Analysis and Causal Inference

The SAGE Encyclopedia of Communication Research Methods

Advanced Econometric Methods

The Encyclopedia of Research Methods in Criminology and Criminal Justice, 2 Volume Set

Theory and Computing

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.

Praise for the Fourth Edition "As with previous editions, the authors have produced a leading textbook on regression." –Journal of the American Statistical Association A comprehensive and up-to-date introduction to the fundamentals of regression analysis Introduction to Linear Regression Analysis, Fifth Edition continues to present both the conventional and less common uses of linear regression in today's cutting-edge scientific research. The authors blend both theory and application to equip readers with an understanding of the basic principles needed to apply regression model-building techniques in various fields of study, including engineering, management, and the health sciences. Following a general introduction to regression modeling, including typical applications, a host of technical tools are outlined such as basic inference procedures, introductory aspects of model adequacy checking, and polynomial regression models and their variations. The book then discusses how transformations and weighted least squares can be used to resolve problems of model inadequacy and also how to deal with influential observations. The Fifth Edition features numerous newly added topics, including: A chapter on regression analysis of time series data that presents the Durbin-Watson test and other techniques for detecting autocorrelation as well as parameter estimation in time series regression models Regression models with random effects in addition to a discussion on subsampling and the importance of the mixed model Tests on individual regression coefficients and subsets of coefficients Examples of current uses of simple linear regression models and the use of multiple regression models for understanding patient satisfaction data. In addition to Minitab, SAS, and S-PLUS, the authors have incorporated JMP and the freely available R software to illustrate the discussed techniques and procedures in this new edition. Numerous exercises have been added throughout, allowing readers to test their understanding of the material. Introduction to Linear Regression Analysis, Fifth Edition is an excellent book for statistics and engineering courses on regression at the upper-undergraduate and graduate levels. The book also serves as a valuable, robust resource for professionals in the fields of engineering, life and biological sciences, and the social sciences.

This book constitutes the thoroughly refereed post-proceedings of the PASCAL (pattern analysis, statistical modelling and computational learning) Statistical and Optimization Perspectives Workshop on Subspace, Latent Structure and Feature Selection techniques, SLSFS 2005.

The 9 revised full papers presented together with 5 invited papers reflect the key approaches that have been developed for subspace identification and feature selection using dimension reduction techniques, subspace methods, random projection methods, among others. Combining a modern, data-analytic perspective with a focus on applications in the social sciences, the Third Edition of Applied Regression Analysis and Generalized Linear Models provides in-depth coverage of regression analysis, generalized linear models, and closely related methods, such as bootstrapping and missing data. Updated throughout, this Third Edition includes new chapters on mixed-effects models for hierarchical and longitudinal data. Although the text is largely accessible to readers with a modest background in statistics and mathematics, author John Fox also presents more advanced material in optional sections and chapters throughout the book. Available with Perusall—an eBook that makes it easier to prepare for class Perusall is an award-winning eBook platform featuring social annotation tools that allow students and instructors to collaboratively mark up and discuss their SAGE textbook. Backed by research and supported by technological innovations developed at Harvard University, this process of learning through collaborative annotation keeps your students engaged and makes teaching easier and more effective. Learn more.

A Beginner’s Guide to Statistics for Criminology and Criminal Justice Using R

Understanding and Building Business and Economic Models Using Excel

Statistical Modeling for Management

Econometrics For Dummies

Linear Regression

Geographically Weighted Regression

Regression analysis is a vitally important statistical tool, with major advancements made by both practical data analysts and statistical theorists. In CLASSICAL AND MODERN REGRESSION WITH APPLICATIONS, Second Edition, Raymond H. Myers provides a solid foundation in classical regression, while introducing modern techniques.

Throughout the text, a broad spectrum of applications are included from the physical sciences, engineering, biology, management, and economics.

