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A Course in Causal Inference

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The course will take place Monday January 20th and Tuesday January 21st, at Humboldt-Universitt, Berlin.

In this course I will discuss developments in methods for causal inference and program evaluation. I will focus on practical issues important in implementation of the methods and for reading and understanding of the literature, and will provide detailed illustrations of the methods. There will be little discussion of technical details, for which we will refer to the literature.

The course is based on the forthcoming book by Guido Imbens and Donald Rubin, "Causal Inference in the Social Sciences." Chapters of this book will be distributed. In addition there will be detailed slides that will be distributed prior to the course.

The level of the course is such that it will be accessible to researchers with some background in econometrics, including linear regression methods. Topics that will be covered in the course span a range of areas in cross-section econometrics, although the course will not be comprehensive.

Outline

1. Monday 1/20/2013, 10.30am-noon: Causal Inference: Introduction and Randomized Experiments

   In this lecture I will discuss the potential outcome approach to causality, as well as various methosd for analyzing randomized experiments. These will incluce Fisher exact p-values based on randomization inference, and Neyman's repeated sampling methods.

2. Monday 1/20/2013, 1-2.30pm: Matching Methods, Part I

   In this lecture I will discuss methods for anlyzing observational studies under the assumption of unconfoundedness or selection on observables. The methods will include matching and subclassification on the propensity score. I will also discuss the limitations of least squares regression methods in this setting.

3. Monday 1/20/2013, 3-4.30pm: Matching Methods, Part II

   In this lecture I will discuss design methods in the setting of unconfoundedness. I will propose methods for assessing and improving balance, and methods for assessing the assumption of unconfoundedness. I will illustrate these methods using some real data sets.

4. Tuesday 1/21/2013, 10-11.30am: Instrumental Variables

   In the fourth lecture I will discuss instrumental variables methods, with a special focus on local average treatment effects.

5. Tuesday: 1/21/2013, 11.45am-1pm: Regression Discontinuity

   In the fifth lecture I will discuss regression discontinuity methods.