Introduction to Structural Equation Modelling using R

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Venue: Facoltà di Economia, Sala del Consiglio di Facoltà, Via San Felice 7

Course Overview

Structural Equation Models (SEM) amalgamate regression analysis, path analysis and factor analysis, allowing for more richly detailed statistical models to be specified and compared to data than by using these techniques individually. This course is a five day workshop on structural equation modelling (SEM) using R/sem package. Every day is split in two parts, a lecture session followed by a computer lab, where topics are applied on example data; first session (14.00-15:45) second session (16.15-18:00);

Provisional Course Syllabus

Monday, 9th May 2011. Review on basics in regression (path analysis) models:
(14-15.45): Covariance algebra; Path diagrams; Total, direct and indirect effects; Conditional independence and latent variable concept
(16.15-18): session of R (basic and how to get the syntax running)

Monday, 16th May 2011). Basics of a structural equation model:
(14-15.45): Structural model= measurement model+path model; From 8-matrices to 2-matrices formulations of SEM (LISREL, LINCS, RAM, Mplus)
(16.15-18): session of R (how to use the sem package)

Monday, 6th June 2011. Measurement modeling for continuous observed variables:
(14-15.45): Confirmatory Factor Analysis (CFA): latent continuous variables by continuous observed variables
(16.15-18): session of R (CFA with sem package)

Monday, 13th June 2011. Measurement modeling for categorical observed variables:
(14-15.45): Latent Trait Analysis (LTA): latent continuous variables by categorical observed variables
(16.15-18): session of R (LTA with sem package)

Monday, 27th June 2011. Model selection and evaluation:
(14-15.45): Assessing the fit of a Structural Equation Model, and comparing competing Structural Equation Models; Strategies of Structural Equations Modelling
(16.15-18): session of R (how to compute and interpret the fit indices)