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Hi Multivariate Data Analysis 1 / Eldad Davidov
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Course Outline:
The course provides an overview of methods to analyze individual, contextual and longitudinal data and how theories and research questions can be addressed using various methods in sociological studies. Terms discussed during the BA studies, such as reliability, validity, standardized and unstandardized coefficients, measurement and index construction will be deepened and expanded. We discuss how regression models and the analysis of cross-sectional data may be expanded to analyze longitudinal and panel data, data on different levels of analysis (individual and societal data), and data from several countries or cultural groups. Special attention is also given to the differentiation between manifest and latent variables. In the course we discuss not only the methods but also substantive studies that use these methods. The course is thus application-oriented rather than technical. It combines discussions and participants' presentations.

Goals: Providing an overview of various methods of data analysis beyond regression analysis. Being able to read, understand and interpret substantive studies that apply various advanced methods. Each method we discuss could constitute a full course. Thus, the goal is not a full command of each method, but a basic understanding of what it is good for, and how to interpret its estimates in substantive studies.

Requirements: A presentation and an exam in the last meeting.

Detailed Program:

Meetings 1-3) Overview of the whole course. Repetition of central methodological concepts from the Bachelor studies (regression, correlation and covariance). **Introduction to new methods** of data analysis.
Homework after meeting 1: Refreshing oneself with methodological material from the BA, especially with regression analysis; Preparation of presentation of a paper.

Meetings 4-7) Overview of applications of more advanced methods using data from the European Social Survey and other data sources: Multilevel analysis; Manifest vs. latent variables; Multiple-group analysis; Missing values; and longitudinal and panel data. Presentation and discussion of substantive empirical and theoretically-driven sociological studies that apply advanced methods to answer various research questions. Discussions will **combine substantive** aspects in the studies and more **'technical'** aspects of the methods used. Participants will get to know these methods and understand why they are used.

Meetings 8-13) Lectures and exercise: The last meetings will delineate how the different methods discussed so far are all related to each other and expand measurement, index

construction, regression and multivariate analysis techniques that are already known from the BA. Topics of lectures and exercises will include: the process and strategy of theory testing; measurement issues; manifest vs. latent variables and index construction; formative vs. reflective indicators; types of measurement errors and how to control for them; typology of classical model testing: parallel, tau-equivalent and congeneric models vs. cronbach's alpha; reliability and validity; single- vs. multiple-group analysis; confirmatory factor analysis of single concepts vs. confirmatory factor analysis of multiple concepts; model evaluation, global and detailed fit. It will be shown how these are necessary elements when cross-sectional, multilevel, multi-group or panel data are analyzed. Exercises will include data from the European Social Survey.

Meeting 14) Examination

General Literature:

Books (and one paper) that deal with ordinary and logistic regressions, multilevel analysis, manifest vs. latent variables, multiple-group analysis, missing values and longitudinal and panel data:
-) Arbuckle, J. L. (2007). Amos 16.0 user's guide. Chicago: SPSS.
-) Brown, T. A. (2006). Confirmatory factor analysis for applied research. New York: The Guilford Press.
-) Byrne, B. M. (2001). Structural equation modeling with AMOS. Basic concepts, applications, and programming. London: Lawrence Erlbaum Associates
-) Davidov, E., P. Schmidt and J. Billiet (2011). Cross Cultural Analysis: Methods and Applications. NJ: Routledge.
-) Duncan, Duncan and Strycker (2006). An Introduction to Latent Variable Growth Curve Modeling: Concepts, Issues, and Applications.
-) Field, A. (2009). Discovering statistics using SPSS. London: Sage.
-) Finkel, S. (1995). Causal Analysis with Panel Data. London: Sage.
-) Fox, John (2008). Applied Regression Analysis and Generalized Linear Models. 2. Auflage. Thousand Oaks: Sage.
-) Hox, J. (2010). Multilevel analysis: Techniques and applicataions. NY: Routledge
-) Kühnel, S.-M. und D. Krebs. 2004. Statistik für die Sozialwissenschaften. Grundlagen, Methoden, Anwendungen. Reinbeck bei Hamburg: Rowohlt.
-) Schafer, J. L. and J. W. Graham (2002). Missing data: Our view of the state of the art. Psychological Methods, 7, 147-177.

Papers for participants' presentations:
Bivariate relations, OLS and logistic regression
-) *Hughes, M. and M.E. Thomas (1998). The Continuing Significance of Race Revisited: A Study of Race, Class, and Quality of Life inAmerica, 1972 to 1996. American Sociological Review 63(6), 785-795.

-) Sampson, Robert J., and Laub, J. H. Urban poverty and the family context of delinquency: A new look at structure and process in a classic study. Child Development, 1994, 65, 523-540.

-) * Lewin-Epstein, N. and M. Semyonov (2000). Migration, Ethnicity, and Inequality: Homeownership in Israel. Social Problems, 47(3), 425-444.

-) Theodossiou, I. (1998). The effects of low-pay and unemployment on psychological well-being: a logistic regression approach. Journal of Health Economics 17, 85-104

Latent variables and multiple-group comparison:

-) *Heyder, A. and P. Schmidt (2002). Authoritarianism and Ethnocentrism in East and West Germany - Does the system matter? Pp. 187-210 in: R. Alba, P. Schmidt & M. Wasmer (eds.). New York: Palgrave, St. Martins Press.

Multilevel analysis:

-) Davidov, E. and B. Meuleman (2012). Explaining attitudes towards immigration policies in European countries: The role of human values (in press). Journal of Ethnic and Migration Studies.

-) Schlüter, E. and U. Wagner (2008). Regional Differences Matter: Examining the Dual Influence of the Regional Size of the Immigrant Population on Derogation of Immigrants in Europe. International Journal of Comparative Sociology, 49, 153-173.

-) *Semyonov, M., Raijman, R. and Gorodzeisky, A. (2006). The rise of anti-foreigner sentiment in European societies, 1988-2000, American Sociological Review, 71, 426-449.

-) Strabac, Z. and O. Listhaug (2008). Anti-Muslim prejudice in Europe: A multilevel analysis of survey data from 30 countries. Social Science Research, 37, 268-286.

Analysis of panel data, dealing with missing values, higher order factors:

-) *Schlüter, E., E. Davidov, and P. Schmidt (2007). Applying autoregressive cross-lagged and latent growth models to a three-wave panel study. In: van Montfort, K., H. Oud, and A. Satorra (Eds.), Longitudinal models in the behavioral and related sciences (pp. 315-336). Mahwah, New Jersey: Lawrence Erlbaum Publishers, EAM Book Series.

-) Davidov, E., S. Thörner, P. Schmidt, S. Gosen and C. Wolf (accepted for publication). Level and change of group-focused enmity in Germany: Unconditional and conditional latent growth curve models with four panel waves. Advances in Statistical Analysis.

-) Schafer, J. L. and J. W. Graham (2002). Missing data: Our view of the state of the art. Psychological Methods, 7, 147-177.

-) *Zick, A., C. Wolf, B. Küpper, E. Davidov, P. Schmidt, and W. Heitmeyer (2008). The syndrome of group-focused enmity: The interrelation of prejudices tested with multiple cross-sectional and panel data. Journal of Social Issues, 64(2), 363-383.

-) Meuleman, B., E. Davidov, and J. Billiet. Changing attitudes toward immigration in Europe, 2002-2007. A dynamic group conflict theory approach (2009). Social Science Research, 38, 352-365.

* Studies to be presented by participants. Other studies may also be used for presentation.