Chapter 18
Health Applications: Outline

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18.1 Introduction

Scope and applications of health econometrics

18.2 The early days – RAND experiment and its influence (1970s–1980s)

- Models and estimators for cost regressions (including two-part models) – (mostly) endured

    - Two-part, selectivity and hurdle models: taxonomy of model classes
    - Two-part vs. selectivity models: theory and debate
    - Monte Carlo evidence
    - Empirical evidence

- Models for limited dependent variables – endured

    - Binary response models
    - Multinomial and ordered responses

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   – Count data models

- Duration (survival) models

   – Semiparametric models
   – Parametric models
   – Models with unobserved heterogeneity
   – Competing risks and multiple spells

- Some of the key references: Manning, Newhouse, Duan, Keeler and Leibowitz (1987), Butler, Anderson and Burkhauser (1989)

Some lessons learnt:

- Key issues in identification even under randomized treatment: compliance, attrition
- Separate modelling of responses on the extensive vs intensive margin is needed
- Treatment effect heterogeneity is important – need for large-scale data

18.3 Social surveys and microeconometrics (1990s–2000s)

- Micro-data based approaches became the standard

   – Dead end: time series econometric methods applied to aggregated health data (e.g., OECD health datasets)

- Panel data approaches – endured but adapted

   – Linear models
   – Conditional logit estimator
   – Parametrizing unobserved individual effects
   – Dynamic treatment effects

- Analysis of heterogeneity – latent classes/finite mixture models, etc. – faded somewhat
- Self-reported health and reporting behaviour – faded
- Health inequality measurement and related decompositions – superseded by inequality of opportunity
- Some of the key references: Lindeboom, Portrait and Van den Berg (2002), Lee and Jones (2004), Lindeboom and Van Doorslaer (2004), Jürges (2007)

Some lessons learnt:

- Aggregate data less suitable for causal analysis
- Aggregate data mask important within-country heterogeneity
- Self-reported health: substantial measurement errors
- Dynamics often matter in health – outcomes are persistent

18.4 Administrative data, quasi-experiments and casual inference (2000s–)

- Declining role in health econometrics:
  - Structural econometrics (not clearly "dead end" but declining share)
  - Discrete choice experiments and conjoint analysis (not clearly "dead end" but shift of focus)

- IV – endured but with scepticism (relevance, validity)
  - Newer approach: genetics as IV
- Move away from IV approaches to exploiting natural experiments
  - Matching
  - Regression Discontinuity
  - Difference-in-Differences
- Some approaches (RDDs) based on old data
- Some scepticism for contemporaneous policy
- Some of the key references: Almond, Chay and Lee (2005), Lleras-Muney (2005), García Gómez and López Nicolás (2006)

Some lessons learnt:

- Structural approach: heavy reliance on modelling assumptions
- Valid instruments are rare – policy shocks are often the best IVs
- Administrative data: scope for analysis of rare events, detailed analysis of dynamics
  - Identification remains the key

18.5 Future prospects

Big data and machine learning in health econometrics

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