

Patient Choice and Hospital Competition

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Helsinki, 2 February 2018

Outline

- Patient choice: demand and quality
- Patient choice: hospital competition
- Other aspects of competition
- Policy implications

Introduction

- Patients' hospital choice policies
 - England, Denmark, Netherlands, and Norway
 - Long-term feature in US, France and Germany
- One aim is to improve hospital quality
 - hospitals compete for patients via quality in systems with fixed prices
- Better patient allocation across hospitals
- Choice as a *right*

Different aspects of patient choice

- No choice vs choice
 - Patient goes to closest hospital
- Facilitate choice
 - Public reporting (eg quality indicators)
 - Remove barriers (administrative, financial)
- Gatekeeping
 - GPs channel (limits) choice

Examples

- Norway
 - introduced in 2001, strengthened in 2015
- France
 - website covering 230 quality indicators and 230 activity indicators
- Portugal
 - no/limited choice
- EU Directive on cross-border healthcare
 - 2011/24/EU

Possible concerns

- Patients make informed choices?
 - Does it work?
 - (better patient allocation, or higher quality)
 - Who benefits most from choice?
 - More educated, more severe (inequalities)
 - Behavioural aspects: process relevant info

Possible concerns

- Some providers take it all
 - High quality hospitals get most resources
 - Disciplining effect?
 - Or, spiral to the bottom?
 - Capacity constraints, waiting times
- Sustainability of health systems
 - (In)appropriate access; spending?

How can research inform policy developments?

- Two related empirical literatures
- Does hospital patient choice respond to quality?
 - Examples: hip/knee replacement, coronary bypass, angioplasty, cataract surgery
 - **Quality** (and distance) → **Choice**
- Does hospital's quality respond to competition enhanced by patient choice?
 - **Choice** and competition → **Quality**

Does hospital choice depend on quality?

- Patient choice
 - Choice = $f(\text{quality, waiting time, distance})$
- Channels quality \rightarrow choice :
 - Reputation
 - word of mouth, social networks
 - GPs
 - Public reporting (eg website)

Does hospital choice depend on quality?

- Quality measures
 - Mortality (general, condition specific)
 - Readmission
 - Patient reported health outcomes
 - Waiting times (responsiveness)
- Most studies from US, and England
 - Very little on GP choice, where quality more difficult to measure
 - Some evidence from Netherlands, Italy

What does the literature say?

- Demand *does* respond to quality
 - but not a lot, low responsiveness
 - distance key predictor of patient choice
- Implications
 - Drop choice policies?
 - Make more effort? (early days)
- Would high response be good news?

Do patients choose hospitals that improve their health?

Gutacker, Siciliani, Moscelli and Gravelle, 2016
Journal of Health Economics



New NHS internal market

- Prospective pricing
 - from 2003/4: money follows the patient
- Private sector providers
 - allowed to treat NHS patients (2003 onwards)
- Patient Choice policy:
 - From 2006: patients must be offered choice of at least 4 providers for elective treatment
 - From 2008: choose any qualified provider
- NHS Choices website
 - from 2007: public information on hospital quality

Determinants of patient choice

- Quality measures
 - Patient Reported Outcome Measures (PROMs)
 - measure health and functioning before and after treatment
 - emergency readmissions rate
 - mortality rate
 - All measures are risk adjusted and mostly in the public domain
- Waiting times
- Distance or travel time
- Multinomial logit models

Oxford hip score (PROM)

- Condition-specific
- Same design for Oxford Knee Score
- Focus on *functioning* and *pain*
- 12 questions/items
- Each item scored 0 (extreme problems) to 4 (no problems)
- Overall score calculated as sum of items (range: 0 to 48)

Problems with your hip

✓tick one box for every question.

During the past 4 weeks..

1.	During the past 4 weeks..... How would you describe the pain you <u>usually</u> had from your hip? None Very mild Mild Moderate Severe <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2.	During the past 4 weeks..... Have you had any trouble with washing and drying yourself (all over) <u>because of your hip</u> ? No trouble at all Very little trouble Moderate trouble Extreme difficulty Impossible to do <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3.	During the past 4 weeks..... Have you had any trouble getting in and out of a car or using public transport <u>because of your hip</u> ? (whichever you tend to use) No trouble at all Very little trouble Moderate trouble Extreme difficulty Impossible to do <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
4.	During the past 4 weeks..... Have you been able to put on a pair of socks, stockings or tights? Yes, Easily With little difficulty With moderate difficulty With extreme difficulty No, Impossible <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
5.	During the past 4 weeks..... Could you do the household shopping <u>on your own</u> ? Yes, Easily With little difficulty With moderate difficulty With extreme difficulty No, Impossible <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6.	During the past 4 weeks..... For how long have you been able to walk before <u>pain from your hip</u> becomes severe? (with or without a stick) No pain/ More than 30 minutes 16 to 30 minutes 5 to 15 minutes Around the house <u>only</u> Not at all -pain severe on walking <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

How many hip replacement patients bypass their local hospital in England?

