6305: APPLIED ECONOMETRICS FOR POLICY ANALYSIS  
January-May, 2014

Sudha Narayanan  
Office Location: Rb III-304  
📞+91-22-28416549  
✉️sudha@igidr.ac.in

Class Timings and Venue : Monday and Tuesday, 9.30 – 11.00 am, Seminar 2  
Office Hours : By appointment

Course Description

This course introduces students to a range of econometric techniques used to assess impacts of policy changes and programmatic interventions. The goal of this course is three fold, to enable students (1) to critically read literature on impact evaluation and policy analysis, (2) to assess the appropriateness of different techniques for their own research questions and (3) to implement elementary versions of a selection of these techniques in STATA. The emphasis of this course is to expose students to the relevance, scope and the limitations of different techniques to the answer the particular question at hand.

Pre-requisites

The course is intended for those who already have training in basic statistics and econometrics. It would be especially suitable to those who are designing their research projects or are already doing research.

Textbooks

There are three main texts for this course.


Other texts that will be used for specific topics include:


Apart from these, several key papers that demonstrate use of these different techniques will be assigned as required reading from time to time. Other papers cover critical commentaries on methods.
Course Outline
The course will first review some basic econometrics and then focus on methodological approaches to empirical analysis before taking up specific approaches in detail. A brief syllabus is provided below. A detailed syllabus and reading list is attached at the end of this document.

I. Causal Reasoning and Research Design

II. Overview of Regression Basics

A. EXPERIMENTAL APPROACH

III. Randomized Experiments – Use and Abuse

B. NON EXPERIMENTAL APPROACH

IV. Selection on Observables Designs

1. Regression methods
2. Matching techniques and Propensity Score
3. Quantile Regression

V. Selection on Unobservables Designs

1. Linear panel data models. Fixed-effects and random effects models.
2. Difference in Differences models, Triple Differences.
3. Heckman selection corrections and control function approaches.
4. Instrumental Variables
5. Regression Discontinuity Research Design
6. Interrupted Time Series and Pipeline Methods

VI. Field Surveys

Evaluation
Evaluation will take place throughout the course and students will be assigned a combination of one in-class quizz (30%), one take home assignment and/or one class presentation (30%) and an end-semester exam (40%). The exact pattern of evaluation will be decided once the course convenes. In all evaluations, I reserve the right to a viva voce to determine the authenticity of your efforts.

Auditing the Course
If you decide that you would like to audit the course for some reason, please let me know within a week from the first lecture.

Special Needs
If you need any special arrangement because you are physically challenged (or otherwise) please contact me and I will accommodate your request according to the institute guidelines. If you are unwell and are therefore unable to take an exam, please inform me before the exam and I will try to explore alternatives (e.g. a makeup exam) in accordance with the institute rules.

Ethical Issues
Students are strongly encouraged to discuss and collaborate on work where this is explicitly allowed. Such sharing often enables effective learning of difficult material. Where this is not allowed, students are expected to turn in original work that is independently undertaken without the support or help of others. There is a zero tolerance policy for plagiarism and strong action will be taken against students suspected of the same.
SYLLABUS AND READING LIST
In class, I will indicate which readings are optional.

I. Causal Reasoning and Research Design

Chapter 1, Shadish, Campbell and Cook
Chapters 1 and 2, Angrist and Pischke
Chapter 2 and 3, Cameron and Trivedi
Chapter 25. Cameron and Trivedi. Treatment Evaluation. Review Chapter


DiNardo, John, “Natural Experiments or Quasi-Natural Experiments,” in New Palgrave Dictionary of Economics”.


A. EXPERIMENTAL METHODS

II. Introduction to Randomized Experiments

Chapter 3. Khandker, Koolwal, Samad
Chapter 8, 9, 10. Shadish, Cook and Campbell


#Miguel, E. and M. Kremer, 2004, Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities, Econometrica 72, 159-217


Randomized Experiments revisited: Use and Abuse


Small Changes, Big Results, Boston Review, Special Issue, March-April 2011, "http://www.bostonreview.net/BR36.2/ndf_behavioral_economics_global_development.php"


B. NON-EXPERIMENTAL METHODS

III. Overview of Regression Basics

Properties of Estimators, OLS, Violation of Classical Assumptions, Omitted Variable Bias, Monte Carlo Simulation Methods.

III.1. Regression Methods


IV. Selection on Observables Designs

IV.1. The Propensity Score and Matching Techniques

Chapter 4.Khandkher, Koolwal, Samad


Marco Caliendo and Sabine Kopeinig, Some Practical Guidance for the Implementation of Propensity Score Matching, mimeo. 2005


IV.2. Decomposition and ‘Counterfactual-Distribution’ Estimation Techniques


IV.3. Synthetic Control Methods


IV.4. Critical Assessments of these Methods


IV.4. **Quantile Regression**

Chapter 8. Khandkher, Koolwal, Samad

Chapter 7, Quantile Regression. Angrist and Pischke


V. **Selection on Unobservables Designs**

V.1. **Linear panel data models. Fixed-effects and random effects models**

Ch 13, 14 Wooldridge Econometrics

Chapter 5 Angrist and Pischke

Chapter 21 Cameron and Trivedi

V.2. **Difference in Differences models, Triple Differences**

Chapter 5: Khandkher, Koolwal, Samad

Chapter 5 Angrist and Pischke


#Ravallion, M., Galasso, E., Lazo, T., & Philipp, E. What Can Ex-participants Reveal about a Program's Impact?. *Journal of Human Resources*, 2005, 40(1), 208-230


V.3. **Control function approaches, Heckman's Correction Model.**

Chapter 14 and 16.5 Cameron and Trivedi. Limited Dependent Variable Models

Chapter 17 Wooldridge for basics. Limited Dependent Variable Models

V.4. **Instrumental Variables**

Chapter 15, Wooldridge for basics

Chapter 6, Khandkher, Koolwal, Samad
Chapter 4: Angrist and Pischke


**V.6. Regression Discontinuity Research Design**

Chapter 7: Shadish Cook and Campbell

Chapter 7: Khandkher, Koolwal, Samad

Chapter 6: Angrist and Pischke


**V.7. Interrupted Time Series and Pipeline Methods**

Chapter 6: Shadish Cook and Campbell