Least squares estimation, when used appropriately, is a powerful research tool. A deeper understanding of the regression concepts is essential for achieving optimal benefits from a least squares analysis. This book builds on the fundamentals of statistical methods and provides appropriate concepts that will allow a scientist to use least squares as an effective research tool. Applied Regression Analysis is aimed at the scientist who wishes to gain a working knowledge of regression analysis. The basic purpose of this book is to develop an understanding of least squares and related statistical methods without becoming excessively mathematical. It is the outgrowth of more than 30 years of consulting experience with scientists and many years of teaching an applied regression course to graduate students. Applied Regression Analysis serves as an excellent text for a service course on regression for non-statisticians and as a reference for researchers. It also provides a bridge between a two-semester introduction to statistical methods and a theoretical linear models course. Applied Regression Analysis emphasizes the concepts and the analysis of data sets. It provides a review of the key concepts in simple linear regression, matrix operations, and multiple regression. Methods and criteria for selecting regression variables and geometric interpretation are discussed. Polynomial, trigonometric, analysis of variance, nonlinear, time series, logistic, random effects, and mixed effects models are also discussed. Detailed case studies and exercises based on real data sets are used to reinforce the concepts. The data sets used in the book are available on the Internet.

The aim of this encyclopedia is to provide a comprehensive reference work on scientific and other scholarly research on the quality of life, including health-related quality of life research or also called patient-reported outcomes research. Since the 1960s two overlapping but fairly distinct research communities and traditions have developed concerning ideas about the quality of life, individually and collectively, one with a fairly narrow focus on health-related issues and one with a quite broad focus. In many ways, the central issues of these fields have roots extending to the observations and speculations of ancient philosophers, creating a continuous exploration by diverse explorers in diverse historic and cultural circumstances over several centuries of the qualities of human existence. What we have not had so far is a single, multidimensional reference work connecting the most salient and important contributions to the relevant fields. Entries are organized alphabetically and cover basic concepts, relatively well established facts, lawlike and causal relations, theories, methods, standardized tests, biographic entries on significant figures, organizational profiles, indicators and indexes of qualities of individuals and of communities of diverse sizes, including rural areas, towns, cities, counties, provinces, states, regions, countries and groups of countries.

'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.' - Be 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.

Extracting the Most Information from Experiments

An Alternative to Discriminant Analysis and Ordinary Least Squares Regression Given Limited Dependent Variables

Classical and Modern Regression with Applications

Applied Regression Analysis

Heteroskedasticity in Regression

Learning Statistics with R

Any method of fitting equations to data may be called regression. Such equations are valuable for at least two purposes: making predictions and judging the strength of relationships. Because they provide a way of empirically identifying how a variable is affected by other variables, regression methods have become essential in a wide range of fields, including the social sciences, engineering, medical research and business. Of the various methods of performing regression, least squares is the most widely used. In fact, linear least squares regression is by far the most widely used of any statistical technique. Although nonlinear least squares is covered in an appendix, this book is mainly about linear least squares applied to fit a single equation (as opposed to a system of equations). The writing of this book started in 1982. Since then, various drafts have been used at the University of Toronto for teaching a semester-long course to juniors, seniors and graduate students in a number of fields, including statistics, pharmacology, pharmacology, engineering, economics, forestry and the behavioral sciences. Parts of the book have also been used in a quarter-long course given to Master's and Ph.D. students in public administration, urban planning and engineering at the University of Illinois at Chicago (UIC). This experience and the comments and criticisms from students helped forge the final version.

Develops the full power of the least-squares method Enables engineers and scientists to apply the method to their specific problem Deals with linear as well as with non-linear least-squares, parametric as well as non-parametric methods

Beyond Multiple Linear Regression: Applied Generalized Linear Models and Multilevel Models in R is designed for undergraduate students who have successfully completed a multiple linear regression course, helping them develop an expanded modeling toolkit that includes non-normal responses and correlated structure. Even though there is no mathematical prerequisite, the authors still introduce fairly sophisticated topics such as likelihood theory, zero-inflated Poisson, and parametric bootstrapping in an intuitive and applied manner. The case studies and exercises feature real data and real research questions; thus, most of the data in the textbook comes from collaborative research conducted by the authors and their students, or from student projects. Every chapter features a variety of conceptual exercises, guided exercises, and open-ended exercises using real data. After working through this material, students will develop an expanded toolkit and a greater appreciation for the wider world of data and statistical modeling. A solutions manual for all exercises is available to qualified instructors at the book's website at www.routledge.com, and data sets and Rmd files for all case studies and exercises are available at the authors' GitHub repo (<https://github.com/proback/BeyondMLR>)

