

Introduction to Sufficient Statistics

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What is the sufficient - statistical approach?

- Macro: policy analysis is structural \rightarrow assume the entire structure of the economy & study policy within this structure.
- market structure is assumed almost religiously, without looking at evidence, but determines all policy results \rightarrow policy insights are baked into initial assumptions about market structure
- assume Walrasian markets \rightarrow markets are efficient, policy is unnecessary
- assume monopolistic markets \rightarrow markups $> 0 \rightarrow$ price too high, not enough activity
- assume monopsonistic markets \rightarrow markdowns $> 0 \rightarrow$ price too low, not enough activity
- Macro: policy analysis is structural \rightarrow need to calibrate all model parameters (to run simulations)
- But many parameters are unobservable, cannot be properly identified & measured | estimated

• To address these issues → take sufficient-statistic approach.

- from public finance (1950s, 1960s, 1970s)

- Saez (2001): optimal taxation

Chetty (2006): UI

Chetty (2009): survey

- new in macro in 2010 → spreading rapidly now.

Overview of sufficient-statistic approach:

① Minimal set of assumptions on welfare

function + structure of economy that allow for policy analysis → no need to specify entire model.

- analysis applies to a range of model (any model satisfying minimal set of assumptions)
- more likely to hold in real world & be useful to practitioners

② Express results & optimal policies in terms of statistics that can be properly estimated → connection b/w theory & empirics