

## Care Markets in England: Lessons from Research

Stephen Allan and Julien Forder

Personal Social Services Research Unit  
University of Kent  
PSSRU Discussion Paper 2815  
June 2012  
[www.pssru.ac.uk](http://www.pssru.ac.uk)

---

### University of Kent

University of Kent  
Cornwallis Building  
Canterbury  
Kent  
CT2 7NF  
Tel: 01227 823963  
[pssru@kent.ac.uk](mailto:pssru@kent.ac.uk)

---

### London School of Economics

London School of Economics  
LSE Health & Social Care  
Houghton Street  
London  
WC2A 2AE  
Tel: 020 7955 6238  
[pssru@lse.ac.uk](mailto:pssru@lse.ac.uk)



Economics of  
Social and Health Care  
Research Unit

## Contents

Acknowledgement .....	2
1. Introduction .....	3
2. Competition in the English care homes market.....	4
Market overview .....	4
Overall Competitiveness .....	5
Local competitiveness.....	6
Figure 1 – Supply of care home places – England, by MSOA.....	7
Southern Cross.....	8
Figure 2 – Competitiveness with market size 5km radius – England, by MSOA.....	9
Figure 3 – Competitiveness with market size 10km radius – England, by MSOA.....	10
3. Research on competition .....	11
Impact of competition in the English care homes market.....	12
Impact of competition in US nursing homes markets .....	13
Home closures .....	17
4. Commissioning better quality.....	19
The extent of P4P .....	20
The effect of P4P .....	21
P4P issues.....	23
5. Future avenues for research.....	25
Extend the empirical analysis on the effects of competition .....	25
Examine the reasons behind care home closures .....	27
Analyse the use and impact of incentive payments .....	27
6. Policy Implications .....	28
Appendix .....	30
References .....	31

## Acknowledgement

This is an independent report commissioned and funded by the Policy Research Programme in the Department of Health from the Economics of Social and Health Care Research Unit (ESHCRU). ESHCRU is a joint collaboration between the University of York, London School of Economics and University of Kent. The views expressed are those of the authors and may not reflect those of the funders.

## 1. Introduction

The majority of long-term care in the UK is delivered in markets, an arrangement adopted through the policies of the 1980s and 1990s. These markets consist of both the private purchase of care and publicly-funded care, which is commissioned by public authorities on behalf of the service recipient. Most of the publicly-funded care is the responsibility of local authorities, with the decision to out-source the provision of care probably taken because of potential savings in production costs (Wistow, Knapp et al. 1996). The English care homes market is a large sector of long-term care and yet there is little known about the way the competitive nature of the market affects outcomes such as prices and quality.

Around 90% of care home provision for older people is supplied by the independent sector, that is, voluntary and for-profit organisations. In England, three-fifths of this provision is commissioned by local authorities under contract with providers. The remaining two-fifths is bought privately by (self-paying) individuals. The supply side in England comprises over 10,000 care homes; there is some market penetration by large corporate providers but to a significant degree the market remains decentralised. The potential level and impact of competition in this sector are therefore significant.

This report looks to provide an overview on the extent of research to date on competition in the care homes market in the UK (mainly England). Evidence from the USA is also considered, where the provision of care homes is delivered in a broadly similar manner (market-based system with the regulation of quality and both private and public purchasers). This work focuses on the impact of competition on price, quality of care and on care home closures. The review also assesses the potential impact of incentives on the care homes market, which is a policy that is increasing in prevalence, and areas of research that need to be explored.

The work reviewed here has relevance for policy in social care. In particular, market arrangements for the delivery of social care are (broadly) desirable if: (a) they can provide care at lower cost and/or higher quality than alternative organisational arrangements; and (b) they promote, or at least do not undermine, equity goals. Mainstream theory would lead us to expect that markets which are competitive are more likely to be efficient. But is the

care homes market competitive and how does the level of competition impact on the outcomes of the market?

This study involved a (non-systematic) review of the literature, with literature searches using the keywords: nursing homes, market, competition, quality, prices, payment for performance, closure. The Pubmed and Web of Knowledge databases were used.

The next section of the report looks at the level of competition in the English care homes market. It introduces the care homes market and discusses both the overall level of competition in the care homes market and the level of competition in local care homes markets. Section 3 reviews the literature on the impact of competition on social care markets, examining both English and US literature. Section 4 turns attention to analysing the impact of commissioning better quality, and in particular the growing use of incentive payments to improve quality in the care homes market. We discuss the extent of incentive payment schemes, the evidence regarding their impact and the issues that still need to be resolved if incentive payment schemes are to become an important policy tool in social care markets. Section 5 presents future avenues for research before section 6 discusses the policy implications.

## **2. Competition in the English care homes market**

This section examines the English care homes market, providing a brief introduction to the market before turning to examining the level of competition in the market at both an overall level and a local level. Finally, attention is turned to the collapse of Southern Cross, what was the UK's largest care home provider.

### **Market overview**

Market arrangements have predominantly been used to provide care home services since the early 1990s. They include the self-payer market and also a publicly-funded quasi-market with public authorities purchasing care on behalf of (low income) residents. In 1990 61% of all placements into care homes in the UK were under market arrangements; for 2010 the

same figure was 91%. Private sector providers account for the large majority of the independent sector (84%).

As of September 2010, the independent sector of the English care homes market had 9767 care homes registered for use of the elderly with 362,511 beds.<sup>1</sup> The capacity of the overall market has been in general decline since the early 1990s (in line with the shift in funding of placements from the state to local authorities which led to cuts in placements as funding was based on needs assessments) but has increased in 2009 and 2010. Total capacity of the UK care homes market in April 2010 was almost 475,000 beds (Laing & Buisson 2010). Occupancy rates are historically around 90%, with the voluntary sector usually having a slightly higher occupancy rate than the private sector.

Placements in the independent sector are primarily paid for either through private self-funding (40%) or through the local authority commissioning placements under contract with providers (52%).<sup>2</sup> Prices are not regulated in the care homes market and there has been a large increase in prices over time in real terms (Forder and Allan 2011a). The average price of a single room in April 2010 was £502 for residential care and £698 for nursing care (Laing & Buisson 2010).

## Overall Competitiveness

There is some market penetration by major providers which has been increasing in level since the move away from public sector provision of care homes. In 2010 the top 5 providers in the independent sector accounted for over a fifth of all available beds. Overall in 2010 there were 511 major providers with 3 or more homes in the group in the UK care homes market that accounted for 42% of all care homes and 55% of care home beds. In line with the increased penetration of major providers is the increase in average care home size from 19 places in 1987 to 36 places in 2010. Despite this, the care homes market remains extremely decentralised: the 5-firm concentration ratio of 21 is in line with other competitive industries in the UK and the 5-firm Herfindahl-Hirschman Index (HHI) was 123 in 2010, also indicative of a highly competitive market (Forder and Allan 2011a).<sup>3</sup> The extent of

---

<sup>1</sup> These figures have been derived from the CQC register of social care providers for homes that are registered for residents over the age of 65 and/or residents with dementia.

<sup>2</sup> The NHS funded the remaining 8% of placements in 2010, all in nursing homes.

<sup>3</sup> See the appendix for a derivation of HHI at both the overall market level and for individual care homes.

economies of scale available in the care homes market is also limited even for large care home groups.

