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Care home markets in England: changes over time and impact of local authority expenditure on supply

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Preface

This report was based on research undertaken in 2018 and an initial draft version was written in late 2018 and peer-reviewed in early 2019. This final version, whilst incorporating responses to peer-review comments, is still based on the social care landscape at that time and does not take into account any subsequent changes. This is particularly relevant given the Covid-19 pandemic, which is having an ongoing, and will have a future, impact on social care markets.

1. Introduction

This report assesses local care home market supply in England. In particular, it offers analysis of the time and spatial dynamics of the supply of care homes and explores the role of Local Authority (LA) expenditure in this market. This report is part of a research project examining regional social care market dynamics. An associated report presents the findings of an analysis of the drivers and enablers of social care provision in general for two local authority markets (Allan and Darton, 2020).

An increasing level of quantitative evidence has been accumulated with regards to the supply-side of English social care markets, particularly for the care homes market. There is evidence of how price and quality are affected by competition. For example, Forder and Allan (2014) found that competition significantly reduced both price and quality in care homes. Specifically, their results showed that a ten per cent increase in competition would reduce prices by 2.2 per cent (£12 a week) and reduce the number of homes with a quality rating of excellent by over four per cent. There is also evidence that private sector, for-profit, care homes have lower quality than those in the public or non-profit sectors (Forder and Allan, 2014; Barron and West, 2017). Forder and Allan (2015) found that low quality and high competition significantly increased the likelihood of closure. Care homes rated as good or excellent were around four per cent less likely to close than homes rated as poor or adequate and a one per cent decrease in competition would lead to a 1.2 per cent decrease in the probability of closure of a care home. There has also been research on labour supply in social care, for example examining how staffing factors such as vacancy and retention rates affects the level of quality (Allan and Vadean, Forthcoming), and examining the impact of minimum wage and National Living Wage (NLW) introduction on the long-term care and care homes sectors (Vadean and Allan, 2017; Machin and Wilson, 2004; Draca *et al.*, 2011; Giupponi and Machin, 2018).

The adult social care system is currently under strain from increasing demand because of an ageing population with increasing levels of need. Nonetheless, adult social care expenditure by LAs has been falling over time, and the number of people supported has similarly fallen (Fernandez *et al.*, 2013). For 2010-2016 adult social care expenditure fell in real terms by 37% nationally (ADASS, 2017), although there were large variations in the spending change on adult social care locally (Humphries *et al.*, 2016). However, to date there has been little quantitative research in to the effect of public expenditure on the supply of care homes. One exception is Forder and Allan (2014) who found that quality was negatively affected by competition, and found some evidence that this competitive effect was driven by price. Given that public funding price tends to be lower than self-

funded places (cross-subsidisation), the implication was that competition for public funding between care homes was driving down quality.

Social care providers are under pressure, and at least some of this stems from the role of LAs in local social care markets (Allan and Darton, 2020). Generally, LAs are aware of the issues that funding pressures are having on their local social care markets. For example, directors of adult social care were most worried about the sustainability of their local markets given the increases in the National Living Wage and lack of corresponding adjustments in the social care budgets, and the implications this will have for the quality of services (ADASS, 2017). LAs' concerns with the sustainability of providers are related to their market shaping roles – the Care Act imposed on LAs the responsibility to ensure that their local social care markets are diverse, sustainable and continuously improving.

The aim of this research was to analyse how local authority expenditure affects both local authority- and care home-level supply. At the individual care home-level this was assessed using an existing monthly panel dataset of all English care homes for 2014 to 2016 and their status, i.e. whether they closed or not. As outlined, LAs have a responsibility to ensure a diverse social care market with choice through the Care Act. LAs may not want individual care homes to close but they may also consider this to be a natural phenomenon of the market system. Therefore, we also create a panel of LA-level care home supply for 2011-2017 and assess what effect the LA expenditure has on it.

The rest of the report is as follows. In section 2, we assess and review existing evidence of how local authority-level care home markets have changed over time. The analysis focuses on the level of supply at a national, regional and LA level before assessing levels of competition at both small area- and LA-level. Sections 3 and 4 discuss the available information on quality at national and LA-level and price at national and regional level, respectively. Section 5 of the report provides a quantitative assessment of local authority-level care home supply and the impact of the levels of local authority social care expenditure across time before section 6 concludes the report.

2. Supply of care homes

This section provides an overview of the supply-side of the English care homes market. First, the focus is on the availability of care looking at the national, regional and then local authority level. We then turn attention to the level of competition within local care homes markets. The evidence on supply is drawn from the Care Quality Commission's (CQC) publicly available dataset of registered health and social care providers, unless otherwise stated. All care homes must be registered with

CQC, the national health and social care regulator, to be able to legally provide care. To some extent, this analysis updates previous work in this area (Forder and Allan, 2011).

2.1 National supply

There is a very large supply-side in the market for care homes in England, which comprise of nursing and residential homes, the latter offering personal care only.[1] Table 1 shows the supply of care homes and beds in England from 2012-2017. There are more than 11,000 care homes registered with the Care Quality Commission to provide care to older people and/or those living with dementia. Care home beds have increased by 1.1%. The average size of a nursing home is 52 places and for residential homes it is 28 beds (average care home size is 37 beds).[2] Average care home size is increasing as older smaller homes are replaced by larger, purpose built, ones (LaingBuisson, 2015).

The vast majority of care homes are provided by the independent sector, with 85% of homes in the independent sector being for-profit (LaingBuisson, 2015).[3] Within the independent sector, there are a very large number of providers of care homes that own two or fewer homes, but an increasing number of major provider organisations own three or more homes, and this is particularly so if you look at bed supply rather than home supply as major providers dominate the nursing home market. For example, the largest 25 independent sector providers own around 30% of the care home beds available (LaingBuisson, 2015).

Table 1 does suggest a level of instability in the care homes market nationally; the number of care homes for older people in England has fallen by 2.6% over the period in question. There is also evidence that the level of provider instability has been increasing over time. For example, for the four-year period from May 2008 to December 2012 there were 622 complete care home closures (Allan & Forder, 2015) whilst for the two-year period from October 2014 to October 2016 there were 697 complete closures identified (Allan, 2020).[4]

[1] As of September 2018, 37% of care homes for older people or those living with dementia were nursing homes, and 63% residential. A small number of care homes (n=216, 1.9%) are dual-registered to provide both types of care and these homes are counted as nursing homes for this analysis. Source: CQC register of health and social care providers, September 2018

[2] See footnote 1.

[3] There are also a small proportion of homes provided by the public sector (LAs and NHS).

[4] These are 'complete' closures in that no care was provided from the same location subsequently – the measure used ignores changes in ownership. The care home datasets utilised differ – the earlier is around a sixth smaller (because of how older people care homes are identified). This would mean the number of

Table 1: English care home supply

Year	Care homes	Care home beds
2012	11,426	405,173
2013	11,406	407,388
2014	11,338	408,457
2015	11,255	408,190
2016	11,119	406,667
2017	11,152	409,532

Source: CQC register of health and social care providers, September of each year.

2.2 Regional and Local Authority supply

Table 2 provides data on care home provision and bed supply at a regional level. As can be seen, there is strong variation in the provision of care home places across regions. Compared to other regions, there are very few places available in the North East and London. The strongest provision levels are found in the South East, South West and North West. These disparities in provision across regions are in general growing over time. Again, the gradual increase in size of homes is apparent with a growth in beds available in the East Midlands (3.2%), East of England (3.3%), South East (2.2%), South West (0.7%) and West Midlands (5.4%) despite falls, or very small increases, in the number of homes.

Care home provision at a local level will depend on demand levels, e.g. size of aged population, levels of need, income and wealth. For example, the low (high) level of care homes in the North East (South East) may be linked to lower (higher) levels of income and wealth. The supply of care home beds in each LA will also depend on supply-side factors such as the availability of suitable staff and land prices, and may also depend somewhat on the supply of alternative forms of social care, e.g. domiciliary care (Allan, 2020). For example, the low level of care home provision in London is likely to be related to high land prices.

closures identified (approximately 300 over a two year period) may be underestimated to a certain degree but still much smaller than the more recent time period.

The level of supply of each form of social care may also be linked to local social care policy over time, e.g. market shaping activities now formally outlined in the Care Act. Therefore, whilst the figures provided may indicate an inequity of availability of care home beds they may not be indicative of an overall inequity in the availability of social care as a whole.

