

spss for regression analysis

SPSS for Regression Analysis: A Comprehensive Guide

Introduction:

Are you drowning in data and struggling to uncover meaningful relationships? Regression analysis, a powerful statistical technique, can help you unearth hidden patterns and predict future outcomes. But navigating the complexities of performing regression analysis, especially within the Statistical Package for the Social Sciences (SPSS), can feel daunting. This comprehensive guide provides a step-by-step walkthrough of performing various regression analyses in SPSS, from simple linear regression to more advanced techniques. We'll demystify the process, explain the underlying principles, and equip you with the knowledge to interpret your results confidently. Whether you're a seasoned researcher or a student just beginning your statistical journey, this guide will empower you to leverage the power of SPSS for insightful regression analysis.

1. Understanding Regression Analysis: The Fundamentals

Regression analysis aims to model the relationship between a dependent variable (the outcome you're trying to predict) and one or more independent variables (predictors). The simplest form, linear regression, assumes a linear relationship, meaning the change in the dependent variable is proportional to the change in the independent variable(s). However, SPSS offers various regression models to handle different data types and complexities, including:

Simple Linear Regression: One independent variable predicting one dependent variable.

Multiple Linear Regression: Multiple independent variables predicting one dependent variable.

Polynomial Regression: Modeling non-linear relationships using polynomial terms.

Logistic Regression: Predicting a binary outcome (e.g., success/failure, yes/no).

Nonlinear Regression: Modeling relationships that aren't linear.

Understanding the assumptions of each regression model is crucial for accurate and reliable results. These assumptions typically include linearity, independence of errors, homoscedasticity (constant variance of errors), and normality of errors. Violating these assumptions can lead to biased or inefficient estimates. SPSS provides tools to assess these assumptions, which we'll explore later.

2. Preparing Your Data for SPSS Regression Analysis

Before diving into the analysis, ensure your data is properly prepared. This includes:

Data Entry: Accurate and consistent data entry is paramount. Use clear variable names and consistent coding schemes.

Data Cleaning: Identify and handle missing data. SPSS offers various methods for imputation (replacing missing values) or exclusion of cases with missing data. Choose the method most appropriate for your data and research question. Outliers, data points significantly different from the rest, should also be carefully examined and potentially addressed.

Variable Types: Ensure your variables are assigned the correct data types (e.g., numeric, categorical). SPSS requires specific variable types for different regression models. Categorical variables might need to be recoded or dummy-coded before analysis.

Variable Selection: Carefully consider which independent variables to include in your model. Include only variables theoretically relevant to your dependent variable. Over-inclusion can lead to overfitting, while under-inclusion can lead to omitted variable bias.

3. Performing Regression Analysis in SPSS: A Step-by-Step Guide

Let's walk through performing a simple linear regression in SPSS:

1. Open your data: Import your data file into SPSS.
2. Navigate to Analyze > Regression > Linear: This opens the Linear Regression dialog box.
3. Select Dependent and Independent Variables: Move the dependent variable into the "Dependent" box and the independent variable(s) into the "Independent(s)" box.
4. Optional settings: Explore the options available, such as:

Statistics: Select descriptive statistics, model fit statistics (R-squared, adjusted R-squared), and residual diagnostics.

Plots: Request residual plots to assess the assumptions of regression.

Save: Save predicted values, residuals, and standardized residuals for further analysis.

1. Run the analysis: Click "OK" to run the regression analysis.

SPSS will generate output containing various tables summarizing the results. We'll interpret these results in the next section. The process is largely similar for multiple linear regression, logistic regression, and other models, with adjustments to the variable selection and options.

4. Interpreting SPSS Regression Output: Understanding the Results

The SPSS output provides several key pieces of information:

Model Summary: This table presents the R-squared value, indicating the proportion of variance in the dependent variable explained by the independent variable(s). Adjusted R-squared is a more conservative measure, especially useful when comparing models with different numbers of independent variables.

ANOVA table: This table tests the overall significance of the model. A significant F-statistic indicates that the model as a whole is a good fit for the data.

