

Preface

Since Charles Spearman published his seminal paper on factor analysis in 1904 and Karl Jöreskog replaced the observed variables in an econometric structural equation model by latent factors in 1970, causal modelling by means of latent variables has become the standard in the social and behavioural sciences. Indeed, the central variables that social and behavioural theories deal with, can hardly ever be identified as observed variables. Statistical modelling has to take account of measurement errors and invalidities in the observed variables and so address the underlying latent variables.

Moreover, during the past decades it has been widely agreed on that serious causal modelling should be based on longitudinal data. It is especially in the field of longitudinal research and analysis, including panel research, that progress has been made in recent years. Many comprehensive panel data sets as, for example, on human development and voting behaviour have become available for analysis. The number of publications based on longitudinal data has increased immensely. Papers with causal claims based on cross-sectional data only experience rejection just for that reason.

The chapters in this book combine longitudinal research and latent variable research. They all explain how longitudinal studies with objectives formulated in terms of latent variables should be performed. The emphasis is on exposing how the methods are applied. Because currently longitudinal research with latent variables follows different approaches with different histories, different types of research questions, and different computer programs to perform the analysis, the book is divided into nine, rather self sufficient chapters. The chapters give an up to date overview of the current state of the approach. Each chapter is written by one or more experts in the approach. In addition to some background information about the specific approach (short history and main publications), the chapter describes the type of research questions the approach is able to answer and the kind of data to be collected, gives the statistical and mathematical explanation of the models used in the analysis of the data, discusses the input and output of the programs used in the analysis, and provides one or more examples with typical data sets enabling the reader to apply the programs themselves. Data sets and computer

code for the analysis with various software programs are a very important component of the book and partly made available at the book website <http://www.econ.upf.edu/~satorra/longitudinallatent/readme.html>.

The chapters present an up to date overview of the current state of the approach in such detail that readers get the means for application in their own research. The emphasis is not on new results. The main purpose is to give a state of the art explanation of longitudinal research methodology with latent variables and to show how this methodology is implemented in practice with current state of art software and real data sets. Each of the chapters is supposed to be rather complete for the specific approach and the chapters together are meant to cover the field exhaustively.

The book “Longitudinal Research with Latent Variables” addresses the great majority of researchers in the behavioural and related sciences, in academic as well as non-academic environments. This includes readers who are involved in research in psychology, sociology, education, economics, management, and medical sciences. It is meant as a reference work for all those actually doing longitudinal research. The book also addresses methodologists and statisticians, who are professionally dealing with longitudinal research, to provide standards for state of the art practices. It specially offers PhD students in the fields indicated the means to carry out longitudinal research with latent variables.

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