

The impact of competition on quality and prices in the English nursing homes market

ILPN 2012

7th September 2012

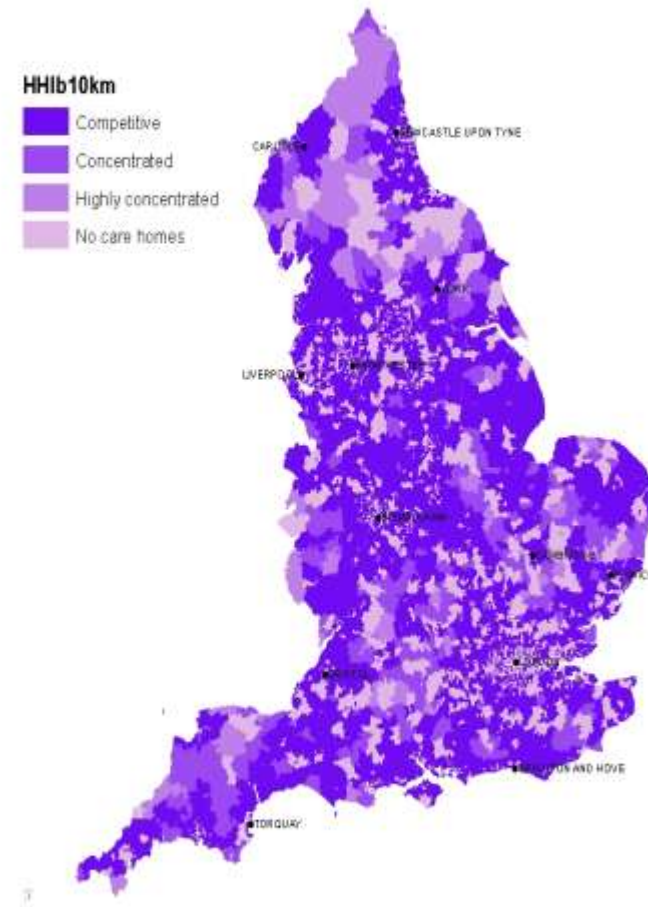
Julien Forder and Stephen Allan

Introduction

- Markets and competition integral part of long-term care systems in many countries.
 - England: 90% of residential care out-sourced to the market
- But little known about the effects of competition in LTC markets.
- Promoting quality in long-term care a key concern for policy makers.
- Limited, mixed and mainly US literature on the impact of competition on quality of nursing homes:
 - Measures of quality?
 - Arbitrary definition of market boundaries?
 - Endogeneity between quality/price and competition?
- **Aim:** to examine the impact of competition on quality and price in the English care homes market.

English Care Homes Market

- Over 10,000 residential/nursing homes
- Two distinct funding groups:
 - Self-funded placements (40%)
 - Public (local) authorities purchasing placements on behalf of individuals (60%)
- Home quality monitored by national regulator against minimum standards.
- Price:
 - No price controls in the English care homes market.
 - Prices negotiated locally with public purchasers.
 - Self-payers largely price-takers.
- Overall market is very decentralised, but with significant local variation.



Conceptual framework

- Standard economic theory on effects of competition on quality:
 - Fixed prices: Competition improves quality
 - Variable prices: Direction of effect on quality ambiguous
- We adapt the theory to allow for quasi-market purchasers and non-profit provider motivations
 - Public (local authority) purchasers care about: prices and achieving minimum quality standards
 - Providers care about profits but also quality.
- Indeterminate effect of competition on quality.
- But in the local authority commissioned sector of the market:
 - Consider (limit case) where LA purchaser only cares that providers reach minimum quality, \underline{q} . Therefore $x_q = 0$ for $q \geq \underline{q}$
 - Assume prices are set locally through some form of collective bargaining process between the LA and group of local providers