Coefficients table: This table contains the regression coefficients (B), their standard errors, t-statistics, and p-values. The B coefficient represents the change in the dependent variable for a one-unit change in the independent variable, holding other variables constant. The p-value indicates the statistical significance of each coefficient.

Residual plots: Examine these plots to assess the assumptions of linearity, homoscedasticity, and normality of errors. Deviations from these assumptions suggest potential problems with the model.

5. Advanced Regression Techniques in SPSS

SPSS offers many advanced regression techniques to handle more complex data and research questions. These include:

Hierarchical Regression: Allows testing the unique contribution of independent variables entered at different steps.

Stepwise Regression: A method for selecting the best subset of independent variables based on statistical criteria.

Curvilinear Regression: Accounts for non-linear relationships between variables.

Moderated Regression: Explores how the relationship between independent and dependent variables changes depending on the value of a moderator variable.

Mediation Analysis: Investigates whether the effect of an independent variable on a dependent variable is mediated by a third variable.

Mastering these advanced techniques requires a deeper understanding of statistical theory and careful consideration of your research question.

6. Choosing the Right Regression Model

Selecting the appropriate regression model depends on several factors:

Type of dependent variable: Continuous, binary, or count data require different models (linear, logistic, Poisson regression, respectively).

Nature of relationships: Linear or non-linear relationships necessitate different approaches.

Number of independent variables: Multiple independent variables call for multiple regression techniques.

Research question: The specific question you're trying to answer will guide your model selection.

Careful consideration of these factors will ensure you use the most appropriate regression model for your data and research.

7. Reporting Your Regression Results

When reporting your regression findings, be clear and concise. Include:

Description of the model: Specify the type of regression used and the variables included.

Model fit statistics: Report R-squared, adjusted R-squared, and the F-statistic.

Regression coefficients: Report the B coefficients, standard errors, t-statistics, and p-values for each independent variable.

Interpretation of results: Clearly explain the meaning of your findings in the context of your research question.

Limitations: Acknowledge any limitations of your analysis, such as violations of assumptions or potential biases.

Clear and accurate reporting is crucial for effective communication of your research.

8. Beyond the Basics: Extending Your SPSS Skills

To further enhance your skills, consider:

Online courses: Numerous online platforms offer SPSS training.

Workshops and seminars: Attend workshops to learn from experts.

Statistical textbooks: Refer to statistical textbooks for in-depth understanding.

Practice: The more you practice, the more proficient you'll become.

Continuous learning is key to mastering SPSS and regression analysis.

A Sample SPSS Regression Analysis Report Outline:

Title: Investigating the Relationship Between Income and Spending Habits Using SPSS Regression Analysis

I. Introduction:

Briefly introduce regression analysis.

State the research question.

Describe the data used (dataset name, sample size).

II. Methodology:

Explain the chosen regression model (e.g., multiple linear regression).

Describe variable selection (dependent and independent variables).

Outline data preparation steps (handling missing data, etc.).

III. Results:

Present the model summary (R-squared, adjusted R-squared).

Present the ANOVA table (overall significance).

Present the coefficients table (B, SE, t, p-values for each predictor).

Discuss the interpretation of coefficients.

Address any issues regarding model assumptions (based on residual plots).

IV. Discussion:

Summarize the key findings.

Discuss the implications of the findings in relation to the research question.

Acknowledge limitations of the study.

Suggest avenues for future research.

V. Conclusion:

Briefly restate the main findings.

Highlight the contribution of the study.

(Detailed explanation of each section would follow in a separate document.)

9 Unique FAQs about SPSS for Regression Analysis:

1. What is the difference between simple and multiple linear regression in SPSS? Simple linear regression uses one predictor variable, while multiple linear regression uses two or more.

