Explaining the fees gap between funding types in the English care homes market.

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Introduction

- Like many social care markets, the English care homes market is predominantly formed of private payers (self-funders) and those who are publically-funded (LA-funded).

- Well known that LA-funded fees are lower than self-funder fees.

- Usual argument for differences is that there is a cross-subsidy – care homes charge self-funders more to subsidise the low fees received for LA-funded residents (e.g. OFT, 2005).

- There are other potential explanations, e.g.:
  - Price discrimination – i.e. care homes using their market power (irrespective of low LA fees).
  - Quality differences.

- Social Care funding climate and Care Act 2014.

- But self-funded fees and the 'fees gap' are a 'black-box'.

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Aims

- To assess the reasons for the 'fees gap' at the LA-level.
  - Do LAs play a role?
  - Does care home market power?
  - Does quality play a part?
  - Other factors?
- In doing so, we need to estimate the fees gap.
  - But, very limited data on self-funder fees
- So…
- Estimate average self-funder price for each LA.

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Previous work

- Self-funders
  - Forder (2007), Putting People First Consortium (2011). (UK)
  - Stewart et al. (2009) Nursing home price growth 1977-2004. (US)

- Market power in care homes market
  - Forder (2000) – modest mark-up rates (11%) in care home markets for people with mental health problems. (UK)
  - Nyman (1989) and Mukamel and Spector (2002) – Less competitive markets and mark up rates of up to 50%. (US)
  - Forder and Allan (2014) – Competition decreases quality but this effect is felt through price – consistent with LA purchasing power. (UK)

- Cross-subsidisation
  - Laing (2008) LA funded fees for Res./Nurs. place £55/£73pw lower than 'fair' rate to cover reasonable costs. (UK)
  - Troyer (2002) – For a large minority of Florida nursing homes Medicaid rates were below level necessary to cover care costs. Private pay prices were higher than necessary for these homes due to an inter-temporal premium. (US)

Potential reasons for a fees gap.

1. LAs use purchasing power to push price down:
   - How far down?

2. Care homes use their market power to price discriminate:
   - Market asymmetries in information.
   - One-time, 'distressed' purchase.

3. Quality differentiation – market consists of a large range of qualities.

4. Bulk buying of places may earn a discount for LAs:
   - Economies of scale
   - Demand uncertainty

- But all closely linked?

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Hypotheses

1. LAs purchasing power will increase the fees gap.

2. Care homes' market power will increase the fees gap.

3. Effect of quality ambiguous given endogenous relationship with pricing decisions.

4. Economies of scale/demand uncertainty will increase the fees gap.

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Data: Estimating self-funder price and fees gap

- Look at 150 LAs in both 2008 and 2010.
- Assume that the average price in each LA can be calculated as follows:

$$P_j^{avg} = n_j P_j^{LA} + (1 - n_j) P_j^{SF} \qquad (1)$$

- Re-arranging (1):

$$P_j^{SF} = \frac{P_j^{avg} - n_j P_j^{LA}}{(1 - n_j)} \qquad (2)$$

- Estimate self-funder price for all LAs where a self-funders market exists:
  - A small number of LAs have very few or no self-funded residents (n=10).
- SF prices were not plausible so attempt to correct for outliers.
- Estimate the fees gap:

$$\text{FG} = P^{SF} - P^{LA} \qquad (3)$$

- Inaccurate fees gaps: Use multiple imputation (20 imputations).

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Descriptive statistics – fees gap

Local Authorities	Non-imputed data (n=290)				Imputed data (n=5,800)			
Fees Gap	**Mean**	S.D.	Min	Max	**Mean**	S.D	Min	Max
Basic	**164.79**	386.85	-2,451.48	3,942.06	**162.14**	146.33	15.21	711.11
Adjusted	**144.30**	201.34	-186.34	1,511.62	**162.42**	146.51	0.24	805.05
Adjusted (85% Occ.)	**147.43**	205.39	-221.74	1,830.82	**176.43**	156.97	0.27	852.46
Adjusted (95% Occ.)	**131.74**	174.23	-162.79	1,307.18	**151.90**	139.09	0.22	766.88
Adjusted (min/max)	**110.08**	223.02	-2,000.32	920.45	**147.32**	140.51	3.55	823.68

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Data: Independent variables

- Care home market power – average level of competition for each LA using distance-weighted Herfindahl-Hirschman Index (HHI) of each care home, with a scale of 0 (perfect competition) to 1 (monopoly).

- Measure LA purchasing power using Principle Component Analysis (PCA)

- PCA is a statistical technique employed to reduce the dimensions of a set of related variables (Jolliffe, 2002).

- Use three proxies of LA purchasing power:
    - Total number of care homes in the LA.
    - The proportion of care homes not part of a major care home group (owners of 3 or more care homes).
    - The proportion of older people that claim pension credit.

- Use first PC (EV = 1.82) to create LA purchasing power index (1 = low power, 2 = medium power, 3 = high power).