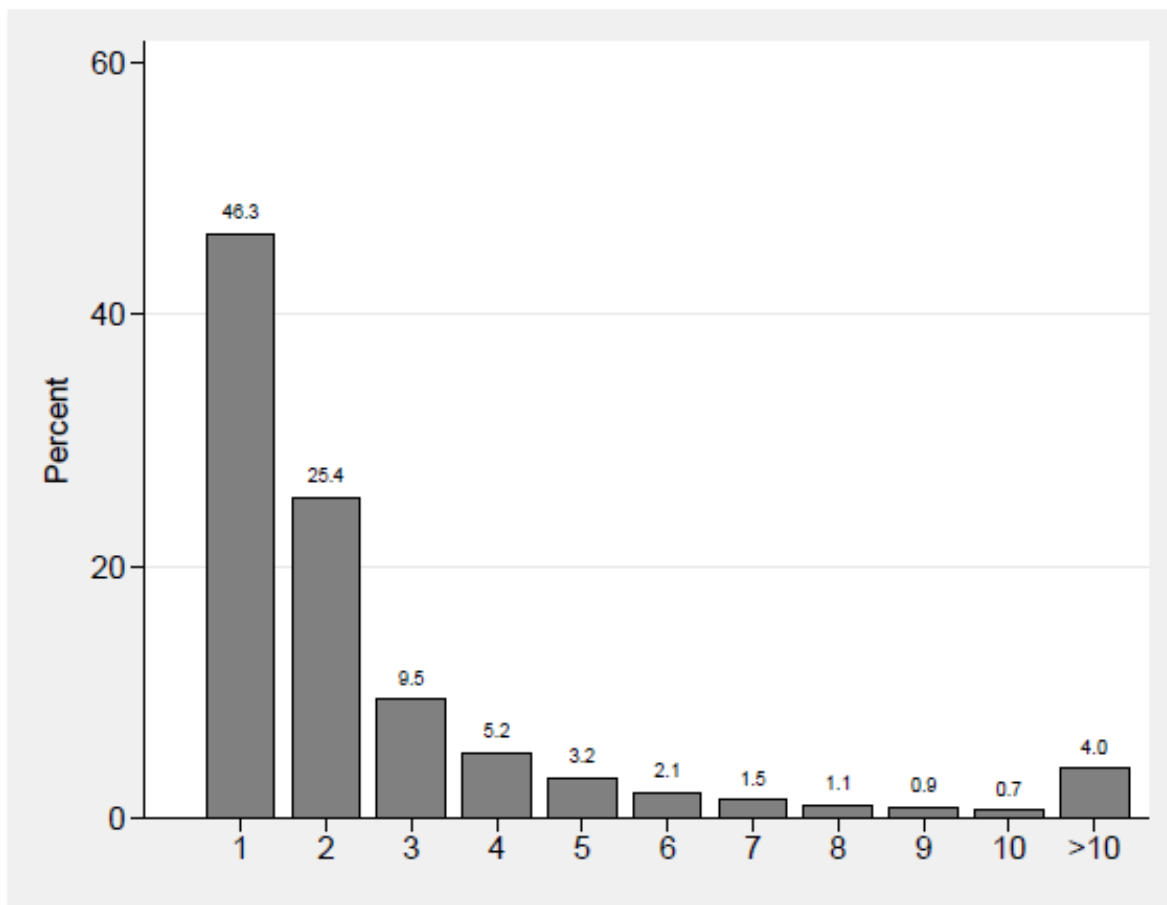


Figure 1: Percentage of elective patients who went to their Nth nearest hospital

What distance they travel? How long do they wait?