1. How do I handle missing data in SPSS before performing regression analysis? SPSS offers various methods, including listwise deletion, pairwise deletion, and imputation techniques. The best method depends on the extent and pattern of missing data.
1. What are the key assumptions of linear regression, and how can I check them in SPSS? Linearity, independence of errors, homoscedasticity, and normality of errors. Check them using residual plots and tests in SPSS.
1. How do I interpret the R-squared value in SPSS regression output? R-squared represents the proportion of variance in the dependent variable explained by the independent variables. A higher R-squared indicates a better fit.
1. What is the difference between standardized and unstandardized regression coefficients?
Standardized coefficients represent the change in the dependent variable for a one standard deviation change in the independent variable, allowing for comparison across variables with different scales. Unstandardized coefficients are in the original units of measurement.
1. How do I perform logistic regression in SPSS? The process is similar to linear regression, but the dependent variable is binary. SPSS uses a logit link function to model the probability of the outcome.
1. How can I detect and address outliers in my data before running a regression analysis in SPSS? Use boxplots, scatterplots, and Z-scores to identify outliers. Consider transforming the data or removing outliers depending on the severity and potential cause.
1. What are the limitations of using stepwise regression in SPSS? Stepwise regression can lead to unstable models and may not always select the most theoretically meaningful variables.

1. How can I create interaction terms in SPSS for regression analysis? Create a new variable that is the product of the two variables you want to interact. Include this new interaction term in your regression model.

9 Related Articles:

1. Interpreting Regression Coefficients in SPSS: A detailed guide on understanding and reporting regression coefficients.
1. Handling Missing Data in SPSS for Regression: Different methods for dealing with missing data and their implications.
1. Assumptions of Linear Regression and How to Check Them: A thorough examination of regression assumptions and diagnostics in SPSS.
1. Multiple Linear Regression in SPSS: A Practical Tutorial: A step-by-step guide to performing multiple linear regression.
1. Logistic Regression Analysis in SPSS: Predicting Binary Outcomes: A guide on applying logistic regression to binary dependent variables.
1. Advanced Regression Techniques in SPSS: Beyond the Basics: An exploration of more sophisticated regression methods, such as hierarchical and stepwise regression.
1. Using SPSS for Mediation Analysis: A tutorial on performing mediation analysis using SPSS.

1. Detecting and Handling Outliers in Regression Analysis: Methods for identifying and addressing influential outliers in your dataset.

1. Reporting Regression Results: Best Practices for Clarity and Accuracy: Advice on effectively communicating your regression findings.

spss for regression analysis: Regression Analysis by Example Samprit Chatterjee, Ali S. Hadi, 2015-02-25 Praise for the Fourth Edition: This book is . . . an excellent source of examples for regression analysis. It has been and still is readily readable and understandable. —Journal of the American Statistical Association Regression analysis is a conceptually simple method for investigating relationships among variables. Carrying out a successful application of regression analysis, however, requires a balance of theoretical results, empirical rules, and subjective judgment. Regression Analysis by Example, Fifth Edition has been expanded and thoroughly updated to reflect recent advances in the field. The emphasis continues to be on exploratory data analysis rather than statistical theory. The book offers in-depth treatment of regression diagnostics, transformation, multicollinearity, logistic regression, and robust regression. The book now includes a new chapter on the detection and correction of multicollinearity, while also showcasing the use of the discussed methods on newly added data sets from the fields of engineering, medicine, and business. The Fifth Edition also explores additional topics, including: Surrogate ridge regression Fitting nonlinear models Errors in variables ANOVA for designed experiments Methods of regression analysis are clearly demonstrated, and examples containing the types of irregularities commonly encountered in the real world are provided. Each example isolates one or two techniques and features detailed discussions, the required assumptions, and the evaluated success of each technique. Additionally, methods described throughout the book can be carried out with most of the currently available statistical software packages, such as the software package R. Regression Analysis by Example, Fifth Edition is suitable for anyone with an understanding of elementary statistics.

spss for regression analysis: SPSS Statistics for Data Analysis and Visualization Keith McCormick, Jesus Salcedo, 2017-05-01 Dive deeper into SPSS Statistics for more efficient, accurate, and sophisticated data analysis and visualization SPSS Statistics for Data Analysis and Visualization goes beyond the basics of SPSS Statistics to show you advanced techniques that exploit the full capabilities of SPSS. The authors explain when and why to use each technique, and then walk you through the execution with a pragmatic, nuts and bolts example. Coverage includes extensive, in-depth discussion of advanced statistical techniques, data visualization, predictive analytics, and SPSS programming, including automation and integration with other languages like R and Python. You'll learn the best methods to power through an analysis, with more efficient, elegant, and accurate code. IBM SPSS Statistics is complex: true mastery requires a deep understanding of statistical theory, the user interface, and programming. Most users don't encounter all of the methods SPSS offers, leaving many little-known modules undiscovered. This book walks you through tools you may have never noticed, and shows you how they can be used to streamline your workflow

