A Modern Approach to Regression with R (Springer Texts in Statistics)

By Simon Sheather

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This book focuses on tools and techniques for building regression models using real-world data and assessing their validity. A key theme throughout the book is that it makes sense to base inferences or conclusions only on valid models. Plots are shown to be an important tool for both building regression models and assessing their validity. We shall see that deciding what to plot and how each plot should be interpreted will be a major challenge. In order to overcome this challenge we shall need to understand the mathematical properties of the fitted regression models and associated diagnostic procedures. As such this will be an area of focus throughout the book. In particular, we shall carefully study the properties of resi- als in order to understand when patterns in residual plots provide direct information about model misspecification and when they do not. The regression output and plots that appear throughout the book have been gen- ated using R. The output from R that appears in this book has been edited in minor ways. On the book web site you will find the R code used in each example in the text.

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Editorial Review

Review

"This book fills an important niche in the regression textbook by providing a data-centered approach strong on graphics. …I am particularly interested in teaching regression to undergraduates, and I used this book one term in an introduction to applied regression course. …It is a book I will use again. …Graduate students in particular will find the balance between applications and theory useful, and the minimal amount of formulae used means the book should be useful for students from a variety of disciplines. The well-motivated homework problems are interesting and sufficiently complex that students at all levels will be able to learn something from them." (Journal of Statistical Software, March 2010, Vo. 33, Book Review 3)

Simon Sheather, A Modern Approach to Regression With R 978-0-387-09607-0

"The author states that this book focuses on tools and techniques for building regression models using real-world data and assessing their validity. A key theme throughout the book is that *it makes sense to base inferences or conclusions only on valid models.* The primary focus is on examining statistical and graphical methods for assessing whether or not the model upon which one desires to draw inferences is valid. … the examples…will have appeal to the students due to the variety of the techniques motivated by the datasets. The author has included numerous graphs and descriptions with associated flow charts to assist the student in 'visualizing' the process one should take when modeling data using regression models. I found that the book was …very readable and that the graphics were …useful in the analysis of the problem under consideration. The book is also the 'right size' with enough but not too much content. Personally, I was pleased not to see the voluminous R code that 'litters' many of the books that are 'with R.' I was also pleased that some of the characteristic R output has been minimized and reformatted to improve the appearance of the text. …One of the aspects I found most appealing is that which is not found in the book. The supplementary material given on the author's webpage is potentially very useful. The R code that was used to create the graphs and output in the book is provided in a separate document. This supplement will be very useful to the student who is learning R. In addition, there are similar documents that use SAS and STATA. I have found that having code to address a specific statistical problem is a very effective way for a student to learn a statistical software package. The author's supplementary material using all three packages will provide an effective means for a student to learn multiple software packages without having to spend valuable classroom time and instructor supervision." (The American Statistician, August 2010, Vol. 64, No. 3)

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Language Notes
Text: German

Users Review

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