

Structural Estimation

Richard W. Evans¹

²University of Chicago, Open Source Economics Laboratory, M.A. Program in
Computational Social Science

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Syllabus

- Syllabus on https://github.com/rickecon/StructEst_W20/
- Go through syllabus
- How to submit assignments
- Tutorials

Assignment	Quantity	Points	Total Points	Percent
Problem Sets	4	10	40	57.2%
Project initial presentation	1	5	5	7.1%
Project final presentation	1	5	5	7.1%
Project paper	1	20	20	28.6%

Model

Def: Model

A set of cause and effect mathematical relationships between variables used to explain, predict, and understand phenomena.

- Exogenous variables: inputs to the model, taken as given, from outside the model
- Endogenous variables: output of the model, dependent exog. vars.

Data generating process (DGP)

Def: Data generating process (DGP)

- Def. 1: A complete description of the mechanism that causes some observed phenomenon with all its dependencies (too complex)
- Def. 2: A simplified model version of the process that causes some observed phenomenon with its key dependencies.
 - This DGP or model must be specified in such a way that it could be used to simulate data.

Structural Model

Def: Structural Model

Model in which the equations derived from individual optimization or firm optimization (behavioral equations).

- Includes linear models and linear approximations
- Most often nonlinear, dynamic

Reduced Form model

Def: Reduced Form Model

Models in which equations are either not derived from behavioral equations or are only implicitly a linear approximation of some other model.

- Most often static
- There can be gray area or overlap between these two definitions
- Includes machine learning

PS1

- Set up **Problem Set 1**: structural vs. reduced form short paper

Comparison of three papers

- (Theory and reduced form plus RCT) Attanasio, et al, “[Estimating the Production Function for Human Capital: Results from a Randomized Controlled Trial in Colombia](#)” (*AER*, Jan. 2020)
- (Theory) Straub and Werning, “[Positive Long-Run Capital Taxation: Chamley-Judd Revisited](#)”, (*AER*, Jan. 2020)
- (Structural estimation) Barsky and Sims, “[Information, Animal Spirits, and the Meaning of Innovations in Consumer Confidence](#)”, (*AER*, June 2012)
- (Reduced form) Bailey, et al, “Does Access to Family Planning Increase Children’s Opportunities?: Evidence from the War on Poverty and the Early Years of Title X”, (*JHR*, Fall 2019)