and enable you to produce more accurate results. Conduct a more efficient and accurate analysis Display complex relationships and create better visualizations Model complex interactions and master predictive analytics Integrate R and Python with SPSS Statistics for more efficient, more powerful code These hidden tools can help you produce charts that simply wouldn't be possible any other way, and the support for other programming languages gives you better options for solving complex problems. If you're ready to take advantage of everything this powerful software package has to offer, SPSS Statistics for Data Analysis and Visualization is the expert-led training you need.

spss for regression analysis: *Regression Analysis and Linear Models* Richard B. Darlington, Andrew F. Hayes, 2016-08-22 Emphasizing conceptual understanding over mathematics, this user-friendly text introduces linear regression analysis to students and researchers across the social, behavioral, consumer, and health sciences. Coverage includes model construction and estimation, quantification and measurement of multivariate and partial associations, statistical control, group comparisons, moderation analysis, mediation and path analysis, and regression diagnostics, among other important topics. Engaging worked-through examples demonstrate each technique, accompanied by helpful advice and cautions. The use of SPSS, SAS, and STATA is emphasized, with an appendix on regression analysis using R. The companion website (www.afhayes.com) provides datasets for the book's examples as well as the RLM macro for SPSS and SAS. Pedagogical Features: *Chapters include SPSS, SAS, or STATA code pertinent to the analyses described, with each distinctively formatted for easy identification. *An appendix documents the RLM macro, which facilitates computations for estimating and probing interactions, dominance analysis, heteroscedasticity-consistent standard errors, and linear spline regression, among other analyses. *Students are guided to practice what they learn in each chapter using datasets provided online. *Addresses topics not usually covered, such as ways to measure a variable's importance, coding systems for representing categorical variables, causation, and myths about testing interaction.

spss for regression analysis: *A Quick and Easy Guide in Using SPSS for Linear Regression Analysis* Jurex Gallo, 2019-08 This book is ideal for students and researchers who are new to SPSS and need a quick and easy guide in conducting linear regression analysis using the software. The book not only provides a step by step procedure in analyzing data using SPSS but also give insights on how to interpret results and incorporate the analysis into a research manuscript or report. This guide is helpful to researchers who are conducting research investigations in the field of education, psychology, sociology, engineering etc.

spss for regression analysis: *Multivariate Methods and Forecasting with IBM® SPSS® Statistics* Abdulkader Aljandali, 2017-07-06 This is the second of a two-part guide to quantitative analysis using the IBM SPSS Statistics software package; this volume focuses on multivariate statistical methods and advanced forecasting techniques. More often than not, regression models involve more than one independent variable. For example, forecasting methods are commonly applied to aggregates such as inflation rates, unemployment, exchange rates, etc., that have complex relationships with determining variables. This book introduces multivariate regression models and provides examples to help understand theory underpinning the model. The book presents the fundamentals of multivariate regression and then moves on to examine several related techniques that have application in business-orientated fields such as logistic and multinomial regression. Forecasting tools such as the Box-Jenkins approach to time series modeling are introduced, as well as exponential smoothing and naïve techniques. This part also covers hot topics such as Factor Analysis, Discriminant Analysis and Multidimensional Scaling (MDS).

spss for regression analysis: *Essential First Steps to Data Analysis* Carol S. Parke, 2012-12-13 Carol S. Parke's *Essential First Steps to Data Analysis: Scenario-Based Examples Using SPSS* provides instruction and guidance on preparing quantitative data sets prior to answering a study's research questions. Such preparation may involve data management and manipulation tasks, data organization, structural changes to the data files, or conducting preliminary analysis. Twelve research-based scenarios are used to present the content. Each scenario tells the story of a researcher who thoroughly examined their data and the decisions they made along the way. The

scenario begins with a description of the researcher's study and his/her data file(s), then describes the issues the researcher must address, explains why they are important, shows how SPSS was used to address the issues and prepare data, and shares the researcher's reflections and any additional decision-making. Finally, each scenario ends with the researcher's written summary of the procedures and outcomes from the initial data preparation or analysis.