Variable	Obs	Mean	SD
Patient characteristics			
<u>Distance travelled (in km)</u>	173,773	14.7	17.7
Distance travelled past closest provider (in km)	173,773	5.4	14.8
Number of providers within 10km radius	173,773	1.6	1.7
Number of providers within 30km radius	173,773	8.5	7.3
Age	173,773	68.0	11.5
Male	173,773	0.40	0.49
Past utilisation	173,773	0.13	0.49
Number of Elixhauser conditions	173,773	0.43	0.94
Income deprivation	173,773	0.12	0.09
Pre-operative Oxford Hip Score ^a	71,614	17.5	8.2
Provider characteristics			
Observed volume	571	304.3	209.1
<u>Waiting time (in months)</u>	571	2.5	1.1
Change in Oxford Hip Score	571	19.8	1.4
28-day emergency readmission rate (in %)	571	5.65	2.41
28-day mortality rate (in %)	571	0.17	0.36

The big question

- How much are patients willing to travel for a large increase in quality?
 - *Large*: one standard deviation increase in health gain, readmission, mortality
- (Small) Answer:
 - 1.3 km for large increase in health gain
 - 1 km for a large reduction in readmissions

Key quantitative findings

- Demand increases
 - By **9.8%** as a result of one SD in health gain
 - By **6.8%** as a result of one SD in readmission
 - By **0.7%** as a result of one SD in mortality

Are we all different?

- **Older patients**
 - dislike distance more
 - care less about waiting time
 - Value more quality (proms, readmissions)
- **Healthier patients (pre-treatment health)**
 - more willing to travel
 - lower marginal disutility from distance

Overall versus condition specific quality

- Beckert et al (2012) also focuses on hip replacement
- They show that demand decreases with
 - Overall mortality
 - Hospital acquired infections
 - Clinical Quality Commission rating
- Implications for design of information

Patient choice: *cataract surgery*

- Sivey (2012) investigates how waiting times affect hospital choice
 - Cataract fairly standardised treatment
 - 10% increase in waiting times reduced demand by 1% (with a mean wait of 3 months)

Interpretation

- Patient choice depends on quality
- But who is choosing?
 - The patient
 - The GP
- The above literature is cross-sectional
 - How *choice policies* change demand responsiveness to quality?

Patient choice: *coronary bypass*

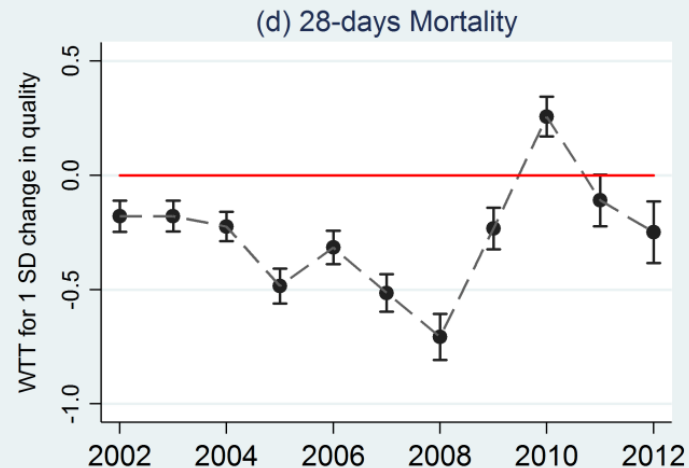
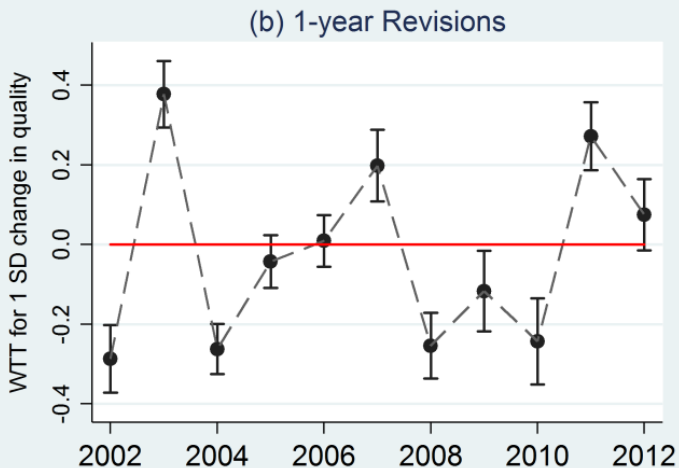
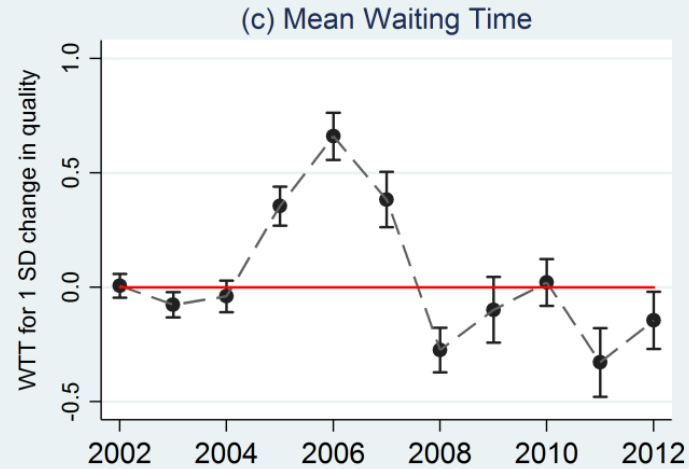
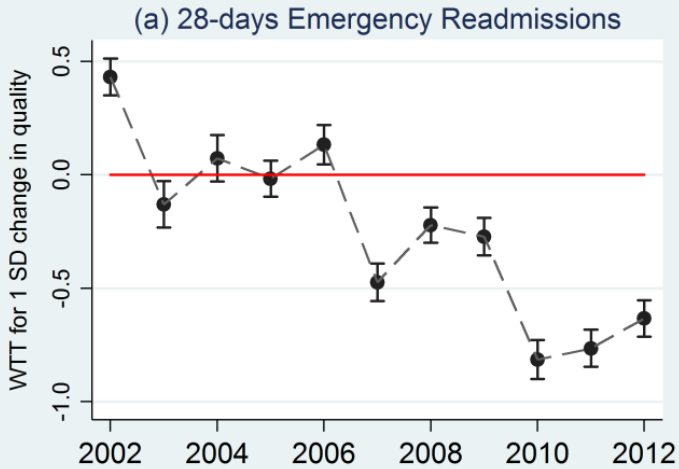
- Gaynor, Propper, Seiler (2016, *AER*)
compare how quality (mortality, wait) affects choice
 - Before “patients’ choice” in 2006:
 - neither wait time nor mortality affect choice
 - After “patients’ choice”
 - mortality reduces demand; no effect from waiting