Figure 1 describes care home beds provision for LAs in 2017. This further confirms that there are widespread differences in care home provision between LAs. However, as discussed above, any inequity of care home supply will depend on population levels. Figure 2 presents care home beds per 1000 over 85 population for 2017.[5,6] This shows that, although the North East has a low level of care home provision, when weighted by older population LAs in the North East have strong levels of care home beds per older population. Available beds per older (85+) population ranges from one for every 11.7 older people (Hackney) to one for every 1.7 older people (Middlesbrough) – see Table 3. The lowest population per bed figures are generally found in North (East) England whilst the highest are generally found in London boroughs. Again, this further reflects that care home places will also be dependent on other factors such as needs, wealth, and supply-side factors.

2.3 Local care homes markets over time

Nationally, there is evidence of growing instability in the provision of care homes across the country. This appears to be the case within LAs too. Figure 3 presents the percentage change in care home bed provision for LAs between 2012 and 2017. Red colours represent reductions in bed supply whilst green colours show LAs with increases in bed supply. Overall, just over half (51%) of 150 LAs have had reductions in bed supply.[7] The biggest falls in supply have generally occurred in metropolitan boroughs, London in particular – see Table 4. The biggest increases in bed supply have occurred in all types of LAs – metropolitan boroughs, unitary authorities and county councils.

Figures 4 and 5 provide evidence of care home bed supply weighted by older (85+) population. Figure 4 shows LAs for 2012, separated into bed per older population quintiles, whilst Figure 5 shows the situation for LAs in 2017. However, in the latter case, the 2012 quintiles are used. The generally lighter shades of Figure 5 to Figure 4 reflects that over the period 2012-2017 care home beds per capita have fallen. For England as a whole, there were 332 care home beds per 1000 85+ people in

[5] We use mid-year population estimates for LAs publicly available from ONS.

[6] Care home bed supply weighted by population will vary across LAs depending on the population measure used. The population aged 85 and over is used as the majority of care home residents for older people will be of this age.

[7] City of London has no care homes and is excluded from the analysis. The Isles of Scilly are combined with Cornwall.

2012, and the same figure for 2017 was 303, a fall of 8.75%. As already discussed, care home beds in England have increased slightly. The large falls across LAs reflects that over-85 population has increased by over 10% in this period.

Table 2: Care home provision by region

	2012	2013	2014	2015	2016	2017	Change 2012-17
East Midlands							
Homes	1,076	1,073	1,060	1,082	1,076	1,085	+9
Beds	37,313	37,444	37,347	38,076	38,085	38,497	+1,184
East of England							
Homes	1,227	1,228	1,218	1,210	1,206	1,201	-26
Beds	45,721	46,096	46,226	46,606	47,016	47,235	+1,514
London							
Homes	901	903	881	866	843	840	-61
Beds	31,768	31,844	31,468	31,431	30,810	30,770	-998
North East							
Homes	611	609	614	600	584	587	-17
Beds	25,473	25,192	25,216	24,889	24,458	24,635	-838
North West							
Homes	1,597	1,589	1,574	1,558	1,539	1,529	-68
Beds	58,153	58,278	58,174	57,942	57,802	57,774	-379
South East							
Homes	2,102	2,114	2,094	2,094	2,072	2,100	-2
Beds	72,900	73,627	73,677	73,790	73,595	74,537	+1,637
South West							
Homes	1,594	1,588	1,577	1,542	1,528	1,543	-66
Beds	50,080	50,729	51,059	50,222	49,920	50,409	+329
West Midlands							
Homes	1,186	1,184	1,201	1,189	1,179	1,183	-7
Beds	40,380	40,823	41,593	41,648	41,823	42,543	+2,162
Yorkshire & Humberside							
Homes	1,132	1,118	1,119	1,114	1,092	1,084	-40
Beds	43,385	43,355	43,697	43,586	43,158	43,132	-253

Source: CQC register of health and social care providers, September of each year.

