IQB
Forschungsdatenzentrum

Cross-Lagged Panel Modeling in R

FDZ Frühjahrsakademie / Spring Academy 2026

- Lecturer: Dr. Takuya Yanagida (University of Vienna)
- Date and Time: Part 1: Wednesday, 11.03.2026, 14:00 – 18:00
  Part 2: Thursday, 12.03.2026, 14:00 – 18:00

Contents

In longitudinal research, the prospective panel design is the most frequently used research design, wherein data on the same set of variables are repeatedly collected from the same individuals over time. The main interest in longitudinal data analysis utilizing this research design is to investigate reciprocal effects between variables. The cross-lagged panel model (CLPM) is the most widely used statistical model for addressing this research interest. However, in recent years, the CLPM has been criticized for its inability to distinguish between within-person dynamics and stable between-person differences over time. Hence, various alternative models have been proposed to disentangle these sources of variance, among which the random intercept cross-lagged panel model (RI-CLPM) has gained considerable popularity. The goal of the workshop is to provide an introduction to longitudinal data analysis based on both the CLPM and RI-CLPM.

The following topics will be covered in the course:

- Concepts of Stability and Change
- Autoregressive Models and Lagged Regression
- Cross-Lagged Panel Model (CLPM)
- Random Intercept Cross-Lagged Panel Model (RI-CLPM)
- Multiple-Indicator CLPM and RI-CLPM

Previous knowledge required

Basic knowledge of regression analysis and practical experience with the statistics program R are required for participation.

Humboldt-Universität zu Berlin
Institut zur Qualitätsentwicklung im Bildungswesen e.V.
Unter den Linden 6, 10099 Berlin

Telefon +49 30 2093 46552
fdz-akademie@hu-berlin.de
www.iqb.hu-berlin.de

KULTUSMINISTER KONFERENZ

Literature

Hamaker, E. L., Kuiper, R. M., & Grasman, R. P. P. P. (2015). A critique of the cross-lagged panel model. *Psychological Methods*, *20*(1), 102–116. https://doi.org/10.1037/a0038889

Little, T. D. (2024). *Longitudinal structural equation modeling* (2nd ed.). Guilford Press.

Mulder, J. D., & Hamaker, E. L. (2021). Three extensions of the random intercept cross-lagged panel model. *Structural Equation Modeling*, *28*(4), 638–648. https://doi.org/10.1080/10705511.2020.1784738

Newsom, J. T. (2023). *Longitudinal structural equation modeling. A comprehensive introduction* (2nd ed.). Routledge.

Software requirements

R version 4.5.0 or later, RStudio version 2025.06 or later, and the latest versions of the following R packages are required to work through the examples and exercises: lavaan and misty.