Location, quality and choice of hospital: Evidence from England

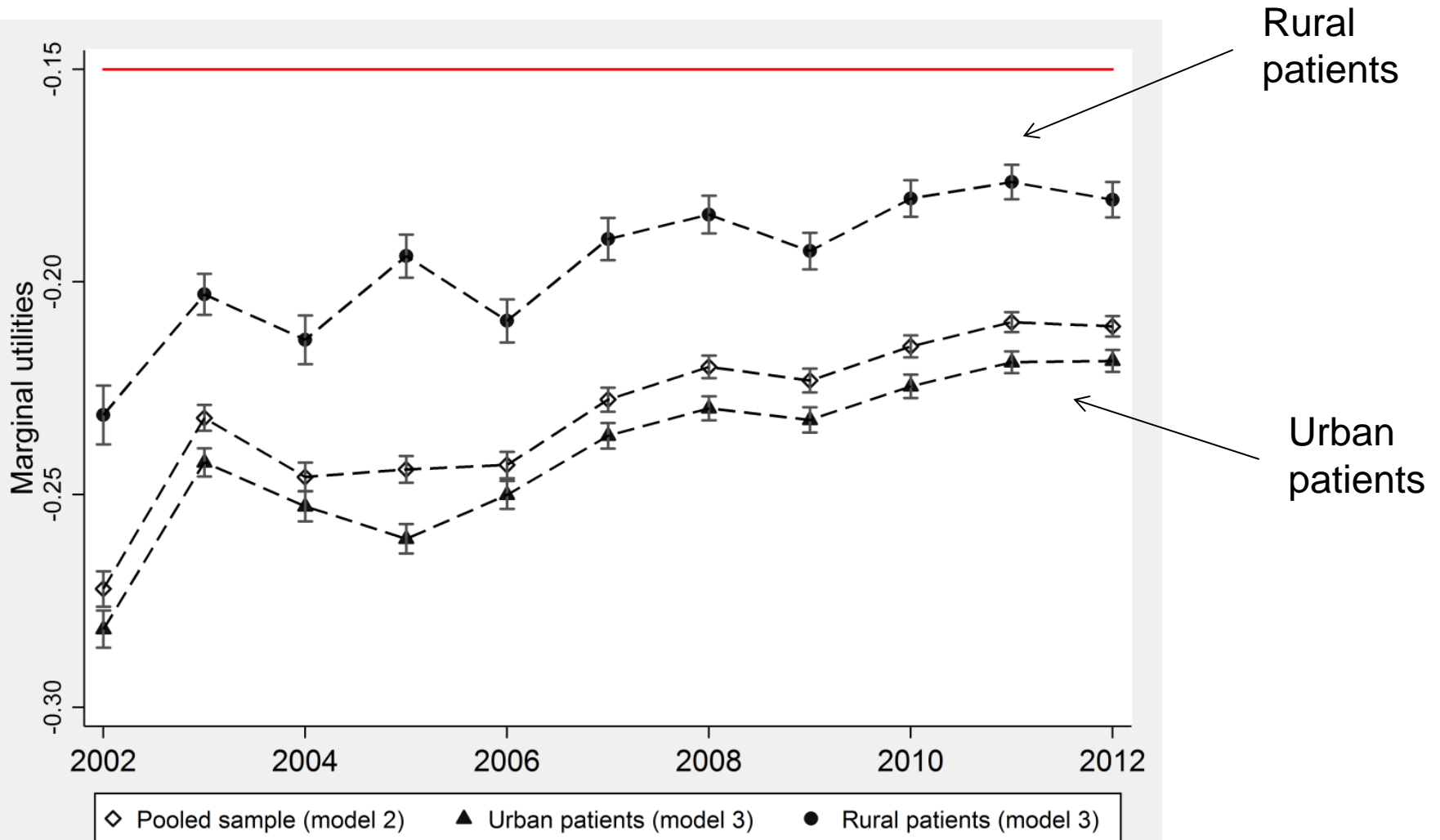
Moscelli, Siciliani, Gutacker and Gravelle, 2015
Regional Science and Urban Economics



