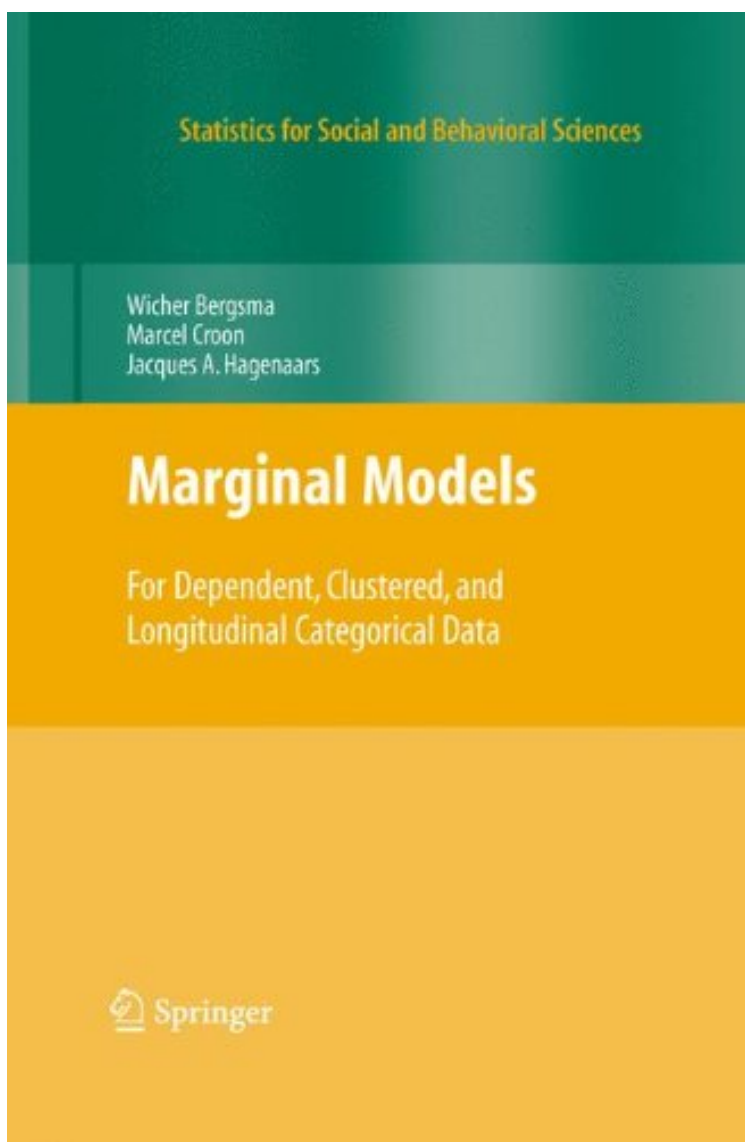


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Marginal Models: For Dependent, Clustered, and Longitudinal Categorical Data (Statistics for Social and Behavioral Sciences)

Wicher Bergsma, Marcel A. Croon, Jacques A. Hagenars
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Wicher Bergsma, Marcel A. Croon, Jacques A. Hagenars : Marginal Models: For Dependent, Clustered, and Longitudinal Categorical Data (Statistics for Social and Behavioral Sciences) before purchasing it in order to gauge whether or not it would be worth my time, and all praised Marginal Models: For Dependent, Clustered, and Longitudinal Categorical Data (Statistics for Social and Behavioral Sciences):

1 of 1 people found the following review helpful. an interesting new book on categorical data using a marginal modeling approach By Michael R. Chernick In multivariate analysis a marginal distribution is a distribution of a subset of variables after the other variables in the joint distribution have been integrated out. This is different from a conditional distribution which conditions on specific values for the variables that are excluded. The most common applications involve constructing multivariate distributional forms by specifying the univariate marginal distributions. In the continuous case there is theory about the existence of multivariate distributions with fixed marginal distributions. For example a lot of work has been done on bivariate exponential models including the well-known distribution devised by Olkin and Marshall. I myself have constructed an autoregressive process with uniform marginals and have studied the Gaver-Lewis exponential autoregressive process. These first order autoregressive processes generate multivariate distributions of any finite order where the individual marginal distributions are uniform or exponential. I have also done this with the Cauchy distribution. But this is a digression from the book under review. This text deals primarily with categorical data and their marginal distributions when the categorical variables are correlated. It applies to categorical data that are clustered or longitudinal in nature. Likelihood approaches are used and analyses of panel and longitudinal data are given. There is one chapter that discusses the case of continuous variables but that is mainly for completeness and is not the major focus of the book. The authors are authoritative and present important recent advances for application in the social and behavioral sciences. Since it involves advanced statistical methods including Generalized Estimating Equations, Loglinear models and latent variable models it is a challenge to make this presentable to the intended audience. To aid the reader the more advanced and theoretical sections are designated with triple asterisks. These sections can be skipped by readers who lack the required mathematical and statistical knowledge to understand them. But they can easily be skipped without losing the overall theme and message of the book. The book also includes an extensive bibliography covering the most important books available on loglinear models, generalized estimating equations, structural equation models and univariate and multivariate models for categorical data. Many useful practical examples are covered. However, even the sections that are not starred involve matrix algebra and some complex mathematical equations and notation. Categorical data has important applications in social, behavioral, educational, economic and biomedical sciences. Any mathematician or statistician working in these will find this to be an excellent reference work. The preface of the text provides an excellent overview of the topic and its applications. The authors state in the preface that the book is intended for social and behavioral scientists with a strong background in statistics for the social sciences and experience with scientific research methods. They also mention a need to have some familiarity with loglinear models and the concepts of matrix algebra. I think the book can be very useful and enjoyable for that audience but I do not think that there are many social scientists (particularly in the US) that meet these requirements. So the intended audience may be too narrow and those that may benefit the most from learning the techniques do not have the necessary background. So for them it can only serve as a good reference source but not a course that will give them a good understanding. So there will probably be many social scientists that will be disappointed with this book.