Figure 1: Care home bed provision by Local Authority, 2017

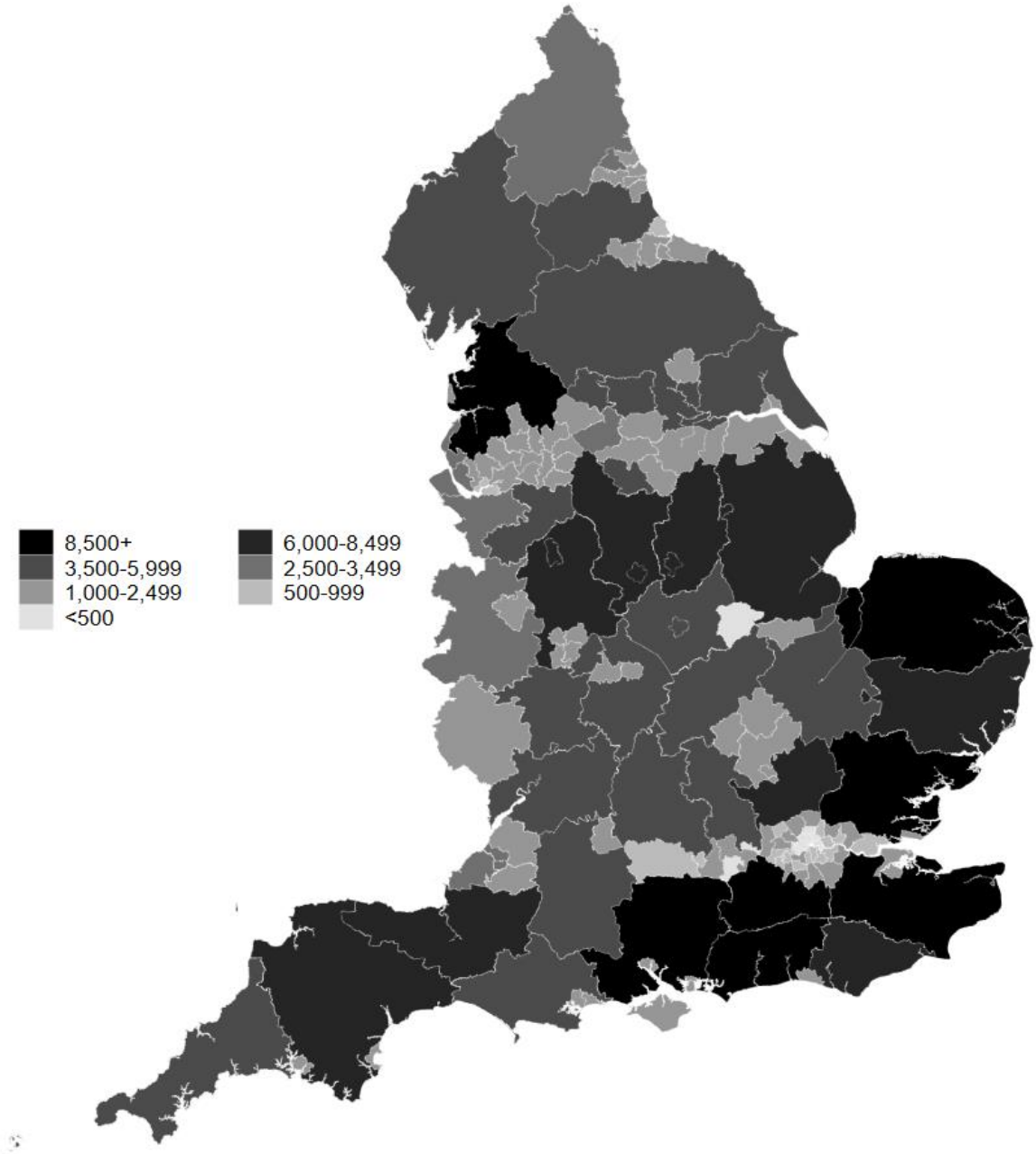


Figure 2: Care home beds per 1000 85+ population by Local Authority, 2017

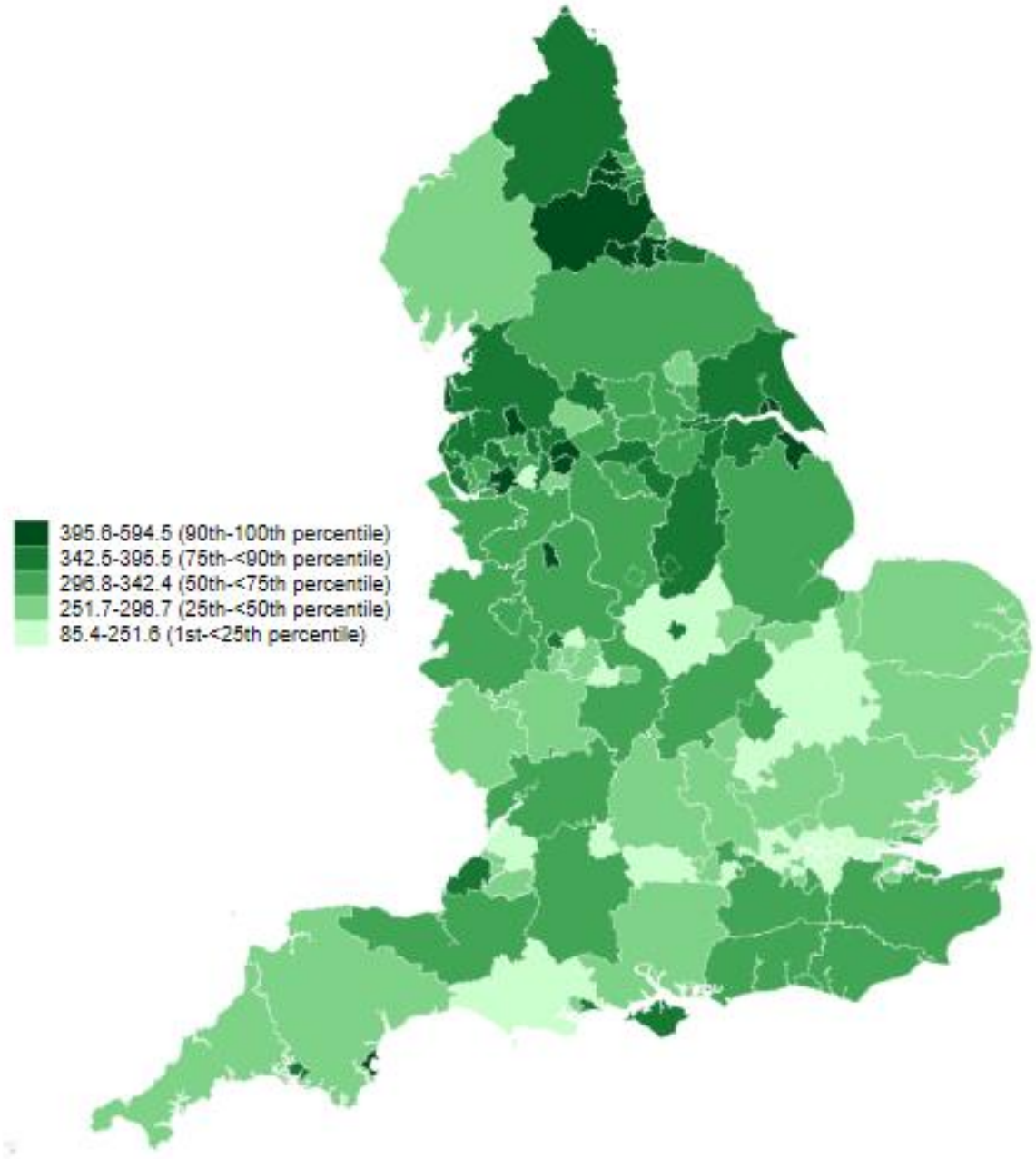


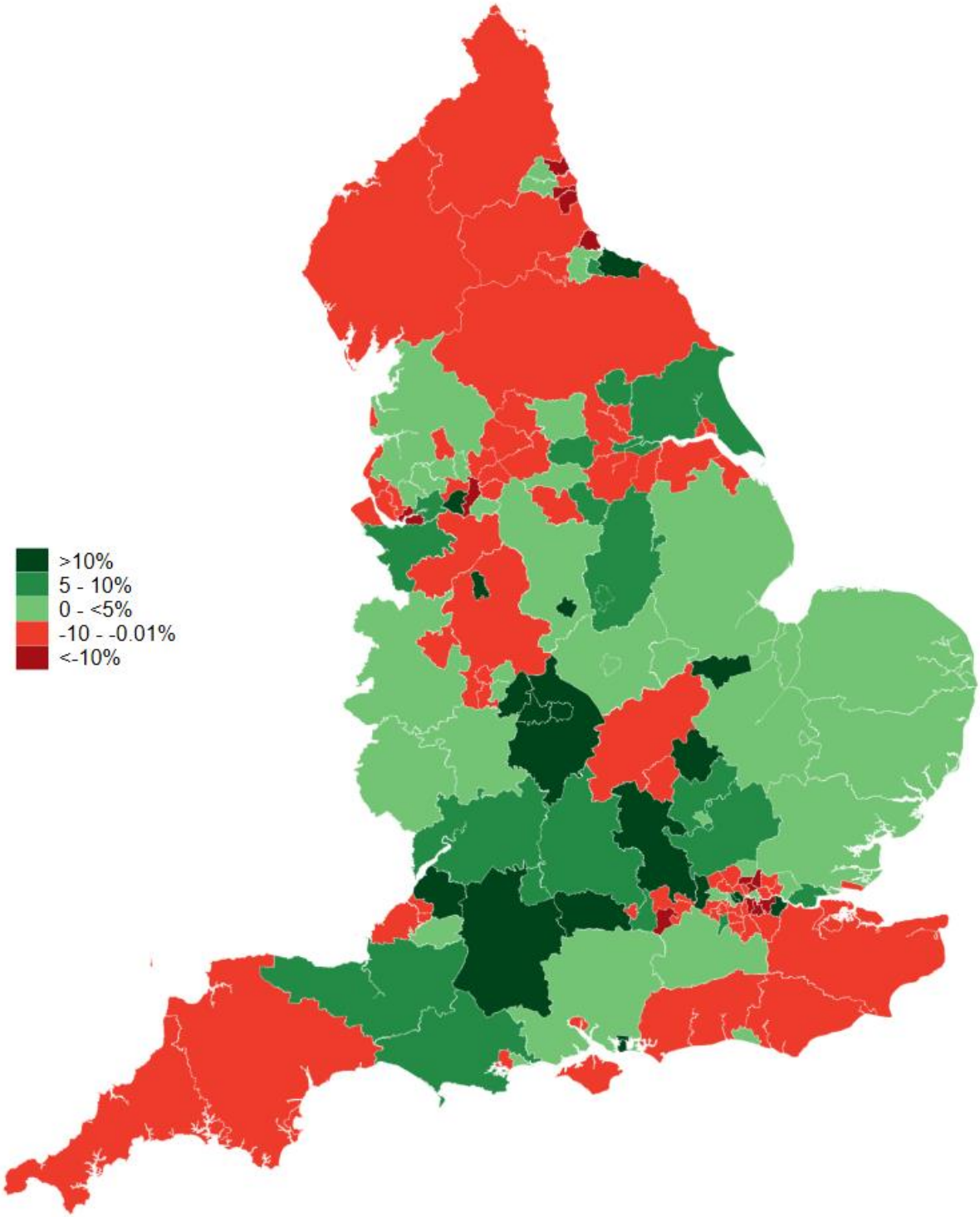
Table 3: Highest and lowest bed provision by Local Authority, 2017

Local Authority	85+ population per care home bed	Local Authority	85+ population per care home bed
Middlesbrough	1.7	Hackney	11.7
City of Kingston upon Hull	2.2	Westminster	11.5
Blackpool	2.2	Camden	9.5
Stockton-on-Tees	2.3	Kensington & Chelsea	7.1
Blackburn with Darwen	2.3	Tower Hamlets	6.9
Stoke-on-Trent	2.3	Haringey	6.7
Darlington	2.4	Hammersmith & Fulham	6.1
Newcastle-upon-Tyne	2.4	Bracknell Forest	5.7
Torbay	2.4	Southwark	5.6
Warrington	2.4	Harrow	5.6