spss for regression analysis: *Using SPSS for Windows* Susan B. Gerber, Kristin Voelkl Finn, 2006-01-27 The second edition of this popular guide demonstrates the process of entering and analyzing data using the latest version of SPSS (12.0), and is also appropriate for those using earlier versions of SPSS. The book is easy to follow because all procedures are outlined in a step-by-step format designed for the novice user. Students are introduced to the rationale of statistical tests and detailed explanations of results are given through clearly annotated examples of SPSS output. Topics covered range from descriptive statistics through multiple regression analysis. In addition, this guide includes topics not typically covered in other books such as probability theory, interaction effects in analysis of variance, factor analysis, and scale reliability. Chapter exercises reinforce the text examples and may be performed for further practice, for homework assignments, or in computer laboratory sessions. This book can be used in two ways: as a stand-alone manual for students wishing to learn data analysis techniques using SPSS for Windows, or in research and statistics courses to be used with a basic statistics text. The book provides hands-on experience with actual data sets, helps students choose appropriate statistical tests, illustrates the meaning of results, and provides exercises to be completed for further practice or as homework assignments. Susan B. Gerber, Ph.D. is Research Assistant Professor of Education at State University of New York at Buffalo. She is director of the Educational Technology program and holds degrees in Statistics and Educational Psychology. Kristin Voelkl Finn, Ph.D. is Assistant Professor of Education at Canisius College. She teaches graduate courses in research methodology and conducts research on adolescent problem behavior.

spss for regression analysis: *A Conceptual Guide to Statistics Using SPSS* Elliot T. Berkman, Steven P. Reise, 2012 This book helps students develop a conceptual understanding of a variety of statistical tests by linking the statistics with the computational steps and output from SPSS. Learning how statistical ideas map onto computation in SPSS will help students build a better understanding of both. For example, seeing exactly how the concept of variance is used in SPSS-how it is converted into a number based on real data, which other concepts it is associated with, and where it appears in various statistical tests-will not only help students understand how to use statistical tests in SPSS and how to interpret their output, but will also teach them about the concept of variance itself. Each chapter begins with a student-friendly explanation of the concept behind each statistical test and how the test relates to that concept. The authors then walk through the steps to compute the test in SPSS and the output, pointing out wherever possible how the SPSS procedure and output connects back to the conceptual underpinnings of the test. Each of the steps is accompanied by annotated screen shots from SPSS, and relevant components of output are highlighted in both the text and in the figures. Sections explain the conceptual machinery underlying the statistical tests. In contrast to merely presenting the equations for computing the statistic, these sections describe the idea behind each test in plain language and help students make the connection between the ideas and SPSS procedures. These include extensive treatment of custom hypothesis testing in ANOVA, MANOVA, ANCOVA, and regression, and an entire chapter on the advanced matrix algebra functions available only through syntax in SPSS. The book will be appropriate for both advanced undergraduate and graduate level courses in statistics.

spss for regression analysis: *Data Analysis in Management with SPSS Software* J.P. Verma, 2012-12-13 This book provides readers with a greater understanding of a variety of statistical techniques along with the procedure to use the most popular statistical software package SPSS. It strengthens the intuitive understanding of the material, thereby increasing the ability to successfully analyze data in the future. The book provides more control in the analysis of data so that readers can apply the techniques to a broader spectrum of research problems. This book focuses on providing

readers with the knowledge and skills needed to carry out research in management, humanities, social and behavioural sciences by using SPSS.