Marginal Models for Dependent, Clustered, and Longitudinal Categorical Data provides a comprehensive overview of the basic principles of marginal modeling and offers a wide range of possible applications. Marginal models are often the best choice for answering important research questions when dependent observations are involved, as the many real world examples in this book show. In the social, behavioral, educational, economic, and biomedical sciences, data are often collected in ways that introduce dependencies in the observations to be compared. For example, the same respondents are interviewed at several occasions, several members of networks or groups are interviewed within the same survey, or, within families, both children and parents are investigated. Statistical methods that take the dependencies in the data into account must then be used, e.g., when observations at time one and time two are compared in longitudinal studies. At present, researchers almost automatically turn to multi-level models or to GEE estimation to deal with these dependencies. Despite the enormous potential and applicability of these recent developments, they require restrictive assumptions on the nature of the dependencies in the data. The marginal models of this book provide another way of dealing with these dependencies, without the need for such assumptions, and can be used to answer research questions directly at the intended marginal level. The maximum likelihood method, with its attractive statistical properties, is used for fitting the models. This book has mainly been written with applied researchers in mind. It includes many real world examples, explains the types of research questions for which marginal modeling is useful, and provides a detailed description of how to apply marginal models for a great diversity of research questions. All these examples are presented on the book's website (www.cmm.st), along with user friendly programs.

From the reviews: "In conclusion, this book is a very well written book about an important topic in categorical data analysis. The methodology is presented with clear examples from applied research. The book is intended for applied researchers but I think that psychometricians, biometricians, and alike can learn a lot from the material in this book. Therefore, the book certainly deserves a spot on the categorical data analysis bookshelf for anyone that regularly

encounters categorical data!" (Mark de Rooij, Vereniging voor Ordonatie en Classificatie (VOR), Nieuwsbrief No. 43, Oktober 2009) This is a well-written book on marginal models for categorical data using maximum likelihood (ML) methods. The authors successfully show the methodology of marginal modeling in an intuitive way for social and behavioral scientists. This book would be a fantastic reference for statisticians interested in learning more about repeated categorical response data analysis and marginal modeling beyond the familiar GEE procedure. (Biometrics) Social and behavioral scientists with good background in social science statistics and applied statisticians. The authors write that this book has been written with applied researchers in mind. It serves the purpose well. The book explains in a pedagogical way the types of research questions for which marginal modeling is useful, and provides a detailed description of how to apply marginal models for a great diversity of research questions in several fields, i.e., social, economic and behavioral sciences. (Lasse Koskinen, *International Statistical*, Vol. 78 (1), 2010) From the Back Cover: *Marginal Models for Dependent, Clustered, and Longitudinal Categorical Data* provides a comprehensive overview of the basic principles of marginal modeling and offers a wide range of possible applications. Marginal models are often the best choice for answering important research questions when dependent observations are involved, as the many real world examples in this book show. In the social, behavioral, educational, economic, and biomedical sciences, data are often collected in ways that introduce dependencies in the observations to be compared. For example, the same respondents are interviewed at several occasions, several members of networks or groups are interviewed within the same survey, or, within families, both children and parents are investigated. Statistical methods that take the dependencies in the data into account must then be used, e.g., when observations at time one and time two are compared in longitudinal studies. At present, researchers almost automatically turn to multi-level models or to GEE estimation to deal with these dependencies. Despite the enormous potential and applicability of these recent developments, they require restrictive assumptions on the nature of the dependencies in the data. The marginal models of this book provide another way of dealing with these dependencies, without the need for such assumptions, and can be used to answer research questions directly at the intended marginal level. The maximum likelihood method, with its attractive statistical properties, is used for fitting the models. This book has mainly been written with applied researchers in mind. It includes many real world examples, explains the types of research questions for which marginal modeling is useful, and provides a detailed description of how to apply marginal models for a great diversity of research questions. All these examples are presented on the book's website (www.cmm.st), along with user friendly programs. Wicher Bergsma is Senior Lecturer at the London School of Economics and Political Science. His current research interests are categorical data analysis, measurement of association, nonparametric regression, and maximum likelihood estimation. Marcel Croon is associate professor at Tilburg University. He is especially interested in measurement problems, structural equation modeling, latent variables, and random effect models. Jacques Hagenars is full professor at Tilburg University and at present chair of the board of IOPS, the Dutch PhD School for Sociometrics and Psychometrics. His main research interests are research designs, longitudinal research, categorical data analysis and latent variable models.