### Local competitiveness

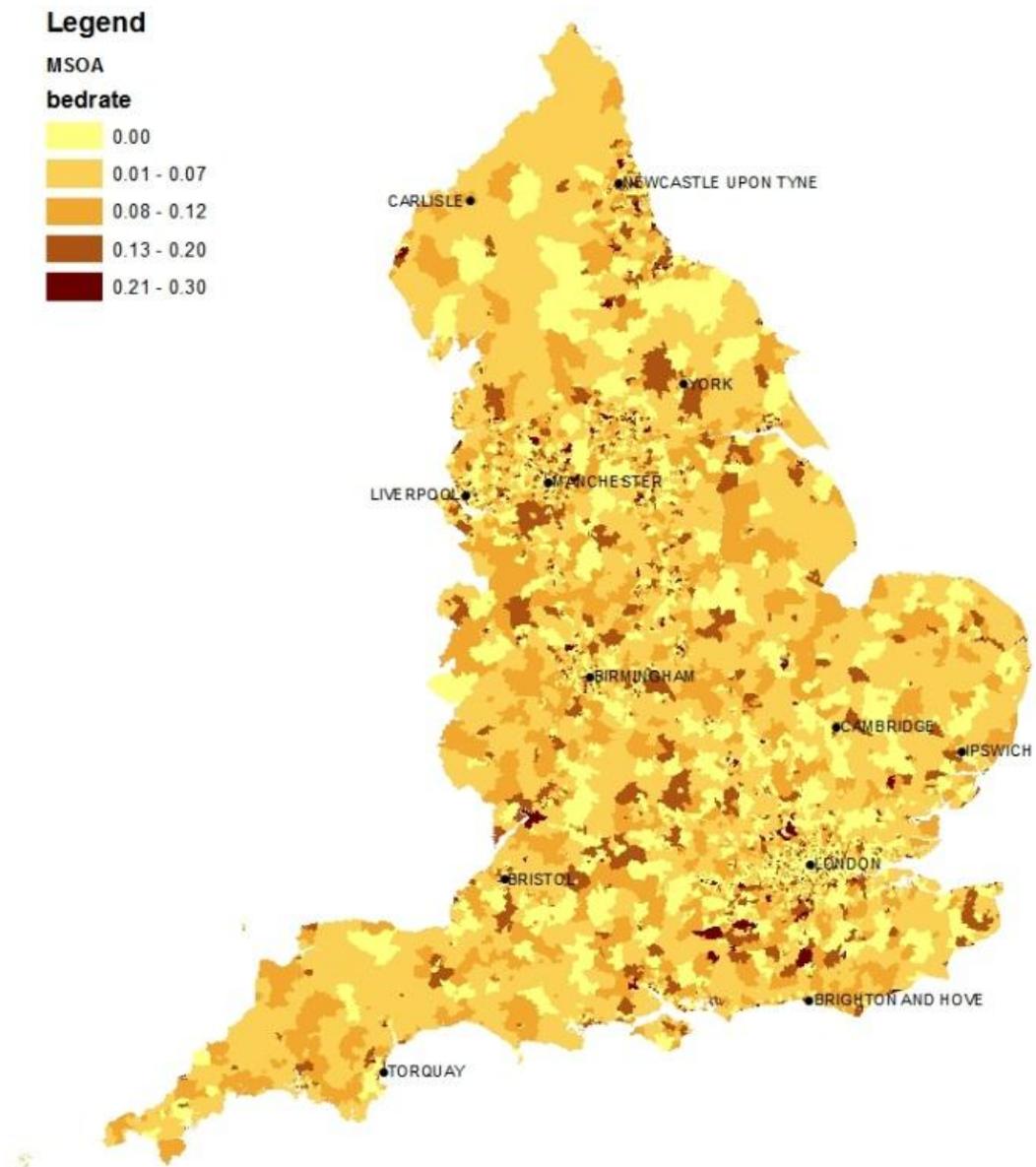
The overall level of competitiveness in the English care homes market remains high. However, there are significant geographical variations in the level of supply and competition. Figure 1 shows the number of care home beds per over-65 capita at the Medium Super Output Area (MSOA) level. The figure shows that there are significant differences in the level of supply across England. Strong levels of supply in the care homes market can be found near major towns and cities and around parts of the southern coast.

How competitive a market is depends on how the market is defined. In the analysis that follows the assumed market for a care home is defined by a circle around the care home's location with a certain radius. Two subjective radii are chosen: 5km and 10km.

Care homes are not equally dispersed around the country. The average number of other homes within a 10km radius of each care home is 63.5. Homes are somewhat clustered – if homes were uniformly distributed geographically in England there would be just under 25 homes within a 10km radius of any other care home – around 1 care home every 12.66km<sup>2</sup>. All 10302 care homes are located in 4588 (out of 6781) MSOAs, which is further evidence of geographical clustering.

In terms of local care home markets, the level of competitiveness is extremely high. Figures 2 and 3 show the average level of competition in England at the Medium Super Output Area (MSOA) level for the 10302 matched care homes used in the analysis by Forder and Allan (2011b) with a market size defined by a 5km and 10km radius around a care home respectively. MSOA level of competition is found by taking the average level of competition (as measured using HHI) from all the care homes that are located in each MSOA. The figures are scaled according to an official measurement of competition where a market with a HHI of less than 0.1 is considered competitive, over 0.1 is considered concentrated, and over 0.2 is considered highly concentrated (Competition Commission and Office of Fair Trading 2010).

Figure 1 – Supply of care home places – England, by MSOA



With a market size defined by a radius of 5km the average level of care home competition at MSOA level is at its greatest around the outskirts of major cities such as London, Birmingham, Manchester and Liverpool, through the East Midlands and South Yorkshire and parts of the south coast. 2844 MSOAs (62.0% of MSOAs with care homes) have an average level of competition that would be considered as competitive by the OFT, 847 (18.5%) have an average level of competition that is concentrated and 897 (19.6%) have an average level of competition that would be considered as highly concentrated by the OFT. So while there is an overall indication of local care homes markets being competitive a significant minority of local areas have care homes markets that are uncompetitive, when considering a market defined by a radius of 5km.

In contrast, when the market size is extended to a 10km radius the average level of competition in the care homes market at MSOA level is extremely high. Large swathes of the Home Counties, the Midlands, the North West, Yorkshire, the South East and the south coast have highly competitive local care homes markets on average. 4,011 (87.4%), 421 (9.2%) and 156 (3.4%) MSOAS have an average level of competition that would be considered by the OFT to be competitive, concentrated and highly concentrated respectively. So as the market size is extended so the level of competition in local care homes markets increases markedly. These findings are not markedly different if the measure of competition is weighted by distance and travel-time (thus decreasing the power of local competition the further away it is in distance/time) (Forder and Allan, 2011b).

Which market size is more appropriate for local care homes markets? Bowblis and North (2011) find that the average market radius of 5167 nursing homes in 8 US States is 9.2 or 18.6 miles (approximately 15km or 30km) depending on the market definition (which is based on patient inflows). A market size of radius 10km is much more likely to be relevant than 5km and so overall the evidence indicates that local care homes markets are extremely competitive.

## **Southern Cross**

2011 saw the failure of the UK's biggest care home group Southern Cross. Fears that the company would close all their care homes, potentially forcing residents out, were not realised. Instead Southern Cross has passed on their near 750 care homes to alternative

