



SPS 2nd term seminar 2017-2018

Multilevel modeling

Organised by Juho Härkönen

16 April 2018 from 10:00-16:00 (seminar room 2)

17 April 2018 from 10:00-16:00 (seminar room 2)

24 April 2018 from 10:00-16:00 (seminar room 3)

25 April 2018 from 10:00-16:00 (seminar room 3)

Register [online](#)

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Description

Social science data are often clustered, where pupils are found in classrooms and in schools, siblings in their families, residents in their neighborhoods, respondents in regions and countries, or individuals are measured repeatedly. Analysis of such situations—where individuals are considered in their social contexts—is of course central to social science.

Multilevel methods constitute the basic tools to analyze such data. This course provides an introduction to multilevel models in social science research. We cover the basic idea of multilevel analysis and cover different situations in which multilevel models are appropriate, as well as discuss the strengths and limitations of multilevel analysis in these cases. The covered situations in which multilevel models are appropriate include cross-sectional analysis (such as cross-national comparative research, schools, sibling models) and longitudinal analysis (repeated measures and panels, growth curves). The specific types of multilevel model covered include random intercept models with two or more levels, random slopes models, cross-classified models, the “two-step” and metaregression models, and the between-within model. Both linear and non-linear applications will be discussed.

Stata is used during the course. The data include simulated and real-life data, and part of the teaching includes replication of previously published research.

The examination consists of the take home exam, using your own (preferred) or assigned data. The exam is due on 7 May, two weeks after the last class meeting.

Both the course schedule and the literature list will be subject to updates, but do give an overview of the topics covered and some of the central texts.

Literature

Primary resource

Rabe-Hesketh, S & Skrondal, A. 2012. *Multilevel and Longitudinal Modeling Using Stata. Part I: Continuous Responses*. Stata Press. **(RHS I)**

Other resources

Rabe-Hesketh, S & Skrondal, A. 2012. *Multilevel and Longitudinal Modeling Using Stata. Part II: Categorical Responses, Counts, and Survival*. Stata Press. **(RHS II)**

Snijders, TAB & Bosker, RJ 2012. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. 2nd Edition. Sage.

Additional (recommended) readings and examples below for each class.

Course schedule

16 April 10:00-16:00 (seminar room 2)

Introduction

The two-level cross-sectional random intercepts model

A three-level model

Readings

RHS I, Chs. 2-3, 8

Rijken, AJ, and Liefbroer, AC. 2012. European views of divorce among parents of young children: Understanding cross-national variation. *Demographic Research* 27: 25-52.

17 April 10:00-16:00 (seminar room 2)

Random slopes

Cross-classified model

The “two-step” and meta-regression models

Readings

RHS I, Chs. 4, 9

Brons, MD, and Härkönen, J. 2018. Parental education and family dissolution: A cross-national and cohort comparison. *Journal of Marriage and Family*, 80(2), 426-43.

Bryan, M.L. and Jenkins, S.P. 2016. Multilevel modelling of country effects: a cautionary tale, *European Sociological Review*, 32(1), 3-22.

Heisig, JP, Schaeffer, M, & Giesecke, J. 2017. The costs of simplicity: Why multilevel models may benefit from accounting for cross-cluster differences in the effects of controls. *American Sociological Review*, 82(4), 796-827.

Schmidt-Catran, AW & Fairbrother, M. 2016. The random effects in multilevel models: Getting them wrong and getting them right. *European Sociological Review*, 32(1), 23-38.

24 April 10:00-16:00 (Seminar room 3)

Multilevel models with longitudinal data

Multilevel growth curve models

Between-within model

Readings

RHS I, Chs. 5-7

Curran, Patrick J., Obeidat, Khawla & Losardo, Diane. 2010. Twelve frequently asked questions about growth curve modeling. *Journal of Cognition and Development* 11(2): 121-136.

Halaby, Charles N. 2003. Panel models for the analysis of change and growth in life course studies. Ch 23 in Mortimer, J.T. & Shanahan, M.J. (eds.) *Handbook of the Life Course*. Springer.

Schunk, R. 2013. Within and between estimates in random effects models: Advantages and drawbacks of correlated random effects and hybrid models. *The Stata Journal*, 13, 65-76.

Steele, F. 2008. Multilevel models for longitudinal data. *Journal of the Royal Statistical Association: Series A*, 171(1), 5-19.

25 April 10:00-16:00 (Seminar room 3)

Sibling models, age-period-cohort models, and other applications

Non-linear multilevel models (logit, probit, Poisson, negative binomial)

Readings

RHS II, Chs. 10-13

Allison, P. 2009. *Fixed effects models*. Sage. Chs. 3-4.

Lillard, L.A. and L.J. Waite. 1993. A joint model of marital childbearing and marital disruption. *Demography* 30(4): 653-681.

Yang, Y & Land, K. 2008. Age-Period-Cohort analysis of repeated cross-section surveys: Fixed or random effects? *Sociological Methods and Research*, 36(3),