This book provides hands-on guidance for researchers and practitioners in criminal justice and criminology to perform statistical analyses and data visualization in the free and open-source software R. It offers a step-by-step guide for beginners to become familiar with the RStudio platform and tidyverse set of packages. This volume will help users master the fundamentals of the R programming language, providing tutorials in each chapter that lay out research questions and hypotheses centering around a real criminal justice dataset, such as data from the National Survey on Drug Use and Health, National Crime Victimization Survey, Youth Risk Behavior Surveillance System, The Monitoring the Future Study, and The National Youth Survey. Users will also learn how to manipulate common sources of agency data, such as calls-for-service (CFS) data. The end of each chapter includes exercises that reinforce the R tutorial examples, designed to help master the software as well as to provide practice on statistical concepts, data analysis, and interpretation of results. The text can be used as a stand-alone guide to learning R or it can be used as a companion guide to an introductory statistics textbook, such as Basic Statistics in Criminal Justice (2020).

Quasi-Least Squares Regression

Beyond Multiple Linear Regression

Subspace, Latent Structure and Feature Selection

A Comparison of Ordinary Least Squares, Weighted Least Squares, and Other Procedures when Testing for the Equality of Regression Slopes with Heteroscedasticity Across Groups

Applied Linear Regression

Generalised Least Squares adopts a concise and mathematically rigorous approach. It will provide an up-to-date self-contained introduction to the unified theory of generalized least squares estimations, adopting a concise and mathematically rigorous approach. The book covers in depth the 'lower and upper bounds approach', pioneered by the first author, which is widely regarded as a very powerful and useful tool for generalized least squares estimation, helping the reader develop their understanding of the theory. The book also contains exercises at the end of each chapter and applications to statistics, econometrics, and biometrics, enabling use for self-study or as a course text.

R is a language and environment for data analysis and graphics. It may be considered an implementation of S, an award-winning language initially developed at Bell Laboratories since the late 1970s. The R project was initiated by Robert Gentleman and Ross Ihaka at the University of Auckland, New Zealand, in the early 1990s, and has been developed by an international team since mid-1997. Historically, econometricians have favored other computing environments, some of which have fallen by the wayside, and also a variety of packages with canned routines. We believe that R has great potential in econometrics, both for research and for teaching. There are at least three reasons for this: (1) R is mostly platform independent and runs on Microsoft Windows, the Mac family of operating systems, and various flavors of Unix/Linux, and also on some more exotic platforms. (2) R is free software that can be downloaded and installed at no cost from a family of mirror sites around the globe, the Comprehensive R Archive Network (CRAN); hence students can easily install it on their own machines. (3) R is open-source software, so that the full source code is available and can be inspected to understand what it really does, learn from it, and modify and extend it. We also like to think that platform independence and the open-source philosophy make R an ideal environment for reproducible econometric research.

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.

This classic text on multiple regression is noted for its nonmathematical, applied, and data-analytic approach. Readers profit from its verbal-conceptual exposition and frequent use of examples. The applied emphasis provides clear illustrations of the principles and provides worked examples of the types of applications that are possible. Researchers learn how to specify regression models that directly address their research questions. An overview of the fundamental ideas of multiple regression and a review of bivariate correlation and regression and other elementary statistical concepts provide a strong foundation for understanding the rest of the text. The third edition features an increased emphasis on graphics and the use of confidence intervals and effect size measures, and an accompanying CD with data for most of the numerical examples along with the computer code for SPSS, SAS, and SYSTAT. Applied Multiple Regression serves as both a textbook for graduate students and as a reference tool for researchers in psychology, education, health sciences, communications, business, sociology, political science, anthropology, and economics. An introductory knowledge of statistics is required. Self-standing chapters minimize the need for researchers to refer to previous chapters.