Figure 2 – Competitiveness with market size 5km radius – England, by MSOA

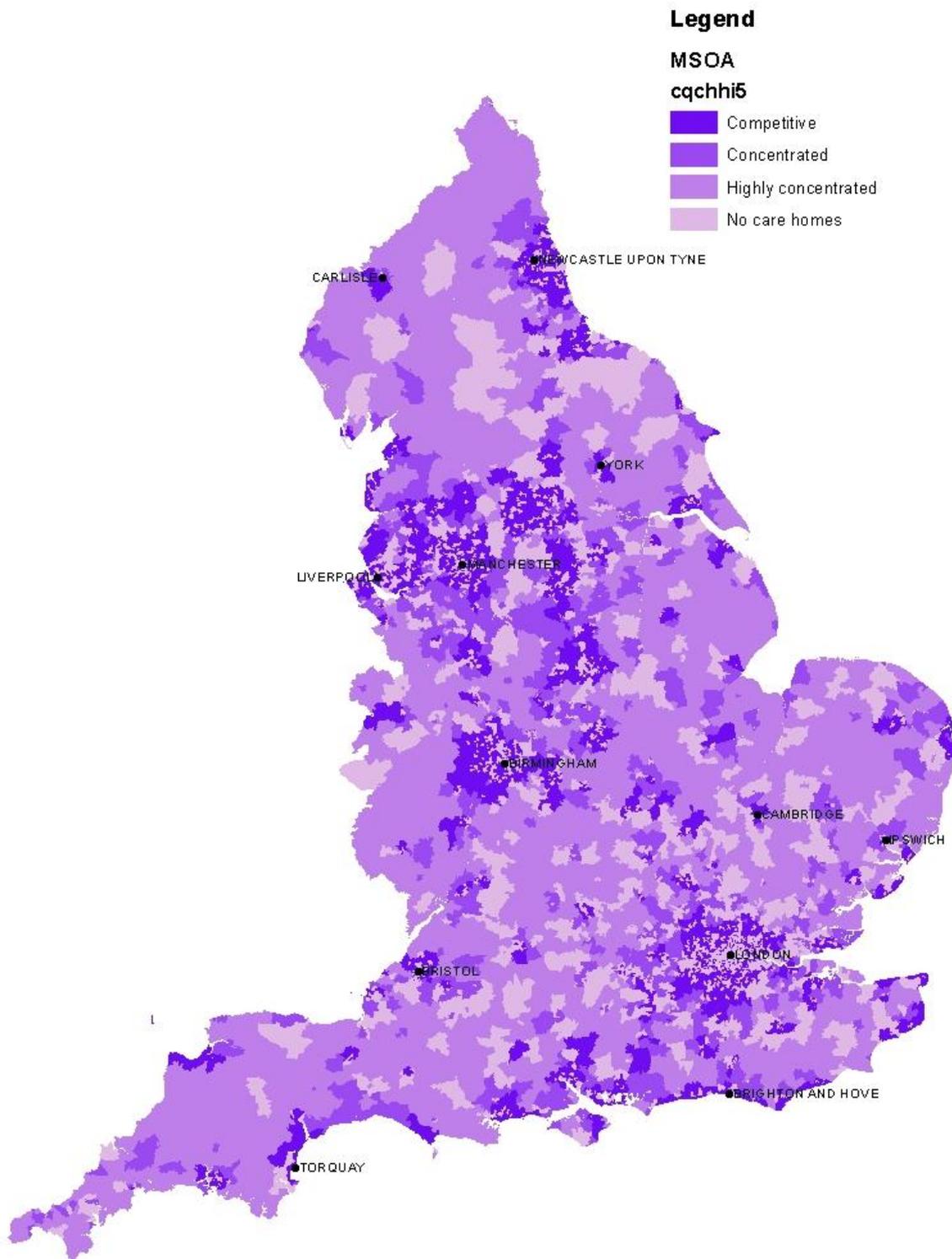
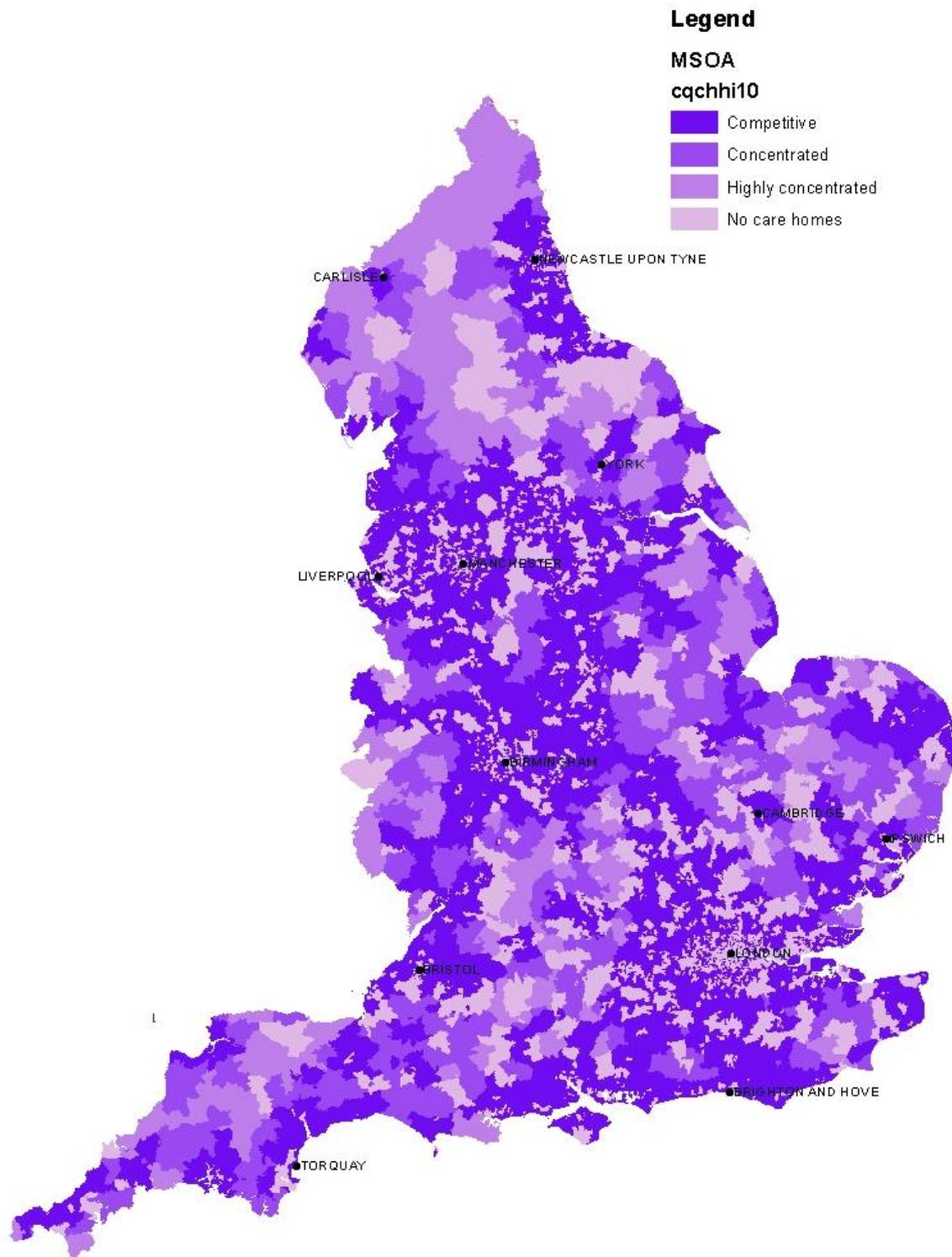


Figure 3 – Competitiveness with market size 10km radius – England, by MSOA



owners (almost 600 of the care homes were in England).<sup>4</sup> Around 1/3 of the homes were taken over by one provider (HC-One) with smaller groups of homes being taken on by other providers. Prior to their collapse Southern Cross was the UK's biggest care home group and so the level of overall market competitiveness will have increased. Local market competitiveness is unlikely to have changed markedly as almost all homes were transferred to new owners and so there was minimal disruption to local markets.

The failure of Southern Cross was caused primarily by the way the company was run financially with the nursing homes sold off prior to the global credit crisis and then leased back with upward only rents in place.<sup>5</sup> However, an additional factor in the closure of the company was the downward pressure of local authority fees – with many fees being under the average weekly cost of a placement.<sup>6</sup> Local market competitiveness may not have been directly linked to the failure of Southern Cross but there may have been an indirect impact through the increased dominant purchasing power of local authorities.

### 3. Research on competition

Whole market concentration ratios are indicative of a high level of competition overall and there is evidence that for most local care homes markets there is a high level of competition. But does competition promote good performance and how does it affect prices? This section goes on to review the findings of the literature on competition in social care.

Economic theory shows that the effect of competition on price and quality depends on the market conditions faced. On the whole, prices will fall as competition increases (Brekke, Siciliani et al. 2010; Forder and Allan 2011b). The effects of competition on quality are more indeterminate: in a fixed price market competition should increase quality but in a market with variable prices – like the English care homes market – the effect of competition on quality is ambiguous (Brekke, Siciliani et al. 2010; Forder and Allan 2011b). The overall effect

---

<sup>4</sup> Specific information about the transfer of ownership can be found at [https://docs.google.com/spreadsheet/ccc?key=0Am4LxOLfMiKcdDI2a1FiUFkxajFSTE1IMXowdkcxV2c&hl=en\\_GB#gid=0](https://docs.google.com/spreadsheet/ccc?key=0Am4LxOLfMiKcdDI2a1FiUFkxajFSTE1IMXowdkcxV2c&hl=en_GB#gid=0)

<sup>5</sup> <http://www.guardian.co.uk/business/2011/apr/12/southern-cross-chairman-quits>

<sup>6</sup> <http://www.guardian.co.uk/commentisfree/2011/may/20/social-care-southern-cross>

of competition on quality will depend on the circumstances of the market, such as buyers' preferences for quality and the price of the product (which will depend on the cost).

