SWISS SCHOOL OF PUBLIC HEALTH + INTERNATIONAL DOCTORAL COURSES AND
SEMINARS IN HEALTH ECONOMICS AND POLICY

Empirical Policy Evaluation in Health

University of Lucerne, July 8-July 12, 2024

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AIM: The aim of this course is to provide the students with state of the art econometric methods for evaluation of public policy. The course deals with theoretical literature on causal inference in lectures, but emphasis is given to empirical applications using micro data. The course, therefore, includes also practical computer assignments using Stata.

PREREQUISITES: Students are assumed to be familiar with the basic concepts in econometrics, such as linear regression, instrumental variables, panel data, logit/probit models and hypothesis testing. Preferably, students have followed an introductory course in econometrics at the graduate level, but students who completed a course in statistics or advanced research methods are also considered. Students should be familiar with a statistical package, preferably Stata.

FORMAT: The course contains six classroom lectures and three computer lab sessions. During these computer lab sessions students have to work with Stata to make empirical assignments.

ASSESSMENT: The solutions to the two empirical assignments should be handed in together with a take-home exam, which should be completed in the weeks after the course. For the final grade the empirical assignments count for 50% and the take-home exam for the other 50%.

COURSE MATERIAL: The course is not based on a single textbook but it covers the recent literature on policy evaluation and duration models. This literature is summarized in the literature below:

- Angrist, J (2014), The perils of peer effects, Labour Economics 30, 98-108.
- Blundell, R. and M. Costa Dias (2009), Alternative approaches to evaluation in empirical microeconomics, *Journal of Human Resources*, forthcoming.
- Cameron, A.C. and P.K. Trivedi (2004), *Applied Microeconometrics*, Cambridge University Press.
- Cunningham, S. Causal Inference: The Mixtape: https://mixtape.scunning.com
- DiNardo, D. and J.S. Lee (2011), Program evaluation and research designs, in O. Ashenfelter and D. Card, Handbook of Labor Economics 4A, North-Holland, Amsterdam.
- Duflo, E., R. Glennerster and M. Kremer (2008), Using randomization in development economics research: a toolkit, Chapter 61 in Handbook of Development Economics, Volume 4, 3895{3962).

- Heckman, J.J., R.J. LaLonde and J.A. Smith (2000), The economics and econometrics of active labor market programs, in O. Ashenfelter and D. Card (eds.), *Handbook of Labor Economics, Volume 3*, North-Holland, Amsterdam.
- Huntington-Klein, N. The Effect: An Introduction to Research Design and Causality: https://theeffectbook.net
- Imbens, G. and T. Lemieux (2008), Regression discontinuity designs: a guide to practice, Journal of Econometrics 142, 615-635
- Imbens, G.W. and J.M. Wooldridge (2009), Recent developments in the econometrics of program evaluation, *Journal of Economic Literature* 47, 5-86.
- Kiefer, N.M. (1988), Economic duration data and hazard functions, *Journal of Economic Literature* 26, 646--679.
- Lancaster, T. (1990), *The econometric analysis of transition data*, Cambridge University Press.
- Van den Berg, G.J. (2001), Duration models: specification, identification, and multiple duration, in J.J. Heckman and E.E. Leamer (eds.), *Handbook of Econometrics, Volume 5*, North-Holland, Amsterdam.
- Wooldridge, J. (2002), *Econometric Analysis of Cross section and panel data*, MIT Press.

During the course lecture slides and additional literature will be distributed.

MONDAY, July 8

10.00 - 12.30 Lecture 1 (Introduction to duration models) [ML]

- Concepts
- Non-parametric methods
- Parametric models

13.00-14.00 Seminar Yuting Zhang (non-compulsory)

14.30 – 17.00: Lecture 2 (Potential outcomes model and social experiments) [BvdK]

- Introduction to the potential outcomes model
- Definition of various policy parameters
- Randomized experiments
- Difference-in-differences and synthetic controls
- Event studie specifications

TUESDAY, July 9

10.00 - 12.30: Lecture 3 (More on parametric models and semi-parametric models) [ML]

- Time varying covariates and piecewise constant specification of the baseline hazard
- Unobserved heterogeneity in duration models
- Partial Likelihood (Cox model)

14.00 – 16.00: Computer lab [ML]

- Practical assignment 1

WEDNESDAY, July 10

10.00 – 12.30: Lecture 4 (Instrumental variables) [BvdK]

- Switching regression models
- Endogenous regressors, instrumental variable methods and local average treatment effects
- Dynamic treatment effects
- Peer effects

14.00 – 16.00: Computer lab [BvdK]

- Practical assignment 2

THURSDAY, July 11

10.00 – 12.30: Lecture 5 (Multiple spells and multivariate duration models) [ML]

- Fixed effects duration models
- Competing risk models
- Multiple spells multi-state models

14.00 – 16.00: Computer lab [BvdK & ML]

- Completing practical assignments 1 & 2

FRIDAY, July12

10.00 – 12.30: Lecture 6 (Nonparametric Bounds and Discontinuities) [BvdK]

- Treatment bounds
- Regression discontinuity
- Bunching
- Regression kinks