**Introduction to Linear Regression Analysis, 5th Edition**

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Wiley, 2012, xvi + 645 pages, hardcover

ISBN: 978-0-470-54281-1

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*Readership:*  First-year graduate and upper-level undergraduate students, professionals interested in regression analysis.

In their fifth edition, the authors continue to present a comprehensive coverage of regression analysis that can be used as a text for beginning graduate students and advanced undergraduate students in a variety of disciplines. It can also be used as a reference for engineers and other professionals who need to use regression in their work. The authors’ treatment of the subject area tends to present the material in an understandable manner that avoids giving intricate mathematical details. Topics that are technical or theoretical in nature are briefly presented in Appendix C. This approach can therefore be suited for the targeted audience mentioned earlier, but not for advanced graduate students in, for example, statistics and econometrics.

The Fifth Edition features a reorganization of the text material with new examples and exercises, a new chapter on regression analysis of time series data, and new material on regression models with random effects. The final chapter includes some useful topics such as the effect of measurement errors in the regressors, bootstap sampling in regression, classification and regression trees, neural networks, and designed experiments for regression. A useful feature is the inclusion of many examples to illustrate or motivate the presented methodology in the various sections, in addition to numerous exercises in every chapter. Furthermore, realizing the importance of computer usage in regression computations, the authors have incorporated in some of their examples displays of both tabular and graphical outputs generated by some software packages such as Minitab, JMP, SAS, and the freely-available R software. Appendices D and E provide brief information about SAS and R, respectively. These, however, are too brief to be of any effective use. Instead, the authors could have directed the reader to the appropriate SAS volumes that are relevant to regression analysis, and to some of the many available books that cover the R software and its applications in a variety of areas, including linear models.

Even though the aim is to not to get sidetracked by giving technical details within the text, some are necessary for completion of the presented arguments. For example, it would have been more desirable to refer to the sufficient condition for an optimum when discussing the maximum likelihood estimates and the least- squares estimates in Chapters 2 and 3, respectively. The choice of the variance-stabilizing transformations in Chapter 5, when the variance of the response is a known function of its mean, could have been explained through the use of the delta method. Furthermore, the important result concerning the equality of the ordinary least-squares estimate of the parameter vector to its generalized least-squares counterpart in a general balanced mixed model could have been clarified in Appendix C (derivation of this result in the special case of a simple linear regression model with one random effect was requested in an exercise in Chapter 5). In addition, the authors include a large number of references, but not many are actually cited within the text, which would have been very helpful to the reader, especially in Chapters 12-15 where more advanced topics are covered. These comments should not be construed as criticism, but rather as suggestions to the authors for enhancing the understanding of the presented methodology.

Overall, I believe that the text provides a very useful introduction to linear regression analysis. It is easy to read and its display of many examples and exercises accentuated with the use of SAS and other software packages is particularly helpful.

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