spss for regression analysis: SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics Daniel J. Denis, 2018-09-25 Enables readers to start doing actual data analysis fast for a truly hands-on learning experience This concise and very easy-to-use primer introduces readers to a host of computational tools useful for making sense out of data, whether that data come from the social, behavioral, or natural sciences. The book places great emphasis on both data analysis and drawing conclusions from empirical observations. It also provides formulas where needed in many places, while always remaining focused on concepts rather than mathematical abstraction. SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics offers a variety of popular statistical analyses and data management tasks using SPSS that readers can immediately apply as needed for their own research, and emphasizes many helpful computational tools used in the discovery of empirical patterns. The book begins with a review of essential statistical principles before introducing readers to SPSS. The book then goes on to offer chapters on: Exploratory Data Analysis, Basic Statistics, and Visual Displays; Data Management in SPSS; Inferential Tests on Correlations, Counts, and Means; Power Analysis and Estimating Sample Size; Analysis of Variance – Fixed and Random Effects; Repeated Measures ANOVA; Simple and Multiple Linear Regression; Logistic Regression; Multivariate Analysis of Variance (MANOVA) and Discriminant Analysis; Principal Components Analysis; Exploratory Factor Analysis; and Non-Parametric Tests. This helpful resource allows readers to: Understand data analysis in practice rather than delving too deeply into abstract mathematical concepts Make use of computational tools used by data analysis professionals. Focus on real-world application to apply concepts from the book to actual research Assuming only minimal, prior knowledge of statistics, SPSS Data Analysis for Univariate, Bivariate, and Multivariate Statistics is an excellent “how-to” book for undergraduate and graduate students alike. This book is also a welcome resource for researchers and professionals who require a quick, go-to source for performing essential statistical analyses and data management tasks.

spss for regression analysis: Data Analysis with SPSS for Survey-based Research Saiyidi Mat Roni, Hadrian Geri Djajadikerta, 2021-06-21 This book is written for research students and early-career researchers to quickly and easily learn how to analyse data using SPSS. It follows commonly used logical steps in data analysis design for research. The book features SPSS screenshots to assist rapid acquisition of the techniques required to process their research data. Rather than using a conventional writing style to discuss fundamentals of statistics, this book focuses directly on the technical aspects of using SPSS to analyse data. This approach allows researchers and research students to spend more time on interpretations and discussions of SPSS outputs, rather than on the mundane task of actually processing their data.

spss for regression analysis: Data Analysis with IBM SPSS Statistics Kenneth Stehlik-Barry, Anthony J. Babinec, 2017-09-22 Master data management & analysis techniques with IBM SPSS Statistics 24 About This Book Leverage the power of IBM SPSS Statistics to perform efficient statistical analysis of your data Choose the right statistical technique to analyze different types of data and build efficient models from your data with ease Overcome any hurdle that you might come across while learning the different SPSS Statistics concepts with clear instructions, tips and tricks Who This Book Is For This book is designed for analysts and researchers who need to work with data to discover meaningful patterns but do not have the time (or inclination) to become programmers. We assume a foundational understanding of statistics such as one would learn in a basic course or two on statistical techniques and methods. What You Will Learn Install and set up SPSS to create a working environment for analytics Techniques for exploring data visually and statistically, assessing data quality and addressing issues related to missing data How to import different kinds of data and work with it Organize data for analytical purposes (create new data elements, sampling, weighting, subsetting, and restructure your data) Discover basic relationships among data elements (bivariate data patterns, differences in means, correlations) Explore multivariate relationships Leverage the offerings to draw accurate insights from your research, and

benefit your decision-making In Detail SPSS Statistics is a software package used for logical batched and non-batched statistical analysis. Analytical tools such as SPSS can readily provide even a novice user with an overwhelming amount of information and a broad range of options for analyzing patterns in the data. The journey starts with installing and configuring SPSS Statistics for first use and exploring the data to understand its potential (as well as its limitations). Use the right statistical analysis technique such as regression, classification and more, and analyze your data in the best possible manner. Work with graphs and charts to visualize your findings. With this information in hand, the discovery of patterns within the data can be undertaken. Finally, the high level objective of developing predictive models that can be applied to other situations will be addressed. By the end of this book, you will have a firm understanding of the various statistical analysis techniques offered by SPSS Statistics, and be able to master its use for data analysis with ease. Style and approach Provides a practical orientation to understanding a set of data and examining the key relationships among the data elements. Shows useful visualizations to enhance understanding and interpretation. Outlines a roadmap that focuses the process so decision regarding how to proceed can be made easily.