- Quality – proportion of homes that were rated as excellent.

- Economies of scale – average care home size in each LA.

Descriptive statistics – independent variables

Local Authorities (n=290)	Mean	S.D	Min	Max
Economic factors				
Market power (avg. HHI)	0.038	0.030	0.010	0.183
LA power index	2.03	0.81	1	3
Quality (Excellent %)	17.27	11.10	0	62.5
Average care home size	38.69	9.12	25.06	99.75
Control factors				
Older population (%)	18.78	4.01	7.97	29.97
Attendance Allowance (%)	13.61	2.41	7.02	20.28
Primary client: Dementia (%)	15.03	8.80	0	50
Nursing home (%)	40.12	14.73	8.20	100
Voluntary sector (%)	14.71	12.35	0	75
London (Yes = 1)	0.19	0.39	0	1
Year	0.51	0.50	0	1

Empirical approach

- Estimate the following model of the fees gap:

$$FG_{jw} \left(= P^{SF} - P^{LA}\right) = FG_{jw}\left(M_{jw}, X_{jw}, q_{jw}, B_{jw}, \sigma_{jw}\right) + \delta_j + \epsilon_{jw} \qquad (4)$$

- Where FG is the fees gap for LA j ($j = 1,2,\dots,150$) in wave w ($w = 1, 2$), and is a function of care home market power, M, LA purchasing power, X, quality, q, economies of scale, B, and σ, a vector of market related characteristics.

- Estimate (4) using OLS allowing for clustering within LAs and random effects GLS.

- Estimate (4) using both the imputed and non-imputed data, the latter for comparison.

- Robustness checks (85%/95% occupancy rates and min/max price) yield same statistically significant results.

- Test for random effects (Breusch-Pagan test) and the validity of using random effects over fixed effects (Hausman test).

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Results – Non imputed data

	Adjusted (Cross section OLS)		Adjusted (Random Effects GLS)	
	Coefficient	S.E.	Coefficient	S.E.
Economic factors				
Market power (avg. HHI)	**61.13*****	**22.19**	**72.48*****	**21.40**
LA power index: Low	21.62	26.81	17.37	24.62
LA power index: High	**44.34****	**21.03**	**33.12***	**19.73**
Quality (Excellent %)	1.359	0.955	1.621*	0.917
Average care home size	1.715	1.536	1.518	1.436
Control factors				
Older population (%)	-18.92***	2.99	-19.58***	3.14
Attendance Allowance (%)	-15.92***	5.34	-13.19**	5.21
Primary client: Dementia (%)	1.483	1.360	1.385	1.409
Nursing home (%)	1.052	0.839	0.892	0.809
Voluntary sector (%)	3.791***	0.892	3.616***	0.869
Year	59.19***	13.99	57.55***	14.15
N (clusters)	136 (99)		136 (99)	
R^2	0.673		0.674	
Wald			164.44***	
Breusch-Pagan			2.76**	
Hausman			11.73[NS]	

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Results – imputed data

	Adjusted (Random Effects GLS)	
	Coefficient	S.E.
Economic factors		
Market power (avg. HHI)	**37.35*****	**14.44**
LA power index: Low	7.00	15.68
LA power index: High	**39.94****	**17.00**
Quality (Excellent %)	1.736**	0.772
Average care home size	0.986	1.289
Control factors		
Older population (%)	-14.54***	2.71
Attendance Allowance (%)	-18.66***	4.19
Primary client: Dementia (%)	0.931	1.029
Nursing home (%)	2.088**	0.928
Voluntary sector (%)	2.095**	0.841
Year	36.08***	10.55
N (clusters)	290 (148)	
Imputations	20	
Average RVI	0.366	
Largest FMI	0.393	

Results

- A 1% increase in average market power decreases the fees gap by £37pw.
  - Care home market power important.
- The fees gap is £40pw higher in LAs with high purchasing power compared to medium powered LAs.
  - LA purchasing power important.
- A 1 percentage point increase in proportion of excellent rated homes in LA increases fees gap by under £2 per week.
  - Quality not playing big role?
- No effect found on fees gap of average care home size.
  - Not much bulk-buying?
- Large Year effect – possible explanations?
- Interaction of CH market power and LA purchasing power:
  - Effect on fees gap of high LA purchasing power increases as care home market power decreases.
  - High LA purchasing power has no impact on the fees gap for LAs with highest levels of average care home market power.

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Discussion

- LA purchasing power significantly increases the fees gap.
  - Effect mitigated by increasing care home market power.
- Care homes use market power to extract higher fees from self-funders.
- Cross-subsidisation? Is it bad?
- Effect of Care Act 2014 on care homes market:
  - Potential for fees gap to be eroded?
  - Future work.
- Limitations:
  - Estimation of self-funder fees e.g. NHS-funded placements.
  - Endogeneity.
  - Examining the issue at LA-level.

Disclaimer

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