PhD Course

Risk adjustment methods for quality of care outcomes with administrative data

Block course:

24.09.2018: 9:00 am - 12:30 pm / 01:30 pm - 05:00 pm

25.09.2018: 9:00 am - 12:30 pm / 01:30 pm - 05:00 pm

26.09.2018: 9:00 am - 12:30 pm / 01:30 pm - 05:00 pm

Classroom: 4029, Esplanade 36

Course Instructor: Prof. Dr. Marco Caliendo / Prof. Dr. Tom Stargardt

Course Value: 5 ECTS

Course Overview: The course will cover methods for drawing causal inference in interventional, non-experimental/non-randomized studies on quality of care with administrative data. In order to control for confounders between intervention and control group, at first simple methods (such as stratification and standardization) as well as advanced methods (Propensity Score Matching, Difference-in-Differences, Regression-Discontinuity Designs) are taught. The course will also give an overview on common risk-adjustment instruments (generic and disease specific risk-adjustment scores based on diagnoses or ATC codes) for use with health outcomes.

The course will be split in theoretical and practical sessions. During the practical sessions we are going to implement the discussed estimators with STATA. Hence, a basic knowledge of STATA (data handling, running do-files, etc.) is a prerequisite for the course. If you are not familiar with STATA you might want to check the online introduction from the UCLA Institute for Digital Research and Education https://stats.idre.ucla.edu/stata/. The relevant estimation commands and ado-files will be explained during the course; some of them require STATA 13 or higher.

The course is structured in the following modules / topics:

Module 1: Introduction into program evaluation with health outcomes (TS)
   o   Study design / Evaluation framework
   o   Selection bias / Confounding
   o   Simple Methods (Stratification / Standardisation)
   o   ICD-10 / ATC based risk adjustment instruments / Scores for use with health outcomes
   o   [Includes exercise on stratification/standardization]

Module 2: The Principle of Unconfoundedness and the Implementation of Matching Estimators I (MC)
- o The Basic Idea of Matching under Unconfoundedness
- o Redefining Selection Bias
- o How Matching and Regression under UCF differ
- o Exact Matching and Covariate Matching
- o The Balancing Property of the Propensity Score
- o Estimating the Propensity Score
- o Overlap and Common Support
- o [Includes practical exercises on implementation of matching]

Module 3: The Principle of Unconfoundedness and the Implementation of Matching Estimators II (MC)
- o Choosing a Matching Algorithm
- o Assessing the Matching Quality
- o Effect Estimation
- o Sensitivity Analysis
- o [Includes practical exercises on implementation of matching]

Module 4: Difference-in-Differences (MC)
- o Motivation
- o Formal Approach
- o Estimation
- o Threats to Validity
- o Combining DiD with Matching
- o [Includes practical exercises on DiD]

Module 5: Regression Discontinuity Design (MC)
- o Motivation
- o Sharp RDD
- o Fuzzy RDD
- o Practical Advice and Threats for Validity
- o Outlook: More Complicated RDD Setups
- o [Includes practical exercises on RDD]

Module 6: Application with Health Outcomes / Case Studies (TS)
- o Paper based discussion of methods / discussion of applications
- o Summing up

Assessment: Students will have to complete an assignment doing (statistical) analyses of a dataset. Results have to be presented in the form of a short summary paper.

Teaching language: English