

Issues in latent structure analysis using survey data

A Nottingham-Warwick-Birmingham Advanced Quantitative Methods (AQM) Workshop – organised by the Nottingham ESRC DTC in collaboration with the Methods and Data Institute

Date: Friday 8 March 2013; 10:00 – 16:00

Venue: University of Nottingham, A21 Si Yuan Centre, Jubilee Campus

On the AQM Workshops

The ESRC Doctoral Training Centres (DTCs) of the Universities of Nottingham, Warwick and Birmingham have committed themselves to organising regular workshops in advanced quantitative methods, intended for researchers in the social sciences who use, or aspire to use advanced quantitative methods in their research. The workshops are not lectures or training sessions, but events where participating researchers can discuss advanced methodological topics and issues. A few prepared presentations will provide a basis for discussions that are expected to be also informed by participants' expertise and research experiences.

The AQM workshops cater to active researchers, including members of academic staff and PhD students who use quantitative methods in their research. Participants do not have to be advanced experts in the topics of the workshops, but should be familiar with methods of quantitative analysis commonly used in the social sciences. It is hoped that scholars with advanced expertise in the topics of a workshop will also take part and will contribute to advanced discussions on the respective topics.

Topic: Issues in latent structure analysis using survey data

Many concepts in social science cannot directly be observed, e.g. ideology, religious commitment, racial prejudice, authoritarianism etc. In an attempt to measure people's beliefs and orientations we often use public opinion polls. Working with such survey data, researchers often face the problem that our measures imperfectly represent what we are truly interested in. Survey items are often only proxies of these underlying concepts. Latent structure analysis is a family of methods and approaches to diagnose and measure the latent phenomena of interest that are imperfectly indicated by observed survey variables. In this workshop we will focus in particular on issues in the analysis of survey data with factor analysis, IRT scaling, and latent class analysis.

Programme

- 10:00-10:30 Arrival, registration, tea & coffee
- 10:30-12:00 Session 1:
Factor analysis in social science research – often not what it is claimed to be
Dr Jonathan Rose
Many instances of factor analysis (FA) reported in the literature are actually principal components analysis (PCA), not fitting the problem that researchers ostensibly aim to address. The differences in results between FA and PCA can be striking.
- 12:00-12:45 Lunch
- 12:45-14:15 Session 2:
Factor analysis or IRT scaling? An empirical assessment of risks of mis-diagnosis of latent dimensionality when using Likert items
Prof Cees van der Eijk
Sets of Likert items are often subjected to Factor Analysis in attempts to diagnose their underlying dimensionality. It is known that FA is vulnerable to over-dimensionalisation, but little is known about the magnitude of this risk, and about the conditions influencing this risk. Simulation is used to estimate this risk and its determinants. The same simulated data are used to also assess the risk of mis-diagnosis when using IRT scaling.
- 14:15-14:30 Tea & coffee
- 14:30-16:00 Session 3:
Using latent class analysis in survey research
Dr Anja Neundorf
This presentation gives an overview of one of the major approaches to measuring these latent traits using categorical data, namely latent class analysis. The latent class model (LCM) provides one of the most important approaches for understanding relationships among a wide variety of survey respondents' attitudes and behaviour. The LCM facilitates the construction and testing of models of respondent types (e.g. believer versus atheist), and helps in characterizing the nature of complex groups. The talk is focusing in particular on its conceptual and methodological foundation and will further illustrate the use of LCM by examining survey items intended to measure religious beliefs.
- 16:00 Close

Participation/registration

This workshop is open to Social Science research students (both ESRC DTC funded and non-funded) and academic staff.

Participants should be familiar with methods of quantitative analysis commonly used in the social

sciences. Places are limited to 30 participants.

If you wish to register for this workshop, please email penny.gresswell-bristow@nottingham.ac.uk.
Registration will be on a first come first serve basis.

