Introduction to Sufficient Statistics

Pascal Michaillat
https://www.pascalmichaillat.org/t5.html

What is the sufficient-statistic approach?

- Macro: policy analysis is structural → 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 → policy insights are baked into initial assumptions about market structure
- assume Walrasian markets → markets are efficient, policy is unnecessary
- assume monopolistic markets → markups > 0 → price too high, not enough activity
- assume monopsonistic markets → markdowns > 0 → price too low, not enough activity
- Macro: policy analysis is structural → 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 than can be properly estimated → connection b/w theory & empirics