Willingness to travel (WTT) for one standard deviation increase in quality and waiting



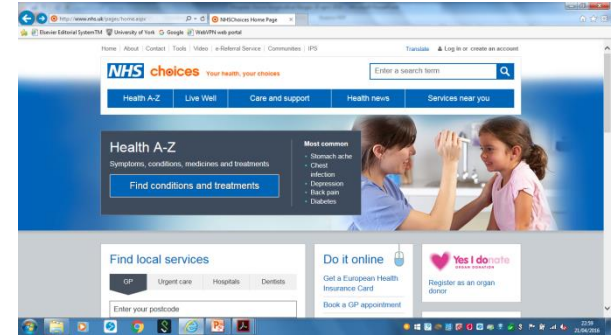
Marginal disutility from distance over time



Do only elective (non-emergency) patients respond to quality?

- Can hospital choice of *emergency* patient respond to quality?
- Emergency hip replacement, falling a hip fracture

NHS choices website



- *If you think you've fractured your hip, you'll need to go to hospital as soon as possible. Dial 999 to request an ambulance.*
- *Try not to move while you're waiting for the ambulance and make sure you keep warm*

Hip fracture patients

- Gutacker et al (2016) show that hospitals with higher quality also have more hip fracture patients
 - Highlights “choice” reflects also the choice other agents acting on behalf of the patient

Evidence from the US

- Demand lower if higher mortality for AMI, atrial fibrillation, gastro-intestinal bleeding, large bowel resection (Burn and Wholey, 1992)
- Demand increased by catheterization availability for patients in higher need (Hodgkin, 1996)
- Demand increases with hospital ranking (Pope, 2009)

Evidence from Italy and Netherlands

- Demand for angioplasty increases with “reputation” (newspaper ranking)
Verkevisser et al (2012, JHE)
- Demand for coronary bypass decreases with mortality (even in the absence of public reporting, eg word of mouth),
Moscone et al (2016, JRSSA)

GP choice

- Patient choice of 3.4 million individuals of family doctor
- one standard deviation increase in clinical quality would increase practice size by around 17%.
- Santos, Gravelle and Propper (2017, EJ)

Report cards

- Patients' choice can be facilitated by publishing provider quality measures
- But at what level of aggregation?
 - Hospital?
 - Individual doctor?
- Initiatives introduced in the US in Pennsylvania and New York State
 - Publishing mortality rates by surgeon for coronary bypass

Report cards

- after publication of report cards
 - reduced probability that patients receive CABG surgery from low-performing surgeons; Wang et al (2011)
 - hospitals in more competitive areas lower mortality for more severe patients; Chou et al (2014)
 - reduction in average severity; avoid high-risk patients; Dranove et al (2003)