The literature on the effects of competition in social care markets is relatively small. First, attention is turned to the existing literature for the English care homes market before examining the larger literature base for the USA, where the care homes market is broadly similar to that of the UK. Finally, we examine the impact of competition on care home closure.

### **Impact of competition in the English care homes market**

Forder and Netten (2000) analyse the impact of competition on the price of placements in residential and nursing care homes in England using a study of 2500 resident placements in homes in 18 local authorities between mid-October 1995 and January 1996. Their measure of competition is the inverse density of provision, which is defined as the total market size of a local authority divided by the number of care homes in the local authority. The results showed that an increase in competition significantly lowered prices. The mean price elasticity of competition in terms of the number of firms was -0.04, while for providers in London authorities the mean price elasticity was -0.08 (i.e. lower competition in London). This latter result could also be interpreted as being consistent with London having a higher level of outside placements.

Gage et al. (2009) examine the factors that are associated with quality in a study of care homes located in the county of Surrey. The authors did not find any association between an inverse quality measure (the number of National Minimum Standards that were not met during official inspections) and bed vacancy rates (a measure of market contestability and excess demand). A positive association between the maximum price charged and quality (i.e. a negative association with inverse quality) was found in a regression of quality but no account was made for any endogeneity in this relationship.

Forder and Allan (2011b) offer the most comprehensive analysis of the effects of competition in the English care homes market to date. We analyse the impact of competition on prices and quality using a dataset of 10,302 care homes in England.<sup>7</sup> The

---

<sup>7</sup> The dataset has 98.4% of all 10,470 care homes in England at the time the data were provided.

data are taken from the CQC register of social care providers and Laing & Buisson. Quality is measured using the official quality rating system of the CQC, whilst price is an average of provided minimum and maximum prices for both residential-only and nursing care and both single and shared room placements. Competition is measured using both distance- and travel time-weighted versions of each care home's HHI as described in the previous section.

Controlling for the endogeneity of competition we show that price is negatively affected by increased competition, as would be expected. For our preferred measure of competition (a 10km market radius with a distance and travel-time weighted HHI) a 10% increase in competition would lead to a 2.1% fall in the average price of a care home place. This is a stronger price effect of competition than found in the earlier work of Forder and Netten (2000) but still relatively weak overall, which is consistent with the competitive environment of the local care homes markets.

Our analysis finds that competition has a negative effect on quality overall, with an increase in concentration (decrease in competition) increasing the probability of a care home being of higher quality. However, we go on to show that the effect of competition on quality is only felt through price changes: in markets where competition pushes prices down quality will be pushed down to the minimum quality level allowed by the CQC. We identify that this effect occurs only in markets where buyers are more interested in keeping costs down than quality, which would be the case in the local authority-funded segment of the care homes market. We categorise care homes as being predominantly local authority-funded if they are in the lower end of the average price distribution. We also show that in the higher end of the average price distribution – that is the segment of the care homes market that is likely to be dominated by self-payers – competition improves quality.

### **Impact of competition in US nursing homes markets**

Like the English care homes market, literature in the US has predominantly found a negative effect of competition on prices. Nyman (1994) uses the population of Wisconsin nursing homes in 1988 to examine the impact of competition in social care markets and found a very weak relationship between competition and price: a doubling of the US county-level HHI (a decrease in competition) would lead to an increase in price of 3.3-3.4% depending on how the placement was funded. Mehta (2006) also uses the population of Wisconsin

nursing homes – in 2002 – to analyse the impact of competition on prices and found that each extra care home located within 5 miles decreased a care home's price by between 0.4 to 1.8% depending on the specification used. In neither analysis was the potential endogeneity between competition and price controlled for. Nyman (1994) argues that the existence of Certificate of Need (CON) Laws in the state, which impose rules that any new potential market entrant must justify their case to a government planning agency, removes any relationship between profits and competition. However, this argument neglects the fact that excessive profits may lead to reduced competition through care home closure.

There is a larger literature on the impact of competition on quality in social care for the USA which produces mixed evidence. There are no works that specifically control for the potential endogeneity between competition and quality in their statistical analyses.<sup>8</sup> The measure of competition has varied: some have used a (county-level) HHI (a measure of concentration or inverse competition) whilst others have used measures of contestability such as the use of CON regulations or other measures of excess demand/capacity (e.g. bed vacancies); indeed some studies have used more than one measure at the same time. In general, those papers that use an HHI found a negative effect of competition on quality, whilst those that have used measures of market contestability have found that the more contestable markets have better quality. Some studies find these apparently conflicting results at the same time.

Grabowski (2004) used a large (112,000 cases) panel dataset to investigate the impact of Medicaid reimbursement policy and competition on a range of quality measures. Weighted least squares estimates using data relating to the period 1991 to 1998 showed the HHI to be positively related to quality, that is more concentrated, less competitive, markets had better quality. Moreover, higher Medicaid rates were associated with better quality.

Gammonley et al. (2009) examined the impact of competition on staffing levels (as a proxy for quality) using data from 14,194 US nursing homes for 2003. Their analysis looked at the employment of a qualified social service staff member in the home, a requirement for large

---

<sup>8</sup> Zinn (1994) does use a two stage least squares estimation in her analysis but this is used to control for the potential endogeneity that care homes face between quality levels and the number of Medicaid patients and the case mix of patients that they take. She specifically includes the number of Medicaid patients as a measure of competition arguing that new entrants in to the market would specifically aim for the self-pay market. So the HHI was assumed to be exogenous of quality in her regressions.

homes (over 120 places), but voluntary for smaller homes. For the smaller homes the likelihood of employing a social service provider was significantly reduced by increases in competition.

Zinn (1994) examines the effect of competition on quality using data from 1987 for around 14,000 nursing homes in 48 US states. The results were mixed. Using two stage least squares (2SLS) regression the author found that increased concentration (using a county-level HHI index) reduced the prevalence of catheterization, restraining and not being toileted but had no significant effect on a registered nurse to resident ratio. The study also includes the use of CON regulations and an excess capacity measure as indicators of market contestability. The simultaneous use of these two proxies in the quality estimations appeared to have generated some multicollinearity problems. Each measure was associated with better quality for two of the four quality indicators but associated with worse quality in the other two. Overall, Zinn concludes that improved contestability (as so proxied) was associated with better quality.

An exception to the finding of a negative effect of competition on quality when using a county-level HHI is Castle et al. (2007). They examine how competition has affected scores on a range of 15 nursing home quality measures (QMs) that are reported by the Center of Medicaid and Medicare Services (and are publicly available and so potential residents can access them) over a period of a year from January 2003 to January 2004. Greater competition was found to significantly increase the likelihood of improved scores on 5 of the individual quality measures (competition being insignificant on the others). The significant QMs were the prevalence of bed sores, proportion of residents needing help with activities of daily living, proportion of residents with delirium and with moderate or severe pain. The first QM is a common measure of quality in the US literature but the latter 4 QMs are more likely related to case-mix and need variables.

Another analysis that uses HHI and finds a positive effect of competition on quality is that of Gertler and Waldman (1992). Here the authors use a patient-origin HHI as opposed to a county-level competition measure and show that the cost effects of increased competition would be prohibitive and outweigh the quality improvements. The authors impute an unobservable quality indicator through estimating cost functions for for-profit long-term

care facilities in the state of New York in 1980. Their results suggest that increasing the HHI (reducing competition) by one standard deviation would reduce quality by 2.5% but would reduce costs by 19.5%. In other words promoting quality through increases in competition would be very expensive whereas restricting competition would promote large savings in costs without impacting greatly on quality.

