Three Lectures on Useful Concepts and Tools in Econometrics

by

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These lectures are designed to review what econometrics is all about from a different perspective, and to introduce useful tools in econometrics These lectures would be useful for those students and/or researchers who are planning to write an empirically-oriented papers on applied issues.

Lecture I. Overview of Econometrics

Statistical inference: Classical vs. Bayesian approaches (Hypothesis testing vs. Model selection, Objective oriented inferences, Lindley's paradox)

Classification: Direct vs. Indirect, Simple vs. Detailed

Lecture II. Direct Classification

Conditional independence assumption (CIA), matching vs. multiple regression, propensity score matching (PSM), difference in differences (DinD)

Lecture III. Indirect Classification

Observables vs. unobservables, instrumental variables (IV), treatment heterogeneity and LATE, regression discontinuity (RD)

Other Issues

Complementarity in size between data and model (small vs. big data, small vs. big model, XOR problem and deep neural network model, classification and regression trees (CART)