Latent Variable Modeling Using R: A Step-by-Step Guide

A. Alexander Beaujean
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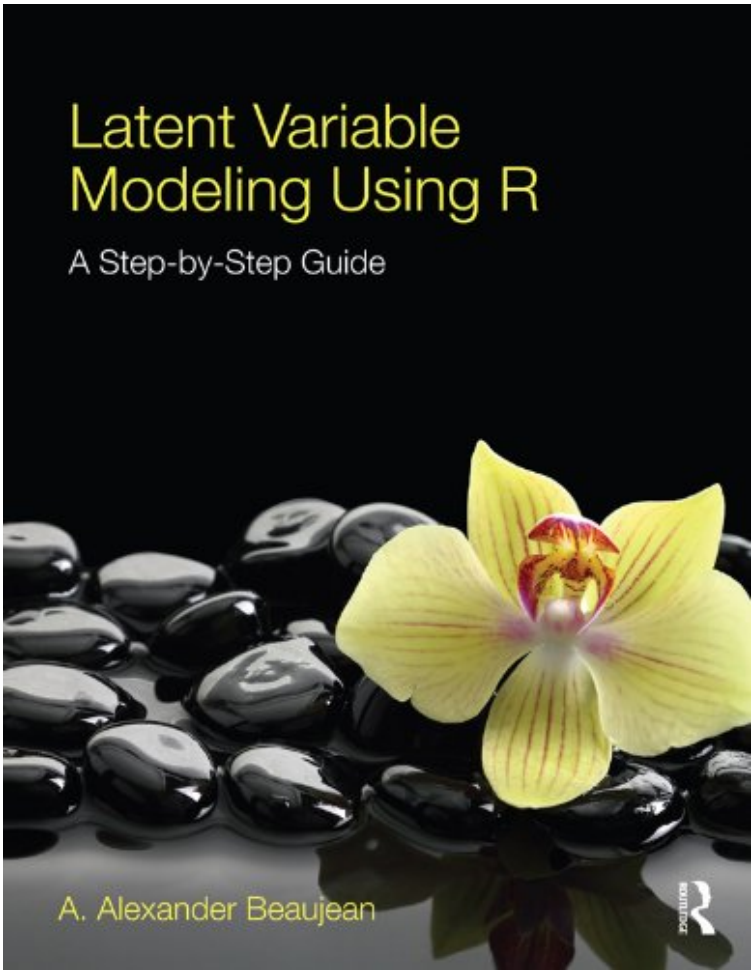

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A. Alexander Beaujean : Latent Variable Modeling Using R: A Step-by-Step Guide before purchasing it in order to gage whether or not it would be worth my time, and all praised Latent Variable Modeling Using R: A Step-by-Step Guide:

20 of 20 people found the following review helpful. It would be a great textbook selection for a graduate-level introductory SEM classBy John SakalukIn my opinion, as a comprehensive beginner's guide to SEM in R, this book is without peer. It would be a great textbook selection for n graduate-level introductory SEM class, as it covers the gamut of 'essential' SEM topics, such as model identification, scale setting, indexes of model fit, basic measurement and structural models, missing data, multiple groups (focused on invariance testing), longitudinal models, power, and categorical indicators. In fact, it's so affordable, that you could probably use it as an R-specific supplement to a book that provides a more thorough and conceptual introduction, such as Brown (2006), Kline (2010), or Hoyle (2012).For those who are already well-versed in SEM and lavaan, you probably already know much of what is in this book, although there are very useful tidbits here and there (e.g., how to manually free a specific parameter estimate).I only

have two minor complaints:1) I'm not crazy about the order of the chapters. The chapters on missing data (Chapter 7) and power (Chapter 8), for example, are two of the last three of the chapters, when it is likely the case that these are more foundational topics compared to some of the advanced topics presented earlier in the book (e.g., multiple groups [Chapter 4], longitudinal models [Chapter 5], or categorical indicators [Chapter 6])2) Related to point 1), although some advanced topics--like multiple groups models--are introduced very effectively, I was less enthusiastic about the coverage of others. The chapter on longitudinal SEMs (Chapter 5), in particular, seemed much weaker than the other chapters in the book. For example, whereas group measurement invariance is covered extensively in the multiple groups chapter, the concept of longitudinal measurement invariance is not covered at all. Further, the chapter exclusively caters to the latent growth curve approach to longitudinal data analysis, and ignores other legitimate (and for a beginning, perhaps intuitive) longitudinal models, such as latent panel models. For these reasons, as mentioned in point 1), Beujean's book might be best used as a supplement to books covering specialized applications of SEM, such as Little's (2013) book on longitudinal SEM, when modeling needs are more complicated.These complaints aside, the book is a solid resource, with many good examples of code for lavaan and lavaan-affiliated packages (e.g., simsem, MICE, etc.,). If you're looking to learn or teach how to use SEM with freely available software (i.e., R), and want a book that covers most of the basics with examples of code that are relatively easy to follow, this is the book for you.PS: there is a typo in the effects-coding example on page 48. The actual code for effects-coding is correct ("a+b+c+d+e==5"), but the preceding comment ("# constrain the loadings to sum to one") is inaccurate: effects-coding constrains the loadings to AVERAGE to one (in this case, by summing to 5 across 5 indicators).1 of 3 people found the following review helpful. great companion to lavaanBy Ernest HobsonVery useful companion to learning the latent variable technique hands on with good examples. R syntax unfortunately very small in the kindle version.0 of 2 people found the following review helpful. This book is great for anyone interested in overcoming the learning curve for ...By Brandon KlinedinstThis book is great for anyone interested in overcoming the learning curve for using R, and for anyone interested in Latent Variable Modeling and Latent Curve Modeling.