$$p = \rho(N^c, \underline{q})$$

Hypotheses

- With these assumptions (public purchasers only valuing minimum quality, providers caring about the product they provide, and some level of market power for care homes) then:
 - Competition lowers prices: $p_N < 0$
 - Competition lowers quality: $q_N < 0$
 - Providers use market power to increase quality
 - Intuitively:
 - In markets with high competition, public purchasers can push prices down close to *minimum quality* cost levels
 - In less competitive markets, higher prices can accommodate higher quality
 - Or in other words, the competition effect on quality works through price:

$$q_N^*(p(N)) = 0$$

Empirical approach

- Data

- Regulator data on the 10,000+ care homes in England
- Quality: Regulators' 0 to 3* summary quality rating
- Price: average price of care home place (matched-in)
- Matched-in provider-level characteristics data:
 - Residential/nursing home; primary client type (dementia/old age); part of care home chain; purpose built and length of registration
- Mapped local small area characteristics
 - Percentage of older people in population; percentage living alone; ranking on multi-deprivation scale and average house price (based on land registry data)

Empirical approach II

- Competition measure:
 - the travel-time-weighted HHI for each care home (H_i)

$$H_i = \frac{\sum_{j=1}^N B_{ij}^2}{\left(\sum_{j=1}^N B_{ij}\right)^2}$$

- Where $0 \leq H_i \leq 1$
- The higher the HHI the **lower** the level of competition in the local market.
- Market radius for care home i: 5, 10 and 20km

Estimation

- Competition effect is likely to be endogenous i.e. our measure of competition, H_i , is likely to be dependent on a home's own price and quality and other homes' price and quality.
- Use: IV estimation with the predicted value of H_i .
- Dependent variables:
 - Average price (p_i^*)
 - 3-category home quality rating (q_i^*)
- Estimated partial reduced-form price and home quality:
 - (1) $p_i^* = p(H_i, \sigma_i) + \varepsilon_i^p$
 - (2) $q_i^* = q_i^*(H_i, \sigma_i) + \varepsilon_i^q$

where σ_i are cost-shift and demand factors for home i .

