

Agency in Hospital Choice

Evidence from Gaynor, Propper, and Seiler (2016)

Background

- CABG: Coronary Artery Bypass Graft – surgical procedure used to treat coronary heart disease
 - Common, elective, and risky
- Reform in the English National Health Service:
 - 2006 reform - requiring GPs to offer patients a choice of 5 providers
 - Gave patients and physicians more flexibility in referral decisions
 - New information system - "Choose and Book" facilitated referrals

Question and Contribution

- Q: Does increased consumer choice impact patient outcomes and clinical quality?
 - How do patients choose hospitals when patient choice is improved?
- Contribution: unique aspect of data - observed change in the process by which choice sets are formed
 - Exogenous variation in patient choice

Data

- Data: UK Department of Health's Hospital Episode Statistics (HES) from 2003-2008
 - Detailed patient level data
 - Contains information on every English National Health Service (NHS) hospital inpatient admission, specifically inpatient discharges receiving CABG surgery from every hospital

Structural Model

- Pre-reform (constrained) choice
 - Physician utility

$$V_{ij} = \bar{V}_{ij} + \nu_{ij} = g(D_{ij}) + \zeta_j + \nu_{ij},$$

$$g(D_{ij}) = \gamma_{d1} D_{ij} + \gamma_{d2} \text{Closest}_{ij} + \gamma_{d3} \text{WithinPCT}_{ij}.$$

$$V_{ik} \geq \max_{j \in J} (V_{ij}) - \lambda_i,$$

$$\lambda_i = \bar{\lambda} + \lambda X_i,$$

- Probabilities

$$\Pr_{ik}^{CON}(\Omega_{patient}, \Omega_{physician}) = \sum_{CS_k} \Pr_i(CS_k | \Omega_{physician}) \Pr_i(k | CS_k, \Omega_{patient}),$$

Structural Model

- Post-reform (unconstrained) choice

- Patient utility

$$U_{ij} = \beta_{wi}W_{jt} + \beta_{zi}Z_{jt} + f(D_{ij}) + \xi_j + \varepsilon_{ij},$$

$$U_{ij} = \bar{U}_{ij} + \varepsilon_{ij} = \beta_{wi}W_{jt} + \beta_{zi}Z_{jt} + f(D_{ij}) + \xi_j + \varepsilon_{ij}.$$

$$f(D_{ij}) = \alpha_{d1}D_{ij} + \alpha_{d2}Closest_{ij},$$

- Probabilities

$$\Pr_{ik}^{UNCON}(\Omega_{patient}) = \frac{\exp[\bar{U}_{ik}(\Omega_{patient})]}{\sum_{j \in J} \exp[\bar{U}_{ij}(\Omega_{patient})]},$$

Identification

- Separate identification of patient and physician preferences
 - Reform causes changes in the process by which choice sets are formed
- Exclusion Restrictions
 - Exclude at least one variable from physician utility that enters patient utility
- Stability of patient preferences
 - Patient preferences regarding waiting times and mortality are assumed not to change over time
- Endogeneity of wait times
 - Fixed effect approach

Results

- Reduced form estimates:
 - Results suggest that patients chose better hospitals once they were allowed a choice of provider
- Structural model estimates:
 - Parameter estimates
 - Patients care about distance to the hospital
 - Patients dislike higher mortality rates (lower quality)
 - Elasticities of demand
 - Lower-income households benefited slightly more from the reform
 - Hospital demand became five times more responsive to quality

Conclusion

- Increased patient choice likely results in increased patient welfare/hospital quality
 - Patients are more responsive to the clinical quality of care and are not more responsive to waiting times
 - The more severely ill and those from low-income areas benefit more
 - Hospitals responded strongly to increased demand elasticity

Discussion Questions

- Due to the high risk of death following a CABG procedure, the authors assume that the survival probability is the best indicator of hospital quality
 - Do you think that mortality rate a good measure of hospital quality *in this case*?
 - Do you think that mortality rate is *generally* a good measure of hospital quality?
- Why do you think the more severely ill and those from low-income areas exhibit greater responsiveness to increased choice?