spss for regression analysis: *IBM SPSS Statistics 27 Step by Step* Darren George, Paul Mallery, 2021-12-29 IBM SPSS Statistics 27 Step by Step: A Simple Guide and Reference, seventeenth edition, takes a straightforward, step-by-step approach that makes SPSS software clear to beginners and experienced researchers alike. Extensive use of four-color screen shots, clear writing, and step-by-step boxes guide readers through the program. Output for each procedure is explained and illustrated, and every output term is defined. Exercises at the end of each chapter support students by providing additional opportunities to practice using SPSS. This book covers the basics of statistical analysis and addresses more advanced topics such as multidimensional scaling, factor analysis, discriminant analysis, measures of internal consistency, MANOVA (between- and within-subjects), cluster analysis, Log-linear models, logistic regression, and a chapter describing residuals. The end sections include a description of data files used in exercises, an exhaustive glossary, suggestions for further reading, and a comprehensive index. IBM SPSS Statistics 27 Step by Step is distributed in 85 countries, has been an academic best seller through most of the earlier editions, and has proved an invaluable aid to thousands of researchers and students. New to this edition: Screenshots, explanations, and step-by-step boxes have been fully updated to reflect SPSS 27 A new chapter on a priori power analysis helps researchers determine the sample size needed for their research before starting data collection.

spss for regression analysis: *Intermediate Statistics Using SPSS* Herschel Knapp, 2017-09-14 What statistical test should I use for this kind of data? How do I set up the data? What parameters should I specify when ordering the test? How do I interpret the results? Herschel Knapp's friendly and approachable guide to real-world statistics answers these questions. *Intermediate Statistics Using SPSS* is not about abstract statistical theory or the derivation or memorization of statistical formulas—it is about applied statistics. With jargon-free language and clear processing instructions, this text covers the most common statistical functions—from basic to more advanced. Practical exercises at the conclusion of each chapter offer students an opportunity to process viable data sets, write cohesive abstracts in APA style, and build a thorough comprehension of the statistical process. Students will learn by doing with this truly practical approach to statistics.

spss for regression analysis: *Regression with Dummy Variables* Melissa A. Hardy, 1993-02-25 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.

spss for regression analysis: Applications of Regression Models in Epidemiology Erick Suárez, Cynthia M. Pérez, Roberto Rivera, Melissa N. Martínez, 2017-02-28 A one-stop guide for public health students and practitioners learning the applications of classical regression models in epidemiology This book is written for public health professionals and students interested in applying regression models in the field of epidemiology. The academic material is usually covered in public health courses including (i) Applied Regression Analysis, (ii) Advanced Epidemiology, and (iii) Statistical Computing. The book is composed of 13 chapters, including an introduction chapter that covers basic concepts of statistics and probability. Among the topics covered are linear regression model, polynomial regression model, weighted least squares, methods for selecting the best regression equation, and generalized linear models and their applications to different epidemiological study designs. An example is provided in each chapter that applies the theoretical aspects presented in that chapter. In addition, exercises are included and the final chapter is devoted to the solutions of these academic exercises with answers in all of the major statistical software packages, including STATA, SAS, SPSS, and R. It is assumed that readers of this book have a basic course in biostatistics, epidemiology, and introductory calculus. The book will be of interest to anyone looking to understand the statistical fundamentals to support quantitative research in public health. In addition, this book:

- Is based on the authors' course notes from 20 years teaching regression modeling in public health courses
- Provides exercises at the end of each chapter
- Contains a solutions chapter with answers in STATA, SAS, SPSS, and R
- Provides real-world public health applications of the theoretical aspects contained in the chapters

Applications of Regression Models in Epidemiology is a reference for graduate students in public health and public health practitioners. ERICK SUÁREZ is a Professor of the Department of Biostatistics and Epidemiology at the University of Puerto Rico School of Public Health. He received a Ph.D. degree in Medical Statistics from the London School of Hygiene and Tropical Medicine. He has 29 years of experience teaching biostatistics. CYNTHIA M. PÉREZ is a Professor of the Department of Biostatistics and Epidemiology at the University of Puerto Rico School of Public Health. She received an M.S. degree in Statistics and a Ph.D. degree in Epidemiology from Purdue University. She has 22 years of experience teaching epidemiology and biostatistics. ROBERTO RIVERA is an Associate Professor at the College of Business at the University of Puerto Rico at Mayaguez. He received a Ph.D. degree in Statistics from the University of California in Santa Barbara. He has more than five years of experience teaching statistics courses at the undergraduate and graduate levels. MELISSA N. MARTÍNEZ is an Account Supervisor at Havas Media International. She holds an MPH in Biostatistics from the University of Puerto Rico and an MSBA from the National University in San Diego, California. For the past seven years, she has been performing analyses for the biomedical research and media advertising fields.