Starkey et al. (2005) use a sample of 1,121 nursing homes in 5 US states for 1996. The authors found that nursing homes in states with active CON regulations were more likely to have residents with pressure ulcers, mood decline and cognitive decline. Less contestable markets (with CON regulations acting as a barrier to entry) have poorer quality than more contestable markets. Similarly, the authors also showed that quality levels were relatively high when there was excess capacity. The study did include a county-level HHI measure of market concentration but this was not significant in any of the quality estimations.

Zinn et al. (2009) examined performance failure of US care homes and found mixed evidence on the effects of competition on quality. Specifically they examined what determines termination from the Medicaid and Medicare programs as their measure of nursing home performance using data from 1996 to 2005 for almost 11,000 nursing homes located in urban areas. Competition, measured using a metropolitan area-level HHI, did not significantly affect the likelihood of being terminated from Medicaid and Medicare programs but overall their results did suggest that quality is important to purchasers (Medicaid funded) which would be consistent with the expectation that competition could raise quality, given cost (by driving out low-quality homes).

There is also a large US literature which attempts to examine the differences in quality provided by non-profit and for-profit care homes (Rosenau and Linder 2003; Comondore, Devereaux et al. 2009). Although the conclusions are not entirely clear cut, the literature points to non-profit homes having higher quality than for-profits, other things equal. Unless non-profits can differentiate their products or rely on alternative funding, we might expect that greater competition would lead all firms to choose profit maximising price/quality (at normal profit rates), and this would imply a reduction in market quality levels.

## Home closures

The consideration of closures of care homes is important for policy in that: (a) care home closures can lead to supply issues (which affect current and potential residents) and (b) in a market-based system closures should naturally remove the weakest firms from the market. In the care homes market one would expect weak firms to have lower quality. The report now focuses on the reasons behind care home closures, descriptive analysis of closures in the English care homes market and the impact that competition has on home closures. The report returns to the impact of quality on care home closures in more detail in section 4 when considering the increasing use of incentive payments in the English care homes market.

Theory suggests that care home closure can be caused by general turnover (e.g. retirement of owner), poor management, excessive use of dominant purchasing power by local authorities, cost shocks and changes in banking policy. With general turnover the business is either sold as a going concern or closed and the assets are realised, which is usually the selling of the property. Closure rather than selling the business as a going concern implicitly implies that the business has a negative market value. Competition can be one of a number of reasons for a negative market value of a care home, both in terms of new competition entering the market and/or predatory competition from larger care homes. Examples of cost shocks in the English care homes market include the introductions of the National Minimum Wage in the UK in 1999 and National Minimum Standards for care homes in 2001 (Netten, Williams et al. 2005).<sup>9</sup> Changes in banking policy have become an increasingly important issue in the care homes market since 2008 with the global financial crisis causing a tightening in lending policies (Laing & Buisson 2010).

Care home closures in the English care homes market could become a policy issue if overall supply falls below acceptable levels given the availability of other social care options. Closures in the care homes market received public attention in the early 2000s and again recently with the collapse of Southern Cross (Netten, Darton et al. 2003; Netten, Williams et al. 2005).<sup>10</sup> Overall supply in the care homes market fell consistently since the early 1990s with the move away from public provision to competitive markets but it has been rising

---

<sup>9</sup> The Standards were amended in 2003.

<sup>10</sup> See <http://www.guardian.co.uk/business/southerncrosshealthcare>.

since 2009. In the year to April 2010 175 care homes were deregistered with a loss of 4360 beds to the market (average size of 25 beds per home). Over the same period 8093 beds in 142 care homes were newly registered (average size of 57 beds per home). Overall, there was a total net decrease of 105 care homes but a total net increase in beds of 4616 (Laing & Buisson 2010).<sup>11</sup> Laing & Buisson (2010) show that total net capacity has been growing in terms of bed numbers since April 2005 and it has been growing at a faster rate than current levels of demand thus having the potential to reduce occupancy levels further and impact profitability at the same time as local authority funding is being reduced.

Netten et al. (2003; 2005) provide the key study of care home closure in England. The authors found no descriptive relationship between the quality of the home and the likelihood of closure, although (low) price was seen as an important contributory factor. Indeed the two key factors reported both by both providers and local authority inspectors were local authority pricing and low occupancy rates, the latter linking directly to competition. There is a tentative suggestion in these results that homes compete on price to a greater extent than on quality. An argument that follows on from this would be that once homes have attained minimum quality levels (as defined by CQC minimum standards) then public purchasers are more interested in purchasing from the lowest cost bidder (a conclusion that is supported by the findings of (Forder and Allan 2011b)). The self-pay segment of the care homes market is presumably more concerned with quality, not least because we see significant vertical price differentiation in the market.

For the USA there are mixed results when it comes to the impact of competition on care home closures. Analyses have examined care home closure directly and indirectly; generally, the former have found that competition has a significant positive effect on closures while the latter have found no relationship between competition and closure. Castle et al. (2009) examined the direct relationship between nursing home closures and market competitiveness. Competition was measured using a county-level HHI and was found to increase the likelihood of closing significantly in 1999 and 2002, but it did not significantly affect the likelihood of closing in 2005. Castle (2005) – using a county-level HHI measure of

---

<sup>11</sup> Total net changes in the care homes market takes into account not only new registrations and de-registrations but also extensions, registration reductions (e.g. shared room converted to single room), and the transfer of registrations into and out of the elderly care and physically disabled sectors (Laing and Buisson, 2010).

competition – and Kitchener et al. (2004) – using spare bed capacity at the county level (a measure of contestability) – also find evidence that increased competition/contestability increase closures. Li et al. (2010) show state variation in the regulation of quality significantly affects the likelihood of voluntary termination from the Medicare and Medicaid programs (and over 90% of those that voluntarily terminated went on to close). They also find that increases in competition increase the likelihood of voluntary termination (using an inverse patient-origin HHI). Bowblis (2011) finds that increased competition decreases the probability of a for-profit nursing home converting to not-for-profit (but does not affect the probability of a for-profit home closing) and increases the probability of a not-for-profit nursing home closing.

O’Neill et al. (2003) found competition, measured using a county-level HHI, did not have a significant effect on the likelihood of a care home having deficiency citations, where deficiency citations could be seen as an indicator of care home failure/market exit.<sup>12</sup> The previous discussion on the findings of Zinn et al. (2009) can also be interpreted as indicating no relationship between competition and the probability of closure as the measure of quality they use in their work is if a nursing home was terminated from the Medicare and Medicaid programs (which Li et al. (2010) link to closures).

## 4. Commissioning better quality

Forder and Allan (2011b) show that in the local authority funded segment of the care homes market in England there is evidence of lowering of quality due to the increased price competition that results from increased competition. As we discuss in our earlier work, the policy implications of this analysis depends largely on judgements as to whether minimum quality standards are acceptable. If current minimum quality levels are deemed acceptable then they can only be sustained with robust regulation or else quality would deteriorate below acceptable levels. Even if there was a general agreement that quality in care homes needed to be improved some key questions would remain: (a) how much would improving quality cost and (b) how could quality be improved?

---

<sup>12</sup> Castle et al. (2009) find precisely that care homes that closed were more likely to have quality of care deficiency citations.

The cost of improving quality will depend on how quality is improved. As is discussed shortly, for example, the costs of incentive schemes are not well known. Quality can potentially be improved through incentive methods or through changes to regulation. The latter method has been seen to an extent in the UK care homes market with the introduction of the National Minimum Standards for care homes. This was seen as being an important factor in a number of care homes closing down due to the expense that would be required in adhering to new minimum levels of quality (Netten et al., 2005).

The incentive method for improving quality could be achieved either through local authorities only buying care of sufficient quality or through payment for performance. If local authorities were only to purchase placements in care homes with sufficient quality then the level of quality would need to be determined and specified in the contract. There could also be short term issues with supply if the level of quality required was too high for care homes in the local authority.

The other incentive method is payment for performance (also known as P4P). With this incentive method care homes receive a higher rate for placements if they meet quality criteria as set out by the local authority. This method removes the short term supply issue that could be faced with the local authority simply buying higher quality as they can still purchase placements with lower quality if necessary.

The rest of this section goes on to examine the extent of P4P schemes in England and the USA before reviewing the literature for the impact of P4P schemes on care homes markets. Finally, the section concludes by examining the issues that remain to be solved if P4P schemes are to become common in the care homes market.

