

## Econometric Tools for Business Insights

**Aim of the course:** A central objective of this course is to understand the use of econometric methods to analyze data for efficient decision making in the field of business and economics. We will examine the mathematical and statistical foundations of the methods, apply them using the statistical software STATA, and learn to verbally communicate the results of data analysis. The course will have a focus on managerially relevant applications, cases and interpretations. However, to develop a comprehensive understanding of the subject, decision problems from a broad range of areas will be examined, including industry, labor, health and education. Below is a rough summary of the course structure.

Week	Session1	Session 2
Week 1	Correlation vs Causality	Observational Studies and Regression
Week 2	Goodness of Fit, Conditional Independence, Homoskedasticity	Warming up with STATA
Week 3	OLS and Prediction	Prediction using case study
Week 4	Experimental Approach: ATE, ATT, LATE, Treatment Heterogeneity	Experiment vs Observational studies: Data Analysis
Week 5	Measurement Error and Omitted Variables Bias, Applications	Measurement Error using a Simulation Exercise
Week 6	Instrumental Variables (IV): Estimation and Application	2 SLS using STATA
Week 7	IV: Weak Instruments	More IV problems in STATA
Week 8	Instrumental Variables: LATE again	Wald Estimate, Hausman Test, Overidentification
Week 9	Quasi-Experimental Designs: Fixed Effects	Difference-in-Differences
Week10	Project Discussion – Part I	Project Discussion – Part II

**Instructor:** Tanika Chakraborty Email: [[tanika@iimcal.ac.in](mailto:tanika@iimcal.ac.in)]  
(Consultation: Appointment through email.)

**Teaching Assistant:** Aayushi Mukherjee [[aayushim\\_tta@iimcal.ac.in](mailto:aayushim_tta@iimcal.ac.in)]

**Venue:** Lectures: L51 (**Tuesday**) ; Lab: Finance lab (**Thursday**)

**Evaluation:** One Assignment grade (STATA) 20%  
Project 30%  
Written End-term Examination 50%

Text:

1. Joshua D. Angrist, Jorn-Steffen Pischke, Mostly Harmless Econometrics: An Empiricist's Companion, Princeton University Press, 2008

Reference:

1. Dougherty, Christopher. Introduction to Econometrics, Oxford University Press, Fourth Edition
2. Suggested Journal Articles