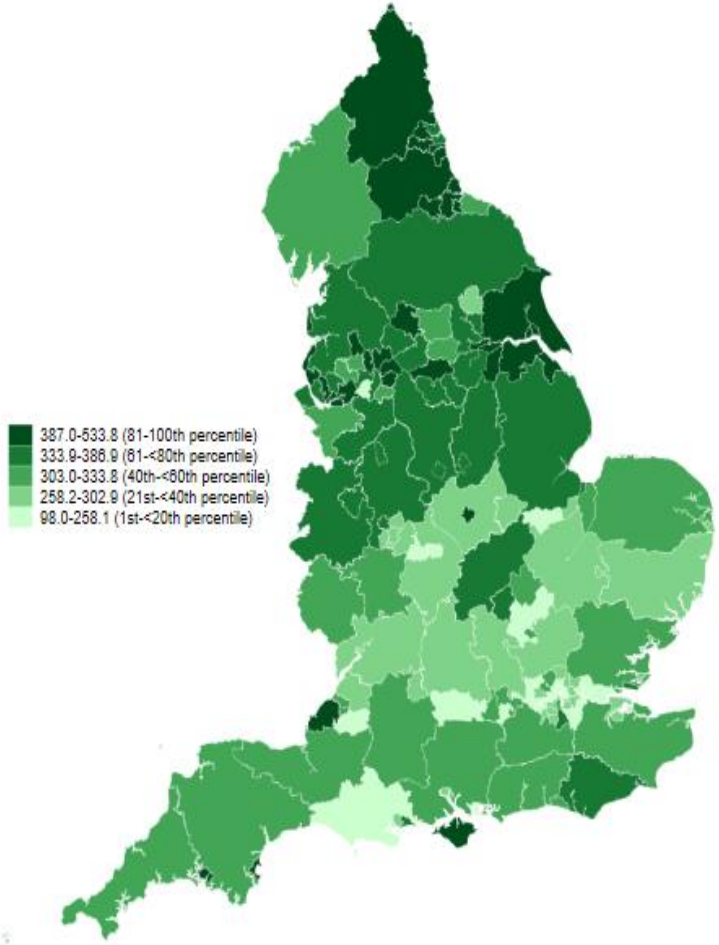
Table 4: Highest and lowest changes in care home bed supply by Local Authority, 2012 to 2017

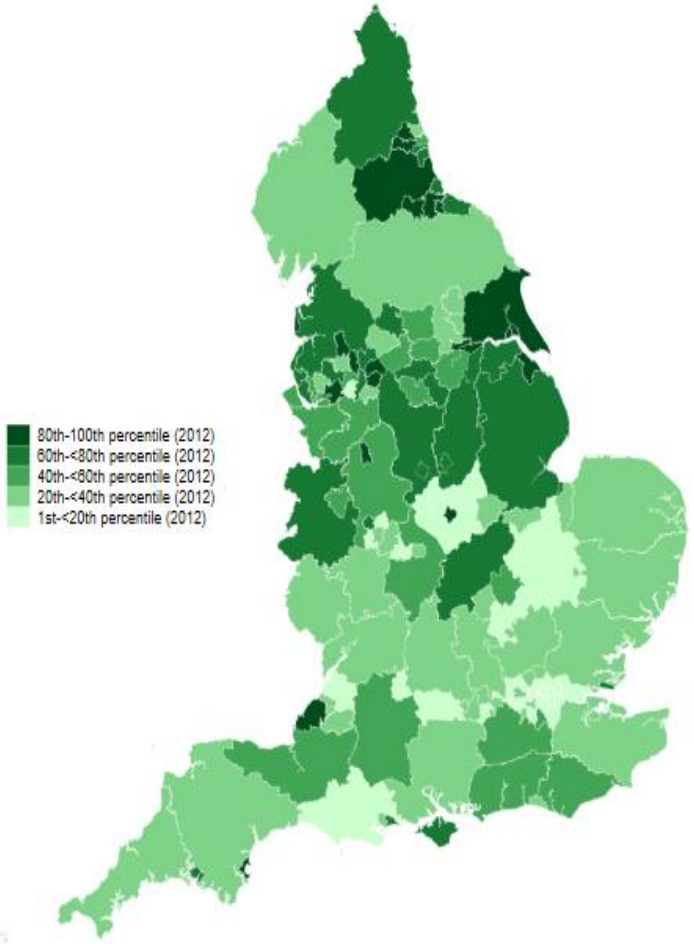
LA	Change in beds (%)	LA	Change in beds (%)
Bexley	36.8	Hackey	-36.3
Kensington & Chelsea	27.0	Haringey	-26.8
Stoke-on-Trent	23.5	Lewisham	-24.6
West Berkshire	22.5	Waltham Forest	-20.9
Buckinghamshire	22.1	Bracknell Forest	-19.9
Peterborough	19.1	Hartlepool	-17.0
Wiltshire	17.9	Halton	-13.3
Warwickshire	17.2	Greenwich	-13.2
Portsmouth	17.2	Manchester	-12.7
Trafford	15.8	North Tyneside	-12.3

Figure 3: Percentage change in bed supply by Local Authority, 2012 to 2017



Figures 4 and 5: Care home beds per 1000 85+ population by Local Authority, 2012 and 2017





2.4 Competition in local care homes markets

This section assesses the competitiveness of care homes markets at both the national and local level. Nationally, there are some large major providers and their market penetration has been increasing (see above). Generally, however, the history of the market has been where the majority of providers will own only one or two care homes (LaingBuisson, 2015).

Local level

To some extent, levels of competition can be assessed using the overall supply of homes and beds in local areas. The CMA (2017) care homes markets study found that the vast majority of postcode districts (first half of UK postcode, e.g. SW1) had at least 3 care homes within a fifteen minute drive. However, almost 1 in 5 postcode districts had two or fewer nursing homes within a fifteen minute drive, and a small proportion (over 3%) of postcode districts had no care homes within a fifteen minute drive.

An analysis of availability of care homes does not take in to account the number of beds available. For example, one care home within a short drive may have 100 places whilst another only has 10 places and is very hard to get a place in. Evidence for the CMA care markets study found that capacity constraints posed a problem in the choice of care home (Ipsos Mori, 2017). Beds will also not be a perfect measure of care home competition. For example, one local market could have 1,000 beds split between 50 care homes whilst another has 1,000 beds in only 10 homes. To take in to account the number and size of firms (beds in care homes) we can use the Herfindahl-Hirschman Index (HHI) measure of competition. This is measured as:

$$\mathrm{HHI}_{\mathrm{j}}^{10} = \frac{\sum_{\mathrm{j}=1}^{\mathrm{n}}(\mathrm{B})^2}{(\sum_{\mathrm{j}=1}^{\mathrm{n}}\mathrm{B})^2}$$

Where n is the total number of care homes in the market for care home j (the market defined as a circle with radius 10 km) and B is the number of beds in each care home in the market. The HHI can range from 0 to 1, with 0 indicating a perfectly competitive market (i.e. many homes of the same size) and 1 indicating a monopoly market. We create a distance- and travel time-weighted measure of HHI. This is measured in the same way as that developed in Forder and Allan (2014). This weights competition by distance, i.e. care homes in close proximity of the care home have a stronger impact on the care home's competition levels than care homes further away. We further weight distance by travel time i.e. care homes in urban areas will have smaller markets than those homes in more rural areas. We calculate HHI for each individual care home, and also then calculate the average care

home HHI at two local-area levels, Middle-layer Super Output Area (MSOA) and LA. MSOA is a statistical geographical area based on census population data and are designed to have similar population levels. There 6,791 MSOAs in England.

Data on the various market HHI for 2012 and 2017 are presented in Figures 6-9 and Table 5. Figures 6 and 7 present average care home HHI at MSOA-level for 2012 and 2017, respectively. Competitiveness in Figures 6-9 use the CMA's merger assessment which considers a market with a HHI of less than 0.1 to be competitive, over 0.1 as concentrated, and over 0.2 as highly concentrated (Competition Commission and Office for Fair Trading, 2010). Figures 6 and 7 show that local markets are generally very competitive. However, there are some LAs that have areas where many smaller area markets have low levels of competition which may have implications for consumer choice (e.g. Northumberland, Devon and Cornwall). There has been some concentration in local markets over time, as shown by Figure 7 having darker shades than Figure 6.[8] Table 5 highlights that there is a large proportion of MSOAs with no care homes. This has only changed very slightly over time. A large number of MSOAs have multiple care homes.

Figure 8 and 9 presents LA-level care home competitiveness for 2012 and 2017, respectively. At LA-level, we take the average care home market HHI for all care homes located in the LA.[9] In 2012 there were three LAs where the average care home market would be considered concentrated: Cumbria, Northumberland, Rutland and a further six LAs had an average care home market HHI of over 0.09 (i.e. approaching concentration): Cambridgeshire (0.093), Cornwall (0.095), Herefordshire (0.099), Oxfordshire (0.094), Shropshire (0.098) and West Berkshire (0.099). In 2017 many of the same LAs appear again; there are five LAs where the average care home market would be considered concentrated i.e. HHI over 0.1: Cornwall, Cumbria, Northumberland, Rutland and Shropshire. A further four LAs have an average care home market HHI over 0.09: Cambridgeshire (0.090), Herefordshire (0.099), North Yorkshire (0.092) and West Berkshire (0.093).