## **The extent of P4P**

In England a growing number of local councils now operate P4P schemes whereby care homes are paid a quality premium on top of a basic placement fee. The criteria for the level of quality differs by local council; the CQC's quality rating system has been used to assess a care home's ability to gain a quality premium (e.g. Telford and Wrekin local council<sup>13</sup>), whilst alternative measures such as a local council's own star rating system, staffing qualifications

---

<sup>13</sup> Adult Social Care Commissioning, Telford and Wrekin Council (2010)

and/or room size are also used (e.g. Derbyshire<sup>14</sup>, Sefton<sup>15</sup> and Tameside<sup>16</sup> local councils). There are often different levels of Quality premium available.

P4P is growing in its use in the USA as well with some States engaging use of these schemes in nursing home markets. Arling et al. (2009) identified 6 states in the USA where there was a pay for performance programme running in the years 2002-2007. Briesacher et al. (2009) identified 13 pay for performance programmes for nursing homes in the USA that ran at some stage between 1980 and 2007, 7 of which were still active in 2007. The Centers for Medicare and Medicaid Services (CMS) promoted the Nursing Home Value-Based Purchasing Demonstration in their 2007 Action Plan for (Further improvement of) Nursing Home Quality (Centers for Medicare and Medicaid Services (CMS) 2006). Here they indicated that there would be a trial of pay for performance in a handful of states aimed at examining the performance of nursing homes over a range of categories to measure quality.

### The effect of P4P

What will be the effect of payment for performance on the level of quality in the care homes market in England? Currently there is very little literature on the impact of P4P schemes in the English care homes market. The only paper that examines a P4P scheme in the care homes market is that of Shah et al. (2011). This study does not explicitly examine how care homes are affected by a P4P scheme but how a P4P scheme for GPs (The NHS's Quality and Outcomes Framework) affects the quality of care received by care home residents when compared to residents living in the community. Their analysis provides evidence that quality indicators are much lower for residents of both residential homes and nursing homes than for older people living in the community, even after controlling for age and life expectancy (using registration length with a GP as a proxy for the latter). In addition, care home residents were more likely to have a doctor recorded exception, that is where GPs do not include the patients in their quality targets so as to not affect their remuneration. This finding is in contrast to that of Doran et al. (2008). They find that there was little evidence of gaming (GPs deliberately excluding patients for whom targets have

---

<sup>14</sup> [http://www.derbyshire.gov.uk/Social\\_health/adult\\_care\\_and\\_wellbeing/accommodation\\_and\\_housing/choosing\\_a\\_care\\_home/charges/default.asp](http://www.derbyshire.gov.uk/Social_health/adult_care_and_wellbeing/accommodation_and_housing/choosing_a_care_home/charges/default.asp)

<sup>15</sup> <http://www.sefton.gov.uk/default.aspx?page=3463>

<sup>16</sup> <http://www.tameside.gov.uk/choice/paying>

been missed) at the practice level. Indeed, their regression analysis showed a significant negative relationship between the proportion of over 65s that a practice had and the overall rates of exception for a practice. The Quality and Outcomes Framework does not include many areas of quality that would be considered important in care homes (e.g. continence, hospital admission, mobility, nutrition, pain and pressure ulcers). However, some of the diseases included are likely to be good indicators of increased likelihood of poor outcomes in these quality measures for care home residents (Shah, Carey et al. 2011).

Briesacher et al. (2009) examine the effects of the P4P schemes that they identified through a literature review and Arling et al. (2009) discuss the use and future design of P4P schemes in nursing homes through interviews with staff involved in the administration of the schemes in 6 states. The former found that evaluations of the schemes varied greatly and the authors were largely unable to find reasons for the level of incentive payments or for why schemes were ended. Both Arling et al. (2009) and Briesacher et al. (2009) found that incentive payments varied considerably and the measures of quality used included staffing, performance in inspections, efficiency, quality indicators and resident and family satisfaction. Briesacher et al. (2009) found little empirical evidence to explain the impact on quality of incentive payments.

The most promising scheme identified in Briesacher et al. (2009) was a P4P experiment that ran in San Diego in the early 1980s where 36 nursing homes were randomly assigned to a control or experiment group, with the latter group of nursing homes being given extra incentives to see if they would improve the type of admissions, the health outcomes of residents and the discharge of residents. Norton (1992) examined this experiment and found that the monetary incentives improved the health of residents, shortened their stay in nursing homes and thereby lowered the costs of nursing home care per stay. Nursing homes also admitted residents with greater disabilities. However, the overall effect on costs would be a nearly 5% increase in Medicaid due to the greater admission of sicker patients and the incentive payments. At the same time hospital costs would reduce as new residents would be admitted in a timelier manner.

Briesacher et al. (2008) discuss the issues surrounding the CMS pay for performance trial in nursing homes. In particular they argue that the major drawback of the trial is that it would

involve budget neutrality and so if no savings were made then no performance payments would be paid out. Therefore there may be little incentive for nursing homes to invest in improving quality. The authors point out that the states that have payment for performance programmes already in existence put aside extra funds for the incentives. Further issues that the proposed programme will face include the generation of tension between Medicaid and Medicare payments, whereby quality improvements will reduce costs for Medicare but likely increase the costs for Medicaid, and the difficulty of interpreting 'avoidable hospitalisation' in the nursing home context (Briesacher, Field et al. 2008; Ouslander 2008).

Finally, Mor et al. (2011) provide evidence of the potential impact that incentive payments in general could have on quality in care homes markets. Their analysis of urban US nursing homes showed that increases in Medicaid rates (the primary purchaser of nursing home places in the USA) significantly improved 3 out of 4 outcomes measures.

### **P4P issues**

P4P schemes in care homes markets are on the increase. Yet there are still a number of issues that need to be addressed when considering their use. First, quality needs to be measured and regulated. In the UK the official quality rating system used by the CQC was stopped in June 2010. It is not known how the quality premium payments have been affected for councils that were using the star rating system as part of their measure of quality. In the USA questions still remain for some measures of quality that are being used, as discussed above. It is also important to know whether or not care homes could be able to 'game' the chosen system of quality measurement.

A second issue is that of the cost of the P4P scheme. It is not known what affect the introduction of such schemes has had for councils in England in terms of costs. It is also not known if the schemes are intended to be budget neutral (through a redistribution of funds) or not. The inherent problem with any P4P scheme that is intended to be budget neutral is that if there are no cuts in costs then there are no incentive payments so care homes may have little incentive to invest in improving quality. Even if costs are reduced, this is likely to be made in the NHS as well as in social care. Currently there is a precedent of a redistribution of funds between councils and the NHS with delayed discharge (bed blocking) fines so it may be possible to split any cost savings between the relevant departments.

A third issue is the concept of promoting quality through incentives. For care home owners quality should be valued inherently so having to promote quality through incentive regulation should not be necessary. Forder et al. (1996) examine market imperfections in the UK social care system. Their discussion points to the voluntary sector as being likely to want to produce quality as they do not try to maximise (supernormal) profits. Where care home owners are more concerned with making profits then market imperfections such as moral hazard and adverse selection could play a role in the care homes market and producing quality may not be important. However, the authors note that both the regulation of quality and reputation influences are important features in the care homes market. If reputation is important then care home owners are less likely to want to produce lower quality. An additional issue is that competition may play a role in downgrading the risk of trying to lower quality. Overall, given the care homes market is regulated, care home owners will be concerned with (a minimum) quality and so the English care homes market should promote quality.

The evidence from empirical analyses is mixed as to whether or not quality needs to be incentivised. If care homes markets promote quality then it should be that those care homes that close will have a lower quality. Some analyses using data from the USA suggests that the relationship between home closure and quality exists (Angelelli, Mor et al. 2003; Castle, Engberg et al. 2009).<sup>17</sup> In addition, quantitative analysis shows little effect of private equity investment on quality in the nursing home industry (Stevenson and Grabowski 2008), where any private equity investors would primarily be concerned with returns of investment rather than quality. However, Netten and colleagues (2003) found little association between closure and quality in English care homes.<sup>18</sup> Also, analysis of the business strategies of large care home chains in the USA shows little indication that quality is important (Harrington, Hauser et al. 2011). Indeed, at least one care home chain valued sanctions for poor quality

---

<sup>17</sup> Angelelli et al. (2003) measure quality using deficiency citations and examine the effect of quality on the likelihood of termination from Medicaid and Medicare. As already discussed both deficiency citations and termination are associated with care home closure which indicates endogeneity issues which they do not address.

