

(Download free ebook) The Multivariate Social Scientist: Introductory Statistics Using Generalized Linear Models

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Graeme D Hutcheson, Nick Sofroniou : The Multivariate Social Scientist: Introductory Statistics Using Generalized Linear Models before purchasing it in order to gage whether or not it would be worth my time, and all praised The Multivariate Social Scientist: Introductory Statistics Using Generalized Linear Models:

4 of 4 people found the following review helpful. An Accessible and Informative Mid-Level Statistics Text

This is a well written book that introduces fairly sophisticated statistical procedures based on the generalized linear model. It does so with a minimum of mathematical development and heavy reliance on verbal exposition. However, as with most textbooks that claim that a first course provides adequate preparation for understanding the material presented, *The Multivariate Social Scientist* will be a time-consuming challenge for readers lacking fairly substantial statistical sophistication. The book would benefit from more liberal use of concrete examples, but this deficiency is troublesome only in the section on loglinear analysis. While the chapter on data screening is as well written and readable as the rest of the book, it requires frequent flipping back and forth to find the scattergrams, tables, and graphs referred to at specific places in the text. Given the cumulative nature of the material covered, this annoyance, for the most part, may be unavoidable, unless Hutcheson and Sofroniou were willing to reproduce the same visual aids at more than one place in the book. The authors, especially in the first few chapters, make frequent reference to material that will be covered later. Again, given the cumulative nature of the material, this is understandable. Most often, however, they could have left unacknowledged the material to be covered later. This would have further enhanced the continuity and flow of their presentation, and I can think of no instances in which the reader would have been left wondering whether or not a particular topic would eventually be addressed. While the authors make the reader aware of assumptions that must be met to properly employ the techniques they discuss, they present comparatively little information concerning tests and correctives for violation of assumptions. They may have done this to avoid making the book unduly long. Some of the most widely used and thorough textbooks on multiple regression analysis, for example, devote much of their considerable bulk to assumptions, consequences of their violation, testing for violations, and correctives. Since only one of the seven chapters in *The Multivariate Social Scientist* is used to cover multiple regression, the economy of the authors' treatment of this topic is understandable, and much the same is true for their presentation of the other procedures explained in the book. The authors do, however, make frequent reference to problems posed by multicollinearity. However, though they encourage use of interaction terms, as well as squares and cubes, they do not acknowledge that inclusion of such terms will almost certainly drive variance inflation factors far past their recommended cutoff of VIF 5. In practice, I have found VIF 4 to be a more useful rule of thumb, but however one measures troublesome levels of multicollinearity, grand mean centering is an effective response, unless the variables involved are dichotomies. Oddly, the authors do not mention grand mean centering. As it is, the authors' account of multiple regression is adequate to understanding many applications that readers will find in the social science literature. In addition, the chapter on multiple regression is used very effectively to introduce the process of model building, and as a means of explaining concepts that are discussed in subsequent chapters, especially those dealing with logistic regression and loglinear analysis. Some readers may judge model building, as presented by Hutcheson and Sofroniou, as uncomfortably overlapping with indiscriminate data dredging. In my view, however, the authors' understanding of model building as actually practiced is realistic and suitably restrained. The authors' discussion of logistic regression analysis is no more exhaustive than their coverage of multiple regression. Nevertheless, their account of estimating and interpreting simple and multiple logistic regression equations is the most accessible I have ever read. Their graphical renderings of the logistic regression model, odds and odds ratios, and logits or log odds are simple and straightforward but quite instructive. I have used logistic regression fairly often, but I have to admit that I understand it better now that I've read *The Multivariate Social Scientist*. The chapter on loglinear analysis is the most difficult in the book. This assessment seems to reflect most readers' response to this counter-intuitive material. Characterizing the sample size and row and column totals as parameters, for example, at first (and second and third and fourth) blush seems to make little sense. Thanks to the clarity of the authors' presentation, however, I have come to recognize that the totals just mentioned are, indeed, parameters in the sense that, in various ways, they constrain the cell frequencies in contingency tables. Seeing the chapter on factor analysis included in a book dealing with techniques based on the generalized linear model initially prompted me to think the authors were just padding the text with extraneous material. However, their stated and realized aim is to use principal components and factor analysis to generate composite variables to be used with techniques such as multiple regression, a fitting objective in a book such as this. Though first published in 1999, *The Multivariate Social Scientist* remains a useful textbook. Topics were selected and arranged judiciously and discussed with unusual clarity. I think this nicely written volume would be especially valuable for someone who had been away from the material for awhile and is looking for a compact but reasonably thorough review.

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.

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A good introduction to ordinary regression, logistic regression, and loglinear models for the analysis of categorical frequency data....A nice feature of the book and one that social scientists will find very useful is the detailed listing of computer codes for the implementation of these models within the SPSS and GLIM software' - Zentralblatt MATH

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About the Author

Graemes teaching and research interests are broadly in the area of methodology and data analysis. His PhD was a study into the acquisition of complex syntax in children and since then he has worked on a number of projects from a wide range of research areas including the conversational behaviour of children, interviewing techniques used on child witnesses, alcohol use in the workplace, the application of knowledge-based expert systems, the application of generalized linear models in predictive modelling, multi-level analysis of data related to Inclusion and Pupil achievement, an assessment of the Early Support Project (DfES) and a project investigating mathematically demanding F and HE programmes.