Looking at the care home level confirms that local markets are generally very competitive. The average care home in 2017 has an HHI of 0.043. Only a very small proportion of care homes' markets would be considered concentrated or highly concentrated. However, the average market has become more concentrated over time; average HHI in 2017 is significantly greater than average HHI in 2012 ($\rho<0.001$; 95% CI: 0.0422-0.0439).

[8] For this analysis, markets at the borders with Scotland and Wales may have stronger levels of competition than is indicated as HHI is calculated using only English care homes.

[9] The Isles of Scilly are not included in this part of the analysis.

Table 5: Competition and supply of care home markets

Variable	2012	2017
LA-level		
Average mid-point care home market HHI	0.034	0.035
MSOA-level		
Average mid-point MSOA-level HHI	0.043	0.044
Number of MSOAs without CH	1,973 (29.0%)	2,000 (29.5%)
Number of MSOAs with 1 CH	1,924 (28.3%)	1,943 (28.6%)
Number of MSOAs with 2 CHs	1,299 (19.1%)	1,269 (18.7%)
Number of MSOAs with 3 CHs	747 (11.0%)	784 (11.5%)
Number of MSOAs with 4+ CHs	848 (12.5%)	795 (11.7%)
Care home-level		
Average care home market HHI	0.041	0.043
Number of CHs with competitive markets	10532 (92.2%)	10,248 (91.8%)
Number of CHs with concentrated markets	774 (6.8%)	768 (6.9%)
Number of CHs with highly concentrated markets	120 (1.1%)	142 (1.3%)

Figure 6: Care home competitiveness 2012, by MSOA

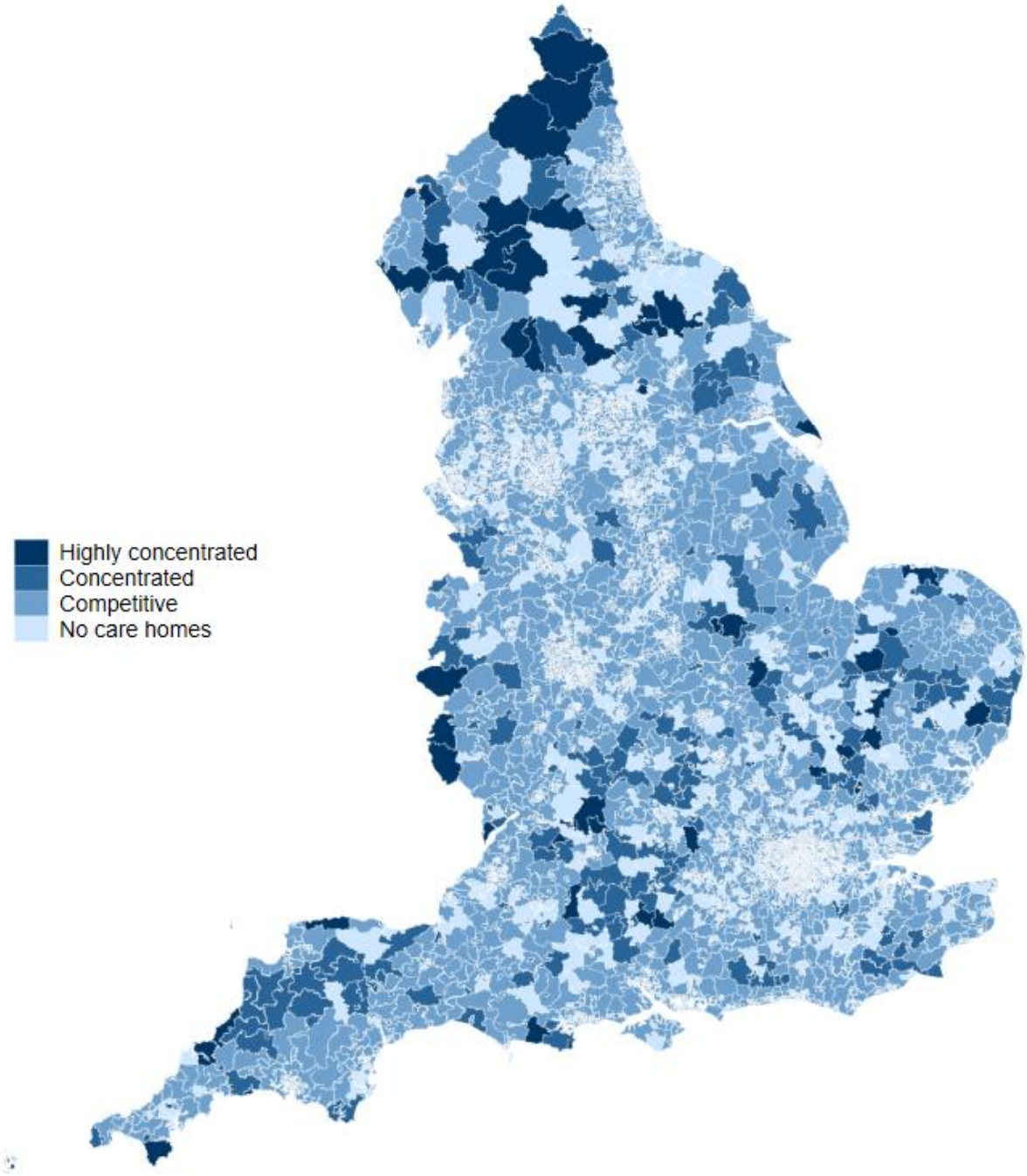
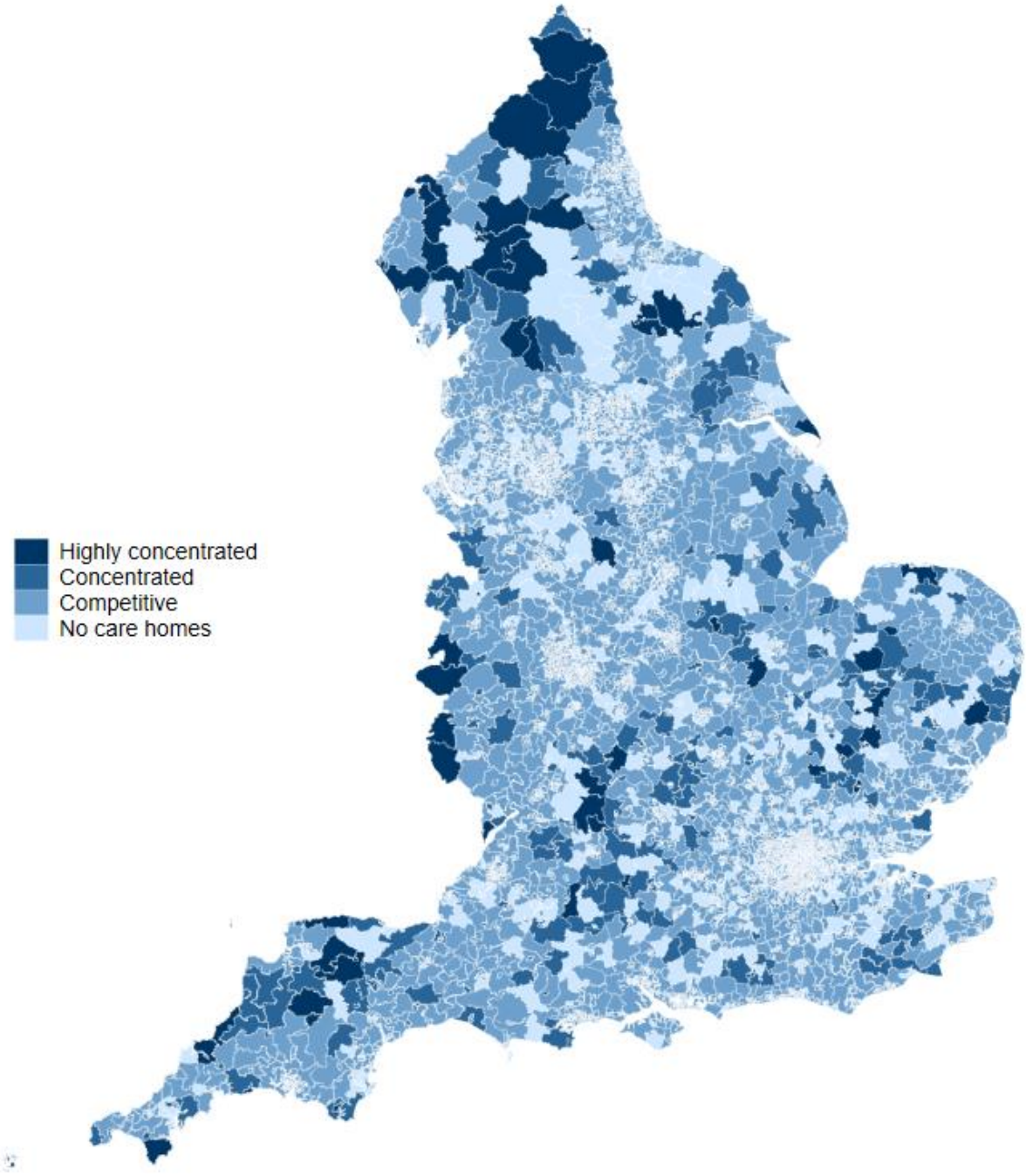
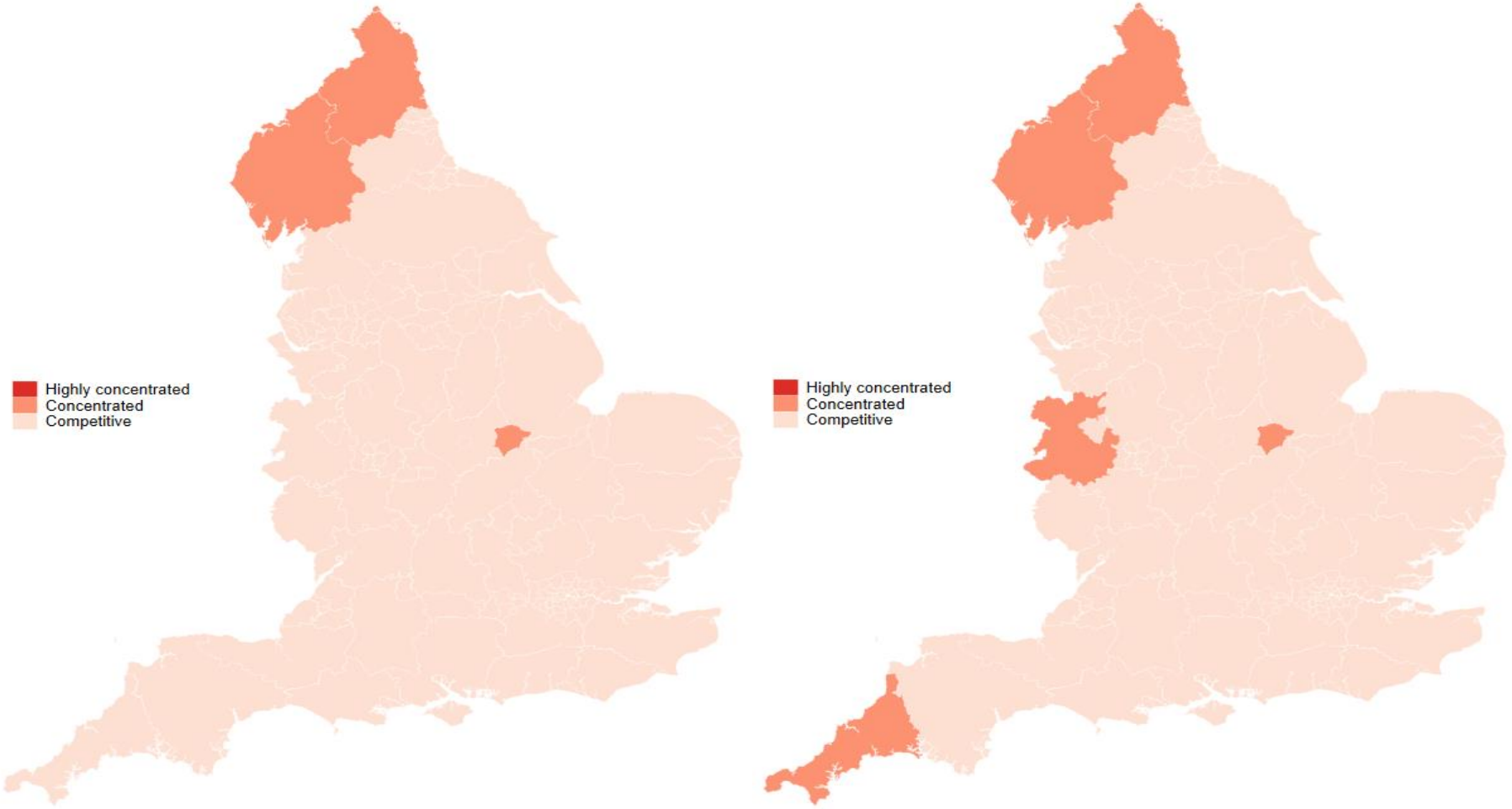