<sup>18</sup> Barnes and Haskel (2001) find that there are high levels of firm exit and entry in the UK manufacturing sector, and that there are links to performance. Exit is highest for the worst performing firms: 68% of the bottom quintile of firms (in terms of productivity) in 1994 had closed by 1997. However, exit is also high for top performing firms as well: 43% of the top quintile of productive firms in 1994 had closed by 1997.

as a cost of business and kept nursing staff levels low to lower costs (Kitchener, O'Meara et al. 2008).

A final issue is that the impact of payment for performance schemes on quality in care homes markets is not known. Initial findings suggest that P4P schemes in the NHS have been successful, and the evidence that exists on P4P schemes in health care markets for the USA is (tentatively) positive. Overall, there is little empirical evidence and more data is required to be able to fully evaluate the success of using P4P schemes.

## **5. Future avenues for research**

Given the existing evidence on the care homes market in England and the extent of the literature from both the UK and the USA there are a number of avenues which future research could take. Future research of the English care homes market could include, but is not limited to, the following:

- Extend the empirical analysis on the effects of competition.
- Examine the reasons behind care home closures.
- Analyse the use and impact of incentive payments.

The rest of this section goes on to discuss each of these areas in turn, detailing how it may be possible to extend the work for the English care homes market to date and how it will be relevant for policy.

### **Extend the empirical analysis on the effects of competition**

There are many number of ways in which the empirical analysis of Forder and Allan (2011b) could be extended. These include:

- Examine organisational effects more thoroughly.
- Take account of vertical price differentiation in the measure of competition.
- Examine the dynamic properties of the English care homes market.
- Improved data.

The analysis of Forder and Allan (2011b) includes an explanatory variable capturing if the care home was part of a care home chain and the size of the care home chain. The results suggested that care homes that are part of a chain have significantly higher prices (and the price increase ascends the bigger the care home chain) than single-owned care homes, whilst small care home chains have significantly lower quality than single-owned care homes. A simple extension is to take account of care home chains explicitly in the measure of competition so that a care home that is part of a large chain is not in direct competition with another care home from the same chain that is located in their market.

An additional area that may be of interest for policy is the possibility of asymmetric competitive constraints, whereby large care homes may have a better ability to compete with smaller care homes than vice versa. For example, a large care home could be better able to compete in quality with a small care home than a small care home can compete in price with a large care home. The same argument could apply to care home groups and individually run care homes. It would be of relevance to policy to know just how the increasing presence of large care home groups is impacting on the competitiveness of the care homes market.

Another possible extension is to take into account the level of vertical price differentiation when measuring the level of competition that a care home is facing. Currently only horizontal (distance and time) differentiation is taken into account in the measure of competition that a care home faces. By taking into account price as well it may be more relevant as, for example, a care home that is based on low prices may not compete with a care home that is based on high quality (which will entail higher prices). The one caveat to this is the tautological issue that this would create in including price as an explanatory variable in an estimation of price of a care home place.

The use of panel data will enable examination of the dynamic properties of the English care homes market. Forder and Allan (2011b) use cross-sectional data and so it should be possible to add future waves to the existing data (although the policy backdrop is changing and this limits continuity).

A final way in which the empirical analysis of competition in the English care homes market could be improved is with better data. Fuller data on prices would be very useful but may be

impossible to obtain. In addition it may prove useful to get information on the level of occupancy of care homes. It is likely that occupancy levels could indicate an oversupply of beds (with demand factors being captured by other measures) and as such may impact the price of a placement (and maybe quality). Information on the level of self-funded and local-authority funded placements in each care home would also be extremely useful for the analysis of the English care homes market. Knowing which care homes are in which segment of the market will allow a better grouping of care homes into these segments than that used in Forder and Allan (2011b). In addition, if full price data is not available having some indication of the type of funding used for each placement may allow the price of a placement in a care home to be weighted by funding type. This may be possible to achieve with a sample of care homes rather than the whole population.

### **Examine the reasons behind care home closures**

The review of the literature on care home closures in section 3 has shown that there is very little in the way of empirical analysis of the reasons behind care home closures and no quantitative work exists at all. Therefore it would prove very beneficial to analyse care home closures for policy. If competition increases the likelihood of closure then the care homes market is acting as would be expected. Taking this a step further, it may prove interesting to see if any effect of competition on closure is to do with increasing predatory competition (large care home groups taking over more homes in the area) or from new homes. Finally, it would be worthwhile examining the link between closure and quality. If care homes of lower quality are closing then that would give a strong policy indication that incentive payments in the care homes market may not be necessary.

### **Analyse the use and impact of incentive payments**

There is very little evidence in the literature regarding the impact of incentive payments on the care homes market. This is in large part due to there being very little in the way of data available. First, the extent of incentive payments in English care home markets needs to be determined. The Economics of Social and Health Care Research Unit (ESHCRU) is surveying local councils which will give an indication of payment for performance use. Future research would then have to have more details about the premium levels to analyse the impact of incentive payment programmes on the quality of care homes. This could potentially be

achieved at the national level looking at all care homes but more likely it would come from a sample of care homes from certain local markets. Policy-wise information surrounding the impact of incentive payment schemes on care home markets will be extremely important to analyse the level of success they have.

## 6. Policy Implications

What are the lessons from research that can be used and implemented for policy? The care homes market in England is extremely competitive despite the presence of large corporations. At the local level the care homes markets are on the whole extremely competitive. Therefore market forces will very likely impact on a care home's choices of price and quality of output. The literature shows strong evidence that competition in the care homes market lowers prices. There is some early evidence for the UK that competition lowers quality – but as previously discussed the lowering of quality is only really an issue if the minimum regulated level of quality is seen as unacceptable. If minimum quality standards are seen as acceptable then the evidence suggests that there will need to be continued strong regulation of quality to ensure that competition does not lower quality. Perhaps of greater importance is the evidence pointing to the competition effect on quality being felt through prices. The dominant purchasing power of local authorities will increase as competition rises in local markets and this must be considered carefully as quality could potentially be put at risk by further funding cuts in social care.

The UK evidence also points to competition benefitting quality in the higher end of the care homes market; where prices are high (the self-pay segment of the market) it may be possible to leave the market to self-regulate quality levels. More evidence is required to confirm the UK findings on the quality impact of competition. For example, there may be organisational or dynamic factors that have not been considered.

Another positive towards competitive markets self-regulating is the evidence to date that suggests competition promotes closure and that closure is linked to (poor) quality. The link between closure and quality has only been found in US studies and has not been found in

descriptive UK studies. No quantitative studies exist in this area for the UK and so further analysis is required.

The evidence on incentive payments in the care homes market is very slim and as such there is little in the way of implications for policy. More research is required to analyse the impact of P4P schemes in the UK. The (minimal) evidence for the USA to date suggests that P4P schemes could generate increases in quality. However, there are cost implications to any such scheme that need to be considered.

## Appendix

HHI is used as the measure of competition in this report and is a measure of concentration (inverse competition). At the overall market level the 5-firm HHI calculates the share of beds of the biggest 5 firms:

$$HHI_5 = \sum_{i=1}^5 s_i^2$$

Where  $s$  is the market share of firm  $i$ . Each care home's market share is calculated based on the number of beds in each large care home group divided by the total number of beds in the market. The overall HHI ranges from 0, indicating perfect competition, to 10,000, which indicates monopoly.

