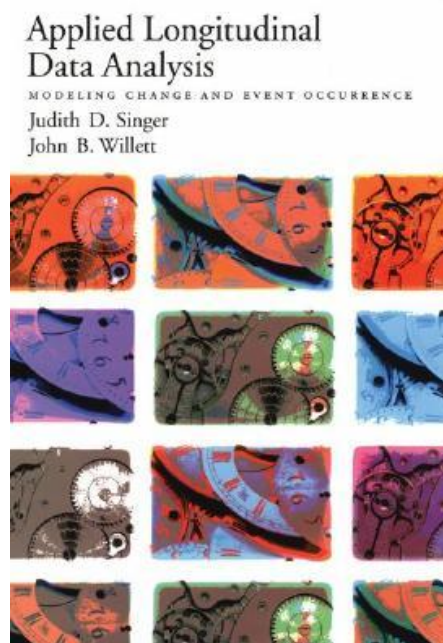




Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence

Judith D. Singer , John B. Willett

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Change is constant in everyday life. Infants crawl and then walk, children learn to read and write, teenagers mature in myriad ways, the elderly become frail and forgetful. Beyond these natural processes and events, external forces and interventions instigate and disrupt change: test scores may rise after a coaching course, drug abusers may remain abstinent after residential treatment. By charting changes over time and investigating whether and when events occur, researchers reveal the temporal rhythms of our lives. *Applied Longitudinal Data Analysis* is a much-needed professional book for empirical researchers and graduate students in the behavioral, social, and biomedical sciences. It offers the first accessible in-depth presentation of two of today's most popular statistical methods: multilevel models for individual change and hazard/survival models for event occurrence (in both discrete- and continuous-time). Using clear, concise prose and real data sets from published studies, the authors take you step by step through complete analyses, from simple exploratory displays that reveal underlying patterns through sophisticated specifications of complex statistical models.

Applied Longitudinal Data Analysis offers readers a private consultation session with internationally recognized experts and represents a unique contribution to the literature on quantitative empirical methods.

Visit <http://www.ats.ucla.edu/stat/examples/alda.htm> for:

- Downloadable data sets
- Library of computer programs in SAS, SPSS, Stata, HLM, MLwiN, and more
- Additional material for data analysis

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From Reader Review Applied Longitudinal Data Analysis: Modeling Change and Event Occurrence for online ebook

Tisha says

If you need to learn or teach yourself multilevel modeling or any other related technique, this is the book to own.

JuliAnna says

This still the best book on longitudinal multilevel modeling out there. Unfortunately, it can still be difficult for individuals new to multilevel modeling, but there is still no clear, basic introduction focusing on longitudinal models.

All researchers working with longitudinal data should read Chapter 5: Modeling Change More Flexibly, as it discusses the different ways in which change over time can be modeled and how to select the appropriate method for your data.

Steve says

I came across Singer and Willett's book when I was a graduate student at Loyola; the director of the clinical program said it would become a classic, and encouraged everyone to read the book. At that time, I knew less about statistics than I knew today; I eagerly bought the book. Later, another copy was sent to me for free. Incidentally, I lent a copy to one of my doctoral students last week.

This book is broken into two parts. In the first part, Singer and Willett describe multilevel modeling (aka mixed modeling aka random effects regression aka mixed effects modeling aka hierarchical linear modeling etc., etc.). In the second part, they describe survival analysis (or more specifically, the Cox proportional hazard model, which is a subset of survival analysis). There is no attention paid to other techniques for longitudinal data analysis, such as latent growth curve models (see my review of Bollen & Curran for details) or other structural equation modeling techniques (e.g., dynamic factor analysis, damped oscillator models, latent difference models, etc.). Furthermore, there is no attention to techniques for dealing with categorical outcomes as in latent transition analysis (i.e., see work by Linda Collins).

In the first part, the authors present an excellent introduction to readers who are not afraid of regression equations, but do not want to venture into math much beyond regression. This might be the ideal starting point for an individual with basic statistical knowledge to be introduced to multilevel models. The authors develop techniques step by step, with descriptions in words, in graphical forms, and in equations. The authors pick a notation closer to, say, Bryk and Raudenbush than say, Hedeker and Gibbons. Additionally, there's not attention paid to software packages for estimating the models, but much attention to the concepts involved. For an introduction, this is good in the sense of allowing one to understand but limiting in the sense that one cannot readily implement described models. However, UCLA has done a good job developing a web page for implementing the text in various software packages. There's no description of Generalized Estimating Equations, or nonlinear mixed models for non-normally distributed outcome variables. Luckily, here is a description of modeling the change in residuals over time.

In the second part, the authors describe a subset of survival analyses. Earlier today, I asked John Pruitt to help me update a Wikipedia page comparing features of software packages. The page says that SPSS can do survival analyses. It's true that SPSS can do the survival analyses described in the text. However, there's no attention to parametric models, such as the accelerated failure time model. Furthermore, there's no attention paid to complicated techniques such as frailty modeling. However, this is the state of survival analysis for psychology. For more on accelerated failure time models, I suggest David Collette's book on survival analysis. For more on frailty models, I suggest work by Bengt Muthén at UCLA or his student, Katherine Masyn at U.C., Davis. I don't know a good text to introduce survival analysis to students, and this seems as good a text as any. However, it's not as strong, relatively speaking, as the first section.

Overall, Singer and Willett have done an excellent job in introducing longitudinal data analysis to students. However, they don't provide a full description of the techniques, and students who want well-developed knowledge will need to expand beyond this text. Still, it's a great starting place and I recommend it! Incidentally, in my life as a stats consultant, I was lucky enough to help a U of C business prof with her paper, and Judy Singer also helped -- my recommendation is independent of our mutual assistance on the project.

Mary says

This is a DO NOT READ UNLESS YOU HAVE TO!!! Unfortunately I have to. It travels with me everywhere I go. I have reread chapters 3 and 4 at least three times each and my comprehension is still a bit dull, not due to the authors, just due to my thick skull. Applied Longitudinal Data Analysis reminds me why I am really a clinician and can't wait to get this researcher costume off. However, I continue to march until I understand enough to analyse my data from Kenya. It really is a well done book but only for those who have to read it.