Figure 7: Care home competitiveness 2017, by MSOA



Figures 8 and 9: Average care home market competition 2012 and 2017, by LA



3. Quality in local care homes markets

Quality in care homes will depend on many aspects, including price and competition (e.g. Forder and Allan, 2014). Ideally, the quality of life of residents and other outcomes measures could be used to assess the level of quality of care homes. This data is not available at a national level however. Overall care home quality ratings are available for all care homes nationally from the CQC. The CQC monitors the performance of providers through the inspection and rating of services, in addition to information gathered from both the provider and national sources plus local feedback. Ratings are determined through assessing five key questions around whether providers of social care services are: safe, effective, caring, responsive to people's needs, and well-led. Care homes are given an overall rating of Outstanding, Good, Requires Improvement, or Inadequate (Care Quality Commission, 2016).[10]

Table 6 presents CQC quality ratings nationally in September 2017. 10,250 care homes had quality ratings and 902 had yet to be rated. A very small proportion of care homes were rated as either Inadequate (2.2%) or Outstanding (1.7%). The vast majority of homes were rated as Good (72.3%). At LA-level, care homes rated as Outstanding can be found in 64 LAs. The LAs with the highest number of Outstanding ratings are generally found in Southern County Councils; 10 LAs have 5 or more care homes rated as Outstanding: Devon (14), Hampshire (8), Kent (8), Oxfordshire (6) South Gloucestershire (5), Suffolk (6), Surrey (6), Warwickshire (8), West Sussex (5), and Wiltshire (6).

Conversely, 80 LAs had care homes rated as Inadequate. Fifteen LAs had 5 or more of these care homes: Bradford (6), Cheshire West and Chester (5), Cumbria (5), East Sussex (6), Essex (7), Hampshire (5), Kent (17), Kirklees (6), Lancashire (5), Liverpool (8), Northamptonshire (5), Staffordshire (7), Suffolk (5), Surrey (8), and Tameside (5).

Table 6: Care home CQC quality ratings, 2017

Quality Rating	Number of homes
Not Rated	902
Inadequate	221
Requires Improvement	2,446
Good	7,413
Outstanding	170

Source: CQC, September 2017

[10] Inspections focus on key lines of enquiry (KLOEs) that are used to consistently assess the five key questions. The quality rating system is underpinned by the 'Mum Test', asking if someone would be happy with the services provided if someone they loved lived in the care home (Care Quality Commission, 2017).

Figure 10 presents the percentage of care homes that have been rated by CQC as Good or Outstanding. All LAs have a range of quality ratings, with the five LAs with the lowest proportion of homes rated as Good or Outstanding being: Kirklees (45.3%), Manchester (41.2%), Portsmouth (45.2%), Trafford (40.5%), and Wirral (45.9%). Four LAs have no rated homes rated as being Inadequate or Requires Improvement: Bracknell Forest, Reading, Richmond upon Thames, and Rutland. There is some indication that the LAs with the very highest proportions of Good or Outstanding homes are found in the southern half of England.[11]

4. Prices in local care homes markets

This section discusses various sources of care homes price data and the differences between self-funding and LA-funding prices. Availability of detailed care home price information is relatively scarce. There are websites (e.g. caredata, Which?, TrustedCare) which provide some individual care home fees, or list average fees for residential, nursing or self-funding in local authorities.

Table 7 reports the current available information on care home prices. A number of data sources are available: First, the Competition and Markets Authority (CMA) UK care homes market study, second Local Authority (LA) returns on fees paid for adult social care available from Adult Social Care Finance Returns (ASC-FRs), and third a recent secret shopper survey on self-funder fees and aspects of quality in English care homes reported in Allan (2018).

The CMA (2017) care homes market report found for the UK using data for 25 large national providers and over two thousand care homes that the average price for a self-funder in 2016 in an English care home was £851pw, whereas LAs paid £610pw on average to support residents. For care homes that cater for both self-funding and LA-funded residents the average difference in fees was £245pw (43 per cent higher price paid by self-funders). Prices for the two demand streams, and the difference in fees, varied by region. Average self-funder price was over £1000pw in South East England (highest at £1,063pw) and London, but was below £800pw in North West, East Midlands, Yorkshire & Humber, and East Midlands (lowest at £669pw).