At the local market level the HHI is calculated using all care homes that are within a certain distance of the care home in question. Specifically, the local market level HHI for care home  $j$  is calculated as:

$$HHI_j^X = \frac{\sum_{j=1}^n (B)^2}{(\sum_{j=1}^n B)^2}$$

Where  $n$  is the total number of care homes within the market boundary for care home  $j$  (a circle with radius  $X$  km, where  $X = 5, 10$ km) and  $B$  is the number of beds in each care home. The HHI can range from 0 to 1, with 0 indicating a perfectly competitive market and 1 indicating a monopoly market. For example, consider a market for care home 1 where they only have one other care home (care home 2) that they are in competition with in a market with a radius 10km. Both care homes have 20 beds. The HHI for care home 1 =  $(20)^2 + (20)^2 / ((20) + (20))^2 = 800/1600 = 0.5$ . If instead there was another care home within the 10km radius of care home 1 (care home 3) and this had 20 beds then the HHI for care home 1 =  $(20)^2 + (20)^2 + (20)^2 / ((20) + (20) + (20))^2 = 1200/3600 = 0.33$ . As the market becomes more competitive so the HHI lowers.

## References

- Adult Social Care Commissioning (2010). Quality Premium Payments Scheme for Care Homes for Older People in Telford & Wrekin. Telford and Wrekin Council.
- Angelelli, J., V. Mor, et al. (2003). "Oversight of nursing homes: pruning the tree or just spotting bad apples?" The Gerontologist **43**(Special issue 2): 67-75.
- Arling, G., C. Job, et al. (2009). "Medicaid Nursing Home Pay for Performance: Where Do We Stand?" Gerontologist **49**(5): 587-595.
- Barnes, M. and J. Haskel (2001). Productivity, competition and downsizing. Summary Volume of Treasury Growth Seminar, presented at No.11 Downing Street, October 2000. London, HM Treasury.
- Bowblis, J. R. and P. North (2011). "Geographic Market Definition: The Case of Medicare-reimbursed Skilled Nursing Facility Care." Inquiry-the Journal of Health Care Organization Provision and Financing **48**: 138-154.
- Brekke, K. R., L. Siciliani, et al. (2010). "Price and quality in spatial competition " Regional Science and Urban Economics **40**(6): 471-480.
- Briesacher, B. A., T. S. Field, et al. (2008). "Can pay-for-performance take nursing home care to the next level?" Journal of the American Geriatrics Society **56**(10): 1937-1939.
- Briesacher, B. A., T. S. Field, et al. (2009). "Pay-for-Performance in Nursing Homes." Health Care Financing Review **30**(3): 1-13.
- Castle, N. G. (2005). "Nursing home closures, changes in ownership, and competition." Inquiry-the Journal of Health Care Organization Provision and Financing **42**(3): 281-292.
- Castle, N. G., J. Engberg, et al. (2009). "Factors Associated with Increasing Nursing Home Closures." Health Services Research **44**(3): 1088-1109.
- Castle, N. G., J. Engberg, et al. (2007). "Have Nursing Home Compare quality measure scores changed over time in response to competition? ." Quality and Safety in Health Care **Vol. 16**(no.3): pp185-191.

Centers for Medicare and Medicaid Services (CMS) (2006). 2007 Action Plan for (Further Improvement of) Nursing Home Quality.

Comondore, V. R., P. J. Devereaux, et al. (2009). "Quality of care in for-profit and not-for-profit nursing homes: systematic review and meta-analysis." BMJ: 339:b2732  
doi:2710.1136/bmj.b2732.

Competition Commission and Office of Fair Trading (2010). Merger Assessment Guidelines, Competition Commission and Office of Fair Trading.

Doran, T., C. Fullwood, et al. (2008). "Exclusion of patients from pay-for-performance targets by English physicians." New England Journal of Medicine **359**: 274-284.

Forder, J. and S. Allan (2011a). Competition in the care homes market. Report for the OHE Commission on Competition in the NHS. London, Office of Health Economics.

Forder, J. and S. Allan (2011b). Competition in the English care homes market, PSSRU.

Forder, J., M. Knapp, et al. (1996). "Competition in the Mixed Economy of Care." Journal of Social Policy **25**(2): 201-221.

Forder, J. and A. Netten (2000). "The price of placements in residential and nursing home care: the effects of contracts and competition " Health Economics **Vol. 9**: pp643-657.

Gage, H., W. Knibb, et al. (2009). "Why are some care homes better than others? An empirical study of the factors associated with quality of care for older people in residential homes in Surrey, England " Health and Social Care in the Community **Vol. 17**(no.6): pp599-609.

Gammonley, D., N. J. Zhang, et al. (2009). "Social service staffing in US nursing homes." Social Service Review **Vol. 83**(no.4): pp633-650.

Gertler, P. J. and D. M. Waldman (1992). "Quality-adjusted Cost Functions and Policy Evaluation in the Nursing Home Industry." Journal of Political Economy **100**(6): 1232-1256.

Grabowski, D. C. (2004). " A longitudinal study of Medicaid payment, private-pay price and nursing home quality " International Journal of Health Care Finance and Economics **Vol. 4**(no.1): pp5-26.

Harrington, C., C. Hauser, et al. (2011). "Ownership, financing, and management strategies of the ten largest for-profit nursing home chains in the United States." International Journal of Health Services **41**(4): 725–746.

Kitchener, M., A. Bostrom, et al. (2004). "Smoke without fire: Nursing facility closures in California, 1997-2001." Inquiry-the Journal of Health Care Organization Provision and Financing **41**(2): 189-202.

Kitchener, M., J. O'Meara, et al. (2008). "Shareholder Value and the Performance of a Large Nursing Home Chain." Health Services Research **43**(3): 1062-1084.

Laing & Buisson (2010). Care of Elderly People UK Market Survey 2010-11, 23rd Edition.

Li, Y., C. Harrington, et al. (2010). "State Regulatory Enforcement and Nursing Home Termination from the Medicare and Medicaid Programs." Health Services Research **45**(6): 1796-1814.

Mehta, A. (2006). Spatial Competition and Market Definition in the Nursing Home Industry. working paper, Department of Economics, Boston University.

Mor, V., A. Gruneir, et al. (2011). "The Effect of State Policies on Nursing Home Resident Outcomes." Journal of the American Geriatrics Society **59**(1): 3-9.

Netten, A., R. Darton, et al. (2003). "Nursing home closures: effects on capacity and reasons for closure." Age and Ageing **Vol. 23**: pp332-337.

Netten, A., J. Williams, et al. (2005). "Care-home closures in England: causes and implications." Ageing and Society **25**: 319-338.

Norton, E. C. (1992). "Incentive regulation of nursing homes." Journal of Health Economics **11**(2): 105-128.

Nyman, J. A. (1994). "The effects of market concentration and excess demand on the price of nursing home care." Journal of Industrial Economics **Vol. 42**(no.2): pp193-204.

O'Neill, C., C. Harrington, et al. (2003). "Quality of care in nursing homes – An analysis of relationships among profit, quality and ownership." Medical Care Research and Review **Vol. 41**(no.12 ): pp1318-1330.

Ouslander, J. G. (2008). "Paying for performance in nursing homes: Don't throw the baby out with the bathwater." Journal of the American Geriatrics Society **56**(10): 1959-1962.

Rosenau, P. V. and S. H. Linder (2003). "Two Decades of Research Comparing For-Profit and Nonprofit Health Provider Performance in the United States." Social Science Quarterly **84**(219-241).

Shah, S. M., I. M. Carey, et al. (2011). "Quality of chronic disease care for older people in care homes and the community in a primary care pay for performance system: retrospective study." British Medical Journal **342**.

Starkey, K. B., R. Weech-Maldonado, et al. (2005). "Market competition and quality of care in the nursing home industry." Journal of Health Care Finance **Vol. 32**: pp67-81.

Stevenson, D. G. and D. C. Grabowski (2008). "Private Equity Investment And Nursing Home Care: Is It A Big Deal?" Health Affairs **27**(5): 1399-1408.

Wistow, G., M. Knapp, et al. (1996). Social Care Markets: Progress and Prospects.  
Buckingham, Open University Press.

Zinn, J. (1994). "Market competition and the quality of nursing home care." Journal of Health Politics, Policy and Law **19**: 555-582.

Zinn, J., V. Mor, et al. (2009). "Determinants of performance failure in the nursing home industry." Social Science and Medicine **Vol. 68**: 933-940.