Short Course on Regression Discontinuity Designs
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1 Instructor

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2 Overview

The main goal of this course is to give a short, targeted review of standard and recent methodological and practical developments in the regression discontinuity (RD) design literature, with particular emphasis on impact evaluation and related empirical work.

It is assumed that participants have elementary working knowledge of econometrics and program evaluation. It would be useful, but not required, if participants were familiar with recent developments in the literature on program evaluation and treatment effects. This course is, nonetheless, meant to be self-contained and hence most underlying statistics/econometrics concepts and results are introduced and explained along the training classes.

The next section gives a tentative syllabus for the course on RD methodology and empirical practice. Each meeting will include both slides and computer-based exercises, and the focus will be on interpretation and implementation of recent methodological results in the RD literature. The empirical portion will employ R and Stata packages developed by the instructors and co-authors (e.g., see the website for the rdrobust. For further details, please visit the package’s website and read the companion software articles Calonico, Cattaneo, and Titiunik (2014e) and Calonico, Cattaneo, and Titiunik (2014b).

There are several review articles on RD methodology and empirical practices. This course will discuss (and update) topics in Imbens and Lemieux (2008) and Lee and Lemieux (2010). Since these reviews do not cover many of the most recent methodological results available in the literature, I am currently working on two up-to-date reviews on RD methodology (Cattaneo and Titiunik, 2014; Skovron and Titiunik, 2015) which should be available online soon. These more recent methodological developments will be discussed throughout the course.

All course materials will made available on a dedicated website.
3 Training course: Outline, Schedule & Some References

This section gives a quick overview of the main topics covered. Material is self-contained in lecture and slides, but further (not required) academic readings are given for completeness.

Introduction, Basic Methodology and Implementation

Introduction to causal inference and RD designs, including different RD settings and population parameters of interest. Implementation of basic procedures: flexible parametric inference, local-polynomial non-parametric inference, and local randomization-based inference. Power calculations and other practical considerations.

Readings:

Robust Local-Polynomial Methods

Identification and inference in sharp and fuzzy RD designs using flexible/nonparametric local-polynomial methods. Robust methods, interpretation, implementation, specification testing, and falsification issues.

Readings:

Randomization-inference Methods

Other recent developments in RD. Topics include: (i) randomization inference methods, and (ii) discrete running variables.

Readings:
- Other topics: Calonico, Cattaneo, and Titiunik (2014c).

RD designs with multiple cutoffs and multiple scores

RD designs with multiple running variables: normalization of the running variable to a common cutoff, pooled RD effect, identification of cutoff-specific effects under different assumptions. RD designs with multiple running variables: general setup, geographic RD designs as a particular application, equivalence with multiple cutoffs.

Readings:
- Multiple running variables: Cattaneo et al. (2015)

Extensions and Generalizations of RD design

Extrapolation of RD effect away from the cutoff. Fuzzy RD design. Kink Designs.

Readings:
• Extrapolation: Wing and Cook (2013), Cattaneo et al. (2015)
• Kink Design: Card et al. (2014)

References