[11] Smaller LAs with fewer care homes will be more likely to have large changes in quality when using percentage of homes as the measure.

Figure 10: Proportion of care homes rated as Good or Outstanding 2017, by LA

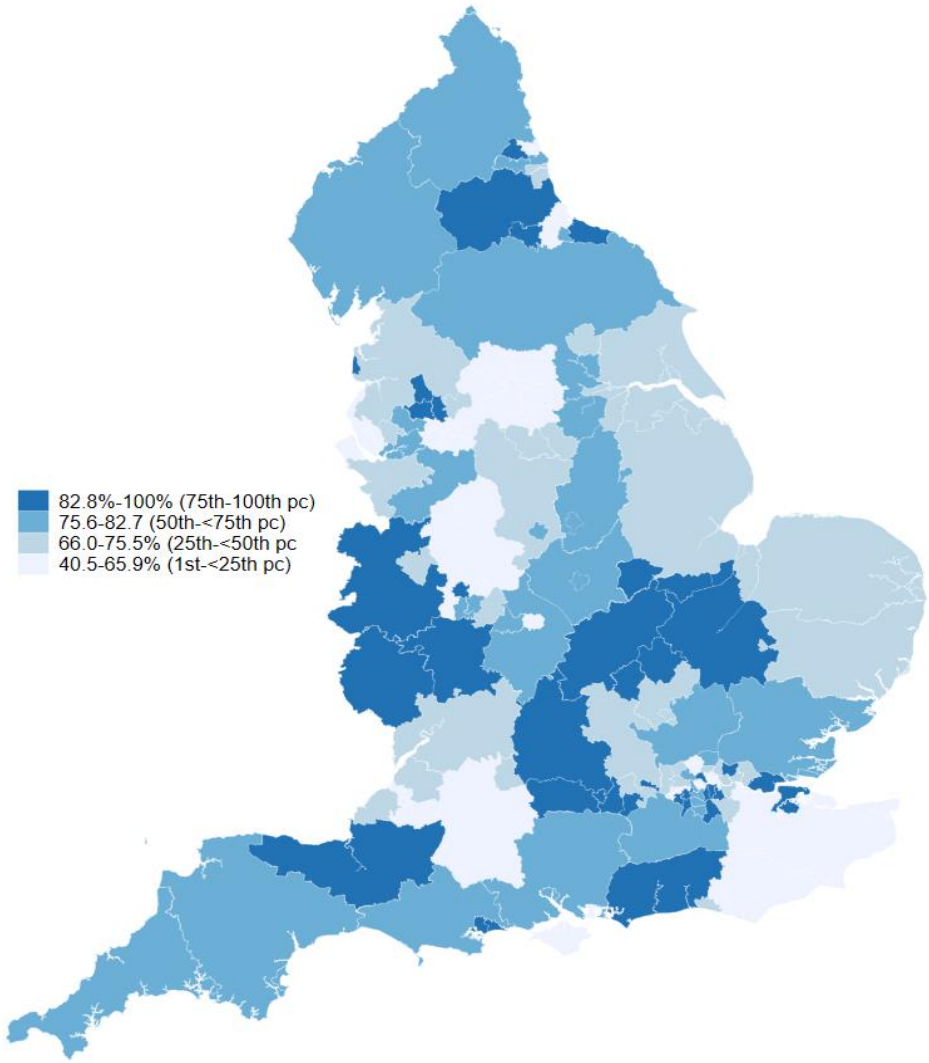


Table 7: Weekly care home fees

Price (Source, year of data)	Average midpoint price (CMA, Dec 2016)[a]		Average self-funder price (CMA, Dec 2016)[b]	Average LA unit cost (ASC-FR, 2017/18)	Average self-funder price (Allan, 2018)[c]
	Residential	*Nursing*			
England	**£590**	**£756**	**£851**	**£642**	**£744**
East Midlands	£536	£626	£781	£560	£684
East of England	£651	£818	£856	£606	£763
London	£657	£863	£1,051	£725	£881
North East	£503	£555	£669	£571	£604
North West	£490	£641	£776	£533	£633
South East	£673	£893	£1,063	£713	£901
South West	£637	£796	£876	£715	£777
West Midlands	£531	£712	£829	£603	£722
Yorkshire & Humberside	£504	£659	£722	£549	£595

Sources: CMA (2017), Adult Social Care Finance Return (ASC-FR), 2017-18, and Allan (2018).
Notes
a Calculated using data on 3,974 UK care homes.
b Calculated using data on 2,017 care homes in UK from 25 large providers
c Calculated using data on 984 care homes in England. Price reported is the mid-estimate

Table 7 also reports LA unit costs for 2017/18. LAs in England paid on average £610pw for a place in a care home, ranging from an average of £560pw in the East Midlands to £725pw in London. There are some large variations within region. For example, in Yorkshire and the Humber the lowest reported unit cost was in Barnsley with an average of £447pw and the highest in York at an average of £676pw. For the South East, Kent had the lowest average unit cost (£546pw) and Wokingham the highest (£880pw).

A secret shopper survey of self-funder prices for almost one thousand care homes in England in 2018 found average prices in the range of £711-£776pw, depending on the price measure used (Allan, 2018).[12] Again, significant variation was found in price across regions – from as low as £594pw in the North East (mid-estimate £604pw) to as high as £940pw in the South East (mid-estimate £901pw). Average prices were also found to vary by: care home type (nursing £828-£949, residential dementia registered £693-£741, and residential, non-dementia registered £652-£708; condition (a bit muddled and arthritis £661-£704, dementia and arthritis £703-£763, and dementia, arthritis and a stoma

[12] These prices were likely to be at the low end of the expected price because nursing homes were underrepresented due to the chosen sampling procedure.

(nursing homes only) £828-£949) and by quality rating (Inadequate £615-£678, Requires Improvement £710-£767, Good £711-£778, Outstanding £751-£848).[13]

4.1 Self-funding vs LA-funding fees

As can be seen in Table 7, there is a large difference in the fees paid by self-funders and those paid by LAs.[14] There is likely to be cross-subsidisation taking place in the care homes market, where higher fees for self-funders supports the lower price paid by LAs for publicly-funded residents (CMA, 2017). LAs, with a dominant position as the largest purchaser of care, are able to push down price where supply is greater (Forder and Allan, 2014). This competitive argument may be seen in the range of price paid by different LAs – a low supply may force a LA to maintain higher prices. The CMA (2017) report also supports this as it found that the fees gap was greatest where there was an even split between self-funders and LA-funded residents. An alternative economic explanation for cross-subsidisation would be that there is an inter-temporal premium required to cover a potential spend-down of wealth to the point where a self-funding resident qualifies for LA-funded support (Troyer, 2002).

However, at least some of the difference in price between self-funders and LA-funded residents can be attributed to other factors (Allan *et al.*, 2020). Quality will play a part in fee differences, both between and within homes (e.g. bigger room, sea-view, en-suite). Forder and Allan (2014) found a significant effect of care home quality on price, with care homes rated as good or excellent (using the old CSCI/CQC star rating system) having a higher price. Allan (2018) finds that fees for self-funders were significantly different between care homes for certain quality-related aspects (e.g. allow pets).

It is also very likely that some part of the higher price could be reflected because of potential future changes to residents' health status. Self-funded residents usually enter a care home (relatively) healthier with fewer needs (Forder and Fernandez, 2011), and so there is an expectation that costs of care support will rise over time to a greater extent than for LA-funded residents. Self-funder fees

[13] Note that there were a low number of both Inadequate and Outstanding rated care homes.

[14] There may be a data discrepancy that can account for some of the difference in fees. Some of the difference may be attributable to nursing care costs, which for residents with high enough needs (usually in nursing homes) a contribution will be paid for by the NHS. LA returns will not include this figure, but average national figures are likely to. For a fuller discussion of this see appendix of Allan *et al.* (2020). Potentially, the CMA (2017) report may not have this data issue as LA fees are reported from care homes and so could include the nursing care contribution. However, given the data comes from homes, the LA fees that are found may include third party top-ups (private funding usually from a relative to top-up the price paid by LAs) which will reduce the fees gap to some extent.

were found to be lower in care homes where residents were expected to move as health deteriorated, i.e. homes that will look after clients continuously as needs rise charge a higher price to begin with (Allan, 2018).