This step-by-step guide is written for R and latent variable model (LVM) novices. Utilizing a path model approach and focusing on the lavaan package, this book is designed to help readers quickly understand LVMs and their analysis in R. The author reviews the reasoning behind the syntax selected and provides examples that demonstrate how to analyze data for a variety of LVMs.? Featuring examples applicable to psychology, education, business, and other social and health sciences, minimal text is devoted to theoretical underpinnings. The material is presented without?the use of matrix algebra. As a whole the book prepares readers to write about and interpret LVM results they obtain in R.Each chapter features background information, boldfaced key? terms defined in the glossary, detailed interpretations of R output, descriptions of how to write the analysis of results for publication, a summary, R based practice exercises (with solutions included in the back of the book), and references and related readings. Margin notes help readers better understand LVMs and write their own R syntax. Examples using data from published work across a variety of disciplines demonstrate how to use R syntax for analyzing and interpreting results. R functions, syntax, and the corresponding results appear in gray boxes to help readers quickly locate this material. A unique index helps readers quickly locate R?functions, packages, and datasets. The book and accompanying website at http://blogs.baylor.edu/rlatentvariable/ provides all of the data for the bookrsquo;s examples and exercises as well as R syntax so readers can replicate the analyses. The book reviews how to enter the data into R, specify the LVMs, and obtain and interpret the estimated parameter values.The book opens with the fundamentals of using R including how to download the program, use functions, and enter and manipulate data. Chapters 2 and 3 introduce and then extend path models to include latent variables. Chapter 4 shows readers how to analyze a latent variable model with data from more than one group, while Chapter 5 shows how to analyze a latent variable model with data from more than one time period. Chapter 6 demonstrates the analysis of dichotomous variables, while Chapter 7 demonstrates how to analyze LVMs with missing data. Chapter 8 focuses on sample size determination using Monte Carlo methods, which can be used with a wide range of statistical models and account for missing data. The final chapter examines hierarchical LVMs, demonstrating both higher-order and bi-factor approaches. The book concludes with three Appendices: a review of common measures of model fit including their formulae and interpretation; syntax for other R latent variable models packages; and solutions for each chapterrsquo;s exercises.Intended as a supplementary text for graduate and/or advanced undergraduate courses on latent variable modeling, factor analysis, structural equation modeling, item response theory, measurement, or multivariate statistics taught in psychology, education, human development, business, economics, and social and health sciences, this book also appeals to researchers in these fields. Prerequisites include familiarity with basic statistical concepts, but knowledge of R is not assumed.

"This is a very well written book on an important contemporary topic. Readers will delight in its eloquent prose and mathematics. This book should be taken seriously." ndash; John J. McArdle, University of Southern California, USA "This book is a wonderful resource for instructors who are contemplating migrating their SEM courses to R. The book begins with a nice introduction to R. Subsequent chapters nicely introduce latent variable topics and demonstrate

effectively how the lavaan package can be utilized to fit models. Each chapter ends with examples that can be utilized as in-class examples or given as homework problems." ndash; Jeffrey R. Harring, University of Maryland, USA "A book for every scholarrsquo;s shelf: pertinent, thorough, practical, accurate, and especially, readable." ndash; Steven J. Osterlind, University of Missouri, USA "This book ... provide[s] students and researchers with a structural equation modeling book which deals with R hellip; the Lavaan module. ... The book walks the reader through some of the R code necessary to do the analyses. ... [This] book will be a "how to" resource for students and researchers to do their analyses in R. hellip; [It] ... has an easy hellip; humorous narrative style, which would also serve to reduce anxiety for the introductory reader." ndash; Phil Wood, University of Missouri ndash; Columbia, USA "The concepts are delivered in a clear, easy-to-follow manner. ...The hands-on examples ... take a person who does not know much about structural equation modeling and/or R to fit different latent variable models. ... [This book] will attract a lot of attention from students and/or professionals who want to use latent variable modeling in their studies and research. ... I will recommend [it] to my colleague who teach ... latent variable modelling ... [and] ... multivariate statistics." ndash; Yanyan Sheng, Southern Illinois University at Carbondale, USA "A text is sorely needed that helps students understand latent variable models and at the same time help them apply what they learn with R. ... This text would be useful for three of [our] courses hellip; Educational Research, Item Response Theory, and Structural Equation Modeling. ... I found the material to be written at the level needed by our students." ndash; Darrell M. Hull, University of North Texas, USAAbout the AuthorA. Alexander Beaujean is an Associate Professor in Educational Psychology at Baylor University.