Analyzing Multilevel Data: An Empirical Comparison of Parameter Estimates of Hierarchical Linear Modeling and Ordinary Least Squares Regression

Encyclopedia of Quality of Life and Well-Being Research

An Introductory Guide

Linear Models in Statistics

Detection and Correction

Properties of Ordinary Least Squares Estimators in Regression Models with Non-spherical Disturbances

Intuitively understand regression analysis by focusing on concepts and graphs rather than equations and formulas. I use everyday language so you can grasp regression at a deeper level. Progress from a beginner to a skilled practitioner. Learn practical tips for performing your analysis and interpreting the results. Feel confident that you're analyzing your data properly and able to trust your results. Know that you can detect and correct problems that arise. Includes access to free downloadable datasets for the examples. Learn the following: How regression works and when to use it. Selecting the correct type of regression analysis. Specifying the best model. Understanding main effects, interaction effects, and modeling curvature. Interpreting the results. Assessing the fit of the model. Generating predictions and evaluating their precision. Checking the assumptions and resolving issues. Examples of different types of regression analyses.

How college affects students is a central phenomenon of interest in higher education research. However, a major problem in assessing the influence of college on students is the methodological dilemmas due the multilevel nature of the majority of data used in such studies. Historically, higher education researchers have utilized the traditional linear model, ordinary least squares (OLS) regression, to aid in their investigation of the influence of college on students. This traditional approach ignores the multilevel nature of the data which can cause a multitude of conceptual and statistical problems. Therefore, a statistical technique, such as hierarchical linear modeling (HLM), that takes into account the multilevel nature of the organization of higher education is need. The purpose of this study is to determine whether conclusions regarding the influences on college seniors' critical thinking ability would differ depending upon the type of analysis, OLS regression or the more appropriate HLM analysis. In this study, the influences on seniors' critical thinking ability is examined three ways— (1) an OLS regression with the student as the unit of analysis, (2) an OLS regression with the institution as the unit of analysis, and (3) a three-level HLM with student attributes modeled at Level 1, characteristics of the major modeled at Level 2, and characteristics of the institution modeled at Level 3— in order to illustrate the differing conclusions one may come to depending upon the type of analysis chosen. Overall, evidence from this sample suggest that one would come to substantively different conclusions regarding the influences on students' perceived critical thinking ability depending upon the type of analysis chosen, especially in regards to the effects of the institutional characteristics. Specially, the results from the institution-level OLS regression cannot be considered reliable. Findings from the institution-level OLS regression model differed substantially from the results of the other two analyses. The results from the student-level OLS regression analysis can only be partially trusted. The student-level OLS regression produced results comparable to the HLM estimates for the lower-level variables but substantively different results for the institutional characteristics. Thus, when institutional characteristics are of prime importance, one should perform an HLM analysis in order to be confident in the results obtained for the institutional effects.

The Encyclopedia of RESEARCH METHODS IN CRIMINOLOGY & CRIMINAL JUSTICE The most comprehensive reference work on research designs and methods in criminology and criminal justice This Encyclopedia of Research Methods in Criminology and Criminal Justice offers a comprehensive survey of research methodologies and statistical techniques that are popular in criminology and criminal justice systems across the globe. With contributions from leading scholars and practitioners in the field, it offers a clear insight into the techniques that are currently in use to answer the pressing questions in criminology and criminal justice. The Encyclopedia contains essential information from a diverse pool of authors about research designs grounded in both qualitative and quantitative approaches. It includes information on popular datasets and leading resources of government statistics. In addition, the contributors cover a wide range of topics such as: the most current research on the link between guns and crime, rational choice theory, and the use of technology like geospatial mapping as a crime reduction tool. This invaluable reference work: Offers a comprehensive survey of international research designs, methods, and statistical techniques Includes contributions from leading figures in the field Contains data on criminology and criminal justice from Cambridge to Chicago Presents information on capital punishment, domestic violence, crime science, and much more Helps us to better understand, explain, and prevent crime Written for undergraduate students, graduate students, and researchers, The Encyclopedia of Research Methods in Criminology and Criminal Justice is the first reference work of its kind to offer a comprehensive

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