spss for regression analysis: Performing Data Analysis Using IBM SPSS Lawrence S. Meyers, Glenn C. Gamst, A. J. Guarino, 2013-08-12 Features easy-to-follow insight and clear guidelines to perform data analysis using IBM SPSS® **Performing Data Analysis Using IBM SPSS®** uniquely addresses the presented statistical procedures with an example problem, detailed analysis, and the related data sets. Data entry procedures, variable naming, and step-by-step instructions for all analyses are provided in addition to IBM SPSS point-and-click methods, including details on how to view and manipulate output. Designed as a user's guide for students and other interested readers to perform statistical data analysis with IBM SPSS, this book addresses the needs, level of sophistication, and interest in introductory statistical methodology on the part of readers in social and behavioral science, business, health-related, and education programs. Each chapter of **Performing Data Analysis Using IBM SPSS** covers a particular statistical procedure and offers the following: an example problem or analysis goal, together with a data set; IBM SPSS analysis with step-by-step analysis setup and accompanying screen shots; and IBM SPSS output with screen shots and narrative on how to read or interpret the results of the analysis. The book provides in-depth chapter coverage of: IBM SPSS statistical output Descriptive statistics procedures Score distribution

assumption evaluations Bivariate correlation Regressing (predicting) quantitative and categorical variables Survival analysis t Test ANOVA and ANCOVA Multivariate group differences Multidimensional scaling Cluster analysis Nonparametric procedures for frequency data Performing Data Analysis Using IBM SPSS is an excellent text for upper-undergraduate and graduate-level students in courses on social, behavioral, and health sciences as well as secondary education, research design, and statistics. Also an excellent reference, the book is ideal for professionals and researchers in the social, behavioral, and health sciences; applied statisticians; and practitioners working in industry.

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spss for regression analysis: Categorical Data Analysis With Sas and Spss Applications

Bayo Lawal, H. Bayo Lawal, 2003-10-17 This book covers the fundamental aspects of categorical data analysis with an emphasis on how to implement the models used in the book using SAS and SPSS. This is accomplished through the frequent use of examples, with relevant codes and instructions, that are closely related to the problems in the text. Concepts are explained in detail so that students can reproduce similar results on their own. Beginning with chapter two, exercises at the end of each chapter further strengthen students' understanding of the concepts by requiring them to apply some of the ideas expressed in the text in a more advanced capacity. Most of these exercises require intensive use of PC-based statistical software. Numerous tables with results of analyses, including interpretations of the results, further strengthen students' understanding of the material. Categorical Data Analysis With SAS(R) and SPSS Applications features: *detailed programs and outputs of all examples illustrated in the book using SAS(R) 8.02 and SPSS on the book's CD; *detailed coverage of topics often ignored in other books, such as one-way classification (ch. 3), the analysis of doubly classified data (ch. 11), and generalized estimating equations (ch. 12); and *coverage of SAS(R) PROC FREQ, GENMOD, LOGISTIC, PROBIT, and CATMOD, as well as SPSS PROC CROSSTABS, GENLOG, LOGLINEAR, PROBIT, LOGISTIC, NUMREG, and PLUM. This book is ideal for upper-level undergraduate or graduate-level courses on categorical data analysis taught in departments of biostatistics, statistics, epidemiology, psychology, sociology, political science, and education. A prerequisite of one year of calculus and statistics is recommended. The book has been class tested by graduate students in the department of biometry and epidemiology at the Medical University of South Carolina.

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Clearer in-chapter links between the type of data and type of research question that the procedure can answer Updated / additional datasets, exercises, and expanded Companion Website material, including Powerpoint slides for instructors

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