**Patient Choice,
Mobility and
Competition Among
Health Care
Providers**

by Brekke, Gravelle,
Siciliani and Straume
(2014), chapter 1

Developments in Health Economics and Public Policy 12

Rosella Levaggi
Marcello Montefiori *Editors*

**Health Care
Provision
and Patient
Mobility**

Health Integration in the European
Union

 Springer

Two related empirical literatures

- Does hospital patient choice respond to quality?
- *Does hospital's quality respond to competition enhanced by patient choice?*

Patients' choice and competition

- Cooper et al (2011), Gaynor et al (2013). Effect of competition on quality in England between 2002-2008
- Policy: introduction of **patients' choice (in 2006)**
- Quality: AMI (heart attack) mortality rate
- Competition index
- Econometric strategy: natural experiment

Natural experiment set up

Pre-policy period

Before the
introduction of
choice(policy=0)

2002-2005

Post-policy period

After the introduction
of competition
(policy=1)

2006-2008

Control group

Less competition

X

X

Treatment group

More competition

X

V

Interpretation

- Quantitative effect:
 - AMI mortality rates fell more rapidly by 0.3 percentage points in areas with (one standard deviation) more competition
- Baseline AMI mortality: 13.8%
 - Roughly, competition can reduce mortality from 13.8% to 13.5%

Evidence from the UK

- After introduction of DRG (HRG) system
 - More competition *increases* quality
 - Focus: patient choice
- Before introduction of DRG (HRG) system
 - More competition *reduces* quality
 - Focus: bargaining purchasers / providers
 - Propper et al. (2008, 2011)

Summary of evidence from the US with fixed prices

- Kessler and McClellan (2000) and Kessler and Geppert (2005) find that a **positive** effect of competition on quality in the US
- Gowrinsankaran and Town (2003) find a **negative** effect
- Shen (2003) finds **mixed** results, and
- Shortell and Hughes (1988) and Mukamel et al. (2001) find **no** effect.

Some methodological issues

- Main quality measure
 - heart attack mortality (emergency condition)
 - “canary in the mineshaft” argument
- Hospital compete for elective treatment
 - elective quality problematic
 - biased if in more competitive areas severe patients are more likely to choose high-quality hospitals
 - but elective quality remains natural focus

Public private mix in provision

- In some policy discussion “private providers” (mostly incorrectly) used as synonymous of “competition”
- US, Germany, Italy, France, Australia
 - public, private for profit & non-profit
- UK, Norway
 - more skewed towards public provision
- Netherlands
 - only private hospitals

Public private mix in provision

- Key issues
 - Quality
 - Efficiency/cost containment
 - Cream-skimming

- Empirical literature does not systematically support one of the two
 - Extensive literature from the US
 - But also significant contributions across Europe

(see Siciliani, Chalkley and Gravelle, 2017, Health Foundation Report)

Hospital Mergers

- Potential of restricting patient choice
- Hospitals often have to make a case to regulator/antitrust authorities, that the merger will improve quality (through synergies)
- Empirical evidence generally doesn't support that this is the case

(see Siciliani, Chalkley and Gravelle, 2017, Health Foundation Report)

Hospital Mergers

- NL: 27 mergers subject to ex-ante assessment; 26 cleared
- DE: competition authority approved 182 mergers and prohibited 7 in 2004-2014
- NW: public hospitals not subject to merger control; only non-profit or for-profit ones though very few assessed
- FR: 90 mergers cleared since 1995, small/medium private
- PT: NHS mergers an administrative act: no review from competition authority
 - Merger decisions relate to (small) private hospitals only

Health Foundation working paper

July 2017

Working paper number: 1

Competition policy in five European countries

What can be learned for health policy
in England?

Luigi Siciliani, Martin Chalkley, Hugh Gravelle

University of York



Policy discussion

- Several policies aimed at increasing patient choice
- Evidence that demand responds to quality but elasticity is low
 - Some heterogeneity, with some patients benefitting more than others
 - Some evidence that competition as enhanced by patient choice is good for quality
 - Still unclear choice for whom? Patients vs others

Policy discussion

- We have to think of choice policies in relation to its objectives
 - A policy lever
 - Valuable in its own right
- ... and in relation to alternative policies
 - eg pay for performance, auditing
 - their relative effectiveness
 - and complementarities/substitution across policy interventions.

My take

- There is definite scope for choice policies
 - Patients more and more active in taking care of their health (eg primary care)
- Public reporting is critical for empowering the patient with relevant information
 - Raises design issues; some equity issues, but these can be addressed by policy or are unrelated to choice
- Demand responsiveness is low
 - Changes do not happen overnight
 - Low quality providers have time to respond.

Thank you!

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