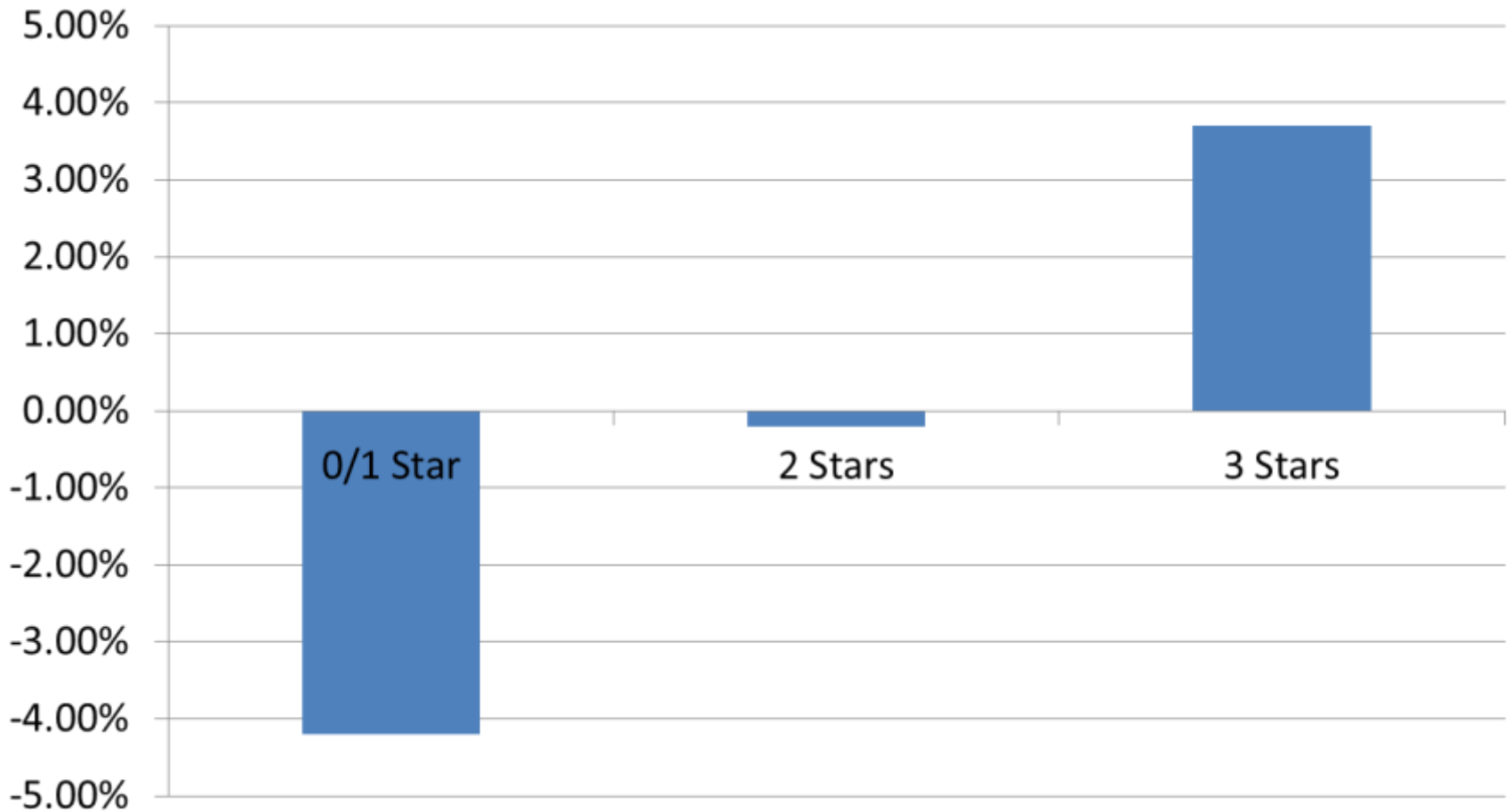
Results

- HHI endogenous.
- Models satisfy diagnostic tests.
- Care home price negatively related to competition:
 - 10% increase in competition decreases price by 2.1% (£11 per week).
- Competition has significant *negative* effect on quality.

Some price and quality results

Market Radius: 10km - HHIb	Price (2SLS)		Quality (OP)	
	Coef.	S.E.	Coef.	S.E.
Competition				
HHI	4.843***	0.582	5.892***	1.807
Care Home level				
Dementia clients	0.045***	0.009	-0.086**	0.037
Voluntary sector	0.028***	0.009	0.320***	0.046
Nursing home	0.249***	0.007	-0.001	0.029
Care home group 2-9	0.037***	0.008	-0.075**	0.036
Care home group 10-19	0.043***	0.012	-0.033	0.054
Care home group 20-49	0.035**	0.015	-0.054	0.057
Care home group 50+	0.089***	0.010	-0.008	0.042
Registration length (log)	-0.076***	0.012	0.107***	0.033
Purpose built	0.022***	0.008	0.100***	0.035

Effect of 10% *decrease* in competition on quality rating



Results extension

- Second stage is to examine if the competition effect on quality works through price:
 - Include the price of a care home in the reduced-form estimation of quality.
 - Use the predicted value of price from a first-stage estimation.

	Coef.	S.E.
Competition		
Predicted HHI	-0.233	2.965
Predicted price (log)	1.276***	0.497
Care Home level factors	Yes	Yes
Small area (LSOA) factors	Yes	Yes

Discussion

- Limitations
 - Cross-sectional (at the moment).
 - Is quality variable sufficient?
 - More work on care home group competition effects.
- Policy implications:
 - Negative effect of competition on prices and quality.
 - If regulator can ensure the desired level of (minimum) quality...
 - ... then greater competition to push prices down could be seen as beneficial (efficient).
 - Social Care White Paper (2012):
 - Promoting diversity and quality in the market.
 - Commissioning on the basis of quality.

Conclusion

- Little known about effects of competition in English care homes market.
- We have developed a theoretical model outlining how competition could negatively impact on quality, particularly in the local authority commissioned sector.
- Our empirical analysis supports this, finds that the competition effect on quality is felt through price, and also finds that competition has a negative effect on prices.