A further reason for the gap in fees between the two primary demand streams are care homes themselves. They will have a market power over self-funders in particular, and they have an opportunity to use this given the circumstances of purchase in a majority of cases (i.e. distressed purchase). The extent to which this is their own choice is open to question, i.e. are LAs pushing care homes to exploit this to reduce/maintain public funding (Allan *et al.*, 2020). Owners of social care providers have tended not to be purely driven by profit (Knapp *et al.*, 2001; Netten *et al.*, 2001; Kendall *et al.*, 2003), although this may increasingly be open to question with the increasing presence of large chain providers (Burns *et al.*, 2016).

Overall for care home prices, there is a difference in price between regions in the country, and there is a two-tier price system across the country for self-funders and publicly-funded residents, and this cross-subsidisation has increased over time (CMA, 2017).

5. Quantitative analysis of care home supply and impact of local authority social care expenditure.

Given the pressures facing social care providers, it is of interest whether reduced LA-funding has had a detrimental effect on social care supply over time using secondary data analysis. We concentrate on the impact on the care homes market, and do so in two ways. First, we use a monthly two-year panel dataset of all English care homes for older people for the period 2014-2016 to analyse how adult social care expenditure affects the likelihood of closure of care homes. The advantage of this level of data is that one can examine if LA expenditure on social care is influencing individual care home closure, and to what extent. However, whilst there will be some concern with individual provider closures and whether it is indicative of a potential for market deterioration or lack of available choice, LAs could see provider failure as a natural phenomenon due to market forces and a mechanism for ensuring quality (e.g. Allan and Forder, 2015). As such, LAs will primarily be concerned with the sustainability of local social care markets as a whole. Therefore, second, we analyse changes in care home supply at the LA-level using data from 2011-2017.

5.1 Data

Care home panel

A two-year monthly panel dataset from October 2014 to October 2016 of all care homes in England that are registered to provide care for older people and/or those living with dementia was created using the Care Quality Commission's (CQC's) dataset of all registered health and social care providers. This register is updated monthly and so we can identify care homes over time in the dataset to assess if their status changes, i.e. if they close.[15] Over the period in question, 697 'complete' closures were identified, and 505 new care homes opened their doors.[16]

LA-level care home panel

Using the CQC register of health and social care providers for September of each year from 2011 to 2017, we create a dataset counting the number of homes and number of beds in LAs. Table 1 in Section 2 of this report outlines care home supply nationally over the timeframe in question.

LA adult social care expenditure

Information on adult social care expenditure and support is drawn from the publically available publication of adult social care activity and finance returns (ASC-FR) datasets for 2014-15 to 2017-18.[17] For the period 2011-12 to 2013-14 the previous Personal Social Services Expenditure (PSS-EX1) returns were used. We control for inflation by adjusting all prices to real terms for September 2017. There are some differences between the two returns (Snell, 2017), and so in the analysis that follows we explicitly control for this with the inclusion of a binary dummy variable to control for the change to ASC-FR.[18]

We measure adult social expenditure in a number of ways. As outlined earlier, pressures on funding mean that funding to support those in need of social care has reduced. Therefore total expenditure is our primary measure of adult social care expenditure for both datasets. However, LAs could maintain, or even increase, total expenditure whilst providers could be facing increased pressure. This could occur in two ways. First, the amount of support could reduce; LAs increase spending but it supports fewer people as needs increase. Second, if both support and expenditure increase, but the latter to a lesser degree, the fee that providers receive will reduce, on average. To explore these

[15] A full discussion of how care homes were matched over time can be found in Allan (2020).
[16] We consider only locations where care is no longer provided as closed. Changes in registration at the same location are not considered closures since the location would appear to still be economically viable.
[17] We match expenditure from the financial year in question to each respective year of care home data, e.g. 2011/12 PSS-EX1 used for September 2011.
[18] Note that given the timeframes used this is only necessary for the LA-level analysis.

possibilities, we also use total hours of support from LAs and unit costs as measures of LA adult social care activity/expenditure.[19]

Controls

For the care home panel analysis the following controls were available at the care home-level: type (residential or nursing), registration to support service users living with dementia (alternative is just registered to support old age residents), total number of beds (log), an indicator for the size of the provider organisation (0 if provider owns one or two homes and 1 if it runs three or more), an indicator of the care home's quality (0 if care home is rated as Inadequate/Requires improvement and 1 if it is rated as Good or Outstanding), and the level of competition faced by each care home, measured using a distance-weighted Herfindahl-Hirschman Index (HHI) with a market radius of 10km around each care home, with the HHI taking values between 0 and 1, and higher values indicating more concentration (lower competition) in the market. For quality, quality ratings data were publicly available from September 2015 and not all care homes had been rated by April 2016. As such, in some specifications a predicted quality measure was used. Available quality ratings were regressed on the care home indicators described above and the need and demand controls outlined below to generate predicted quality ratings. Further controls were (assumed) exogenous instruments, specifically spatial lags of average quality at LA-level (excluding each care home's quality rating) and MSOA-level index of multiple deprivation rank (excluding the rank for the LSOA each care home is located in).[20]

Apart from the type of service provided and the service user a care home is registered to provide care for, there is no further information on the level of need nor the funding stream of those residents within the care home. We therefore control for levels of need and demand (income/wealth) further by including the following controls at the local area-level (LSOA): pension credit and disability living allowance uptake percentage (of those aged over 65), index of multiple deprivation rank (log), total population (log), percentage of population over 65, and average house price (log).[21] Finally, the region of location was also included as a control.

[19] For ASC-FR, we measure adult social care expenditure and activity for older people in care homes as Mental Health, Learning Disability, Support with memory and cognition, sensory support and physical support for those 65+, own provision and provision by others in residential and nursing settings.

[20] An F-test of the null hypothesis that the instruments are equal to zero is significantly rejected ($F=1328.19$, $p<0.0001$).

[21] Average house price was matched at MSOA-level.

For the LA-level analysis the set of controls variables used are as follows: average level of competition for all care homes within the LA (average of individual care home HHIs); regional hourly wage of direct care staff; the percentage of over 85s that claim pension credit, attendance allowance and disability living allowance; percentage of over 65s claiming carers allowance; average LA house price (log); and LA-level population of those under the age of 85 (log).[22] The latter is included to reflect that there are competing pressures on LA budgets which will be (at least partially) determined by population size (Department for Communities and Local Government, 2013). We also include indicator variables to control for the introduction of the NLW in April 2016 and for the change to the ASC-FR from PSS-EX1 (as discussed above).

Table 8 presents the data on adult social care expenditure and support by LAs on residential and nursing care for those aged 65 and over from 2011 to 2017. It confirms that total expenditure has been falling over time (-8.8%), the level of support decreasing (-15.5%) and markedly so when taking in to account elderly population growth. Weekly unit costs decreased initially but have subsequently increased over time (+8.0%). Care homes are likely to have faced having LAs support fewer LA-funded residents and, given (real) minimum wage has increased by almost 13% in this same time, below cost increases in fee levels paid by LAs.

Table 8: Average LA adult social care expenditure and support for 65+ population, England

Year	Total Expenditure (£m)	Expenditure per 1000 65+ capita (£m)	Total activity (weeks)	Activity per 1000 65+ capita (weeks)	Unit cost
2011	36,700	0.68	64,391	1,174	586.28
2012	35,594	0.63	63,539	1,113	578.06
2013	35,259	0.61	62,667	1,071	575.09
2014	32,579	0.55	57,877	971	577.36
2015	32,425	0.54	56,496	921	595.38
2016	33,355	0.55	56,108	903	617.47
2017	33,459	0.53	54,415	864	632.97

Notes: Expenditure and unit cost are inflated to September 2017 terms.

5.2 Results

Care home panel

We estimate a Cox proportional hazards model of the risk of closure for all care homes between October 2014 and October 2016. The hazard rate of care home i is the probability that a care home

[22] Population aged 85 and over is already controlled for from its inclusion in the dependent variable.

that exits from time t to time t + 1, conditional on having survived to time t, and is denoted as λ. We write:

$$\lambda_{it} = \lambda_0(t)exp\,(\boldsymbol{x}(t)\beta) \quad (1)$$

Where λ is the baseline hazard, t is time since entry and $\boldsymbol{x}$ is a vector of the explanatory variables. The Cox (1972) proportional hazards model is semi-parametric and usefully does not specify a functional form for the baseline hazard. The Cox proportional hazards model assumes that the impact of the explanatory variables on the hazard remains constant over the timeframe examined.

The results for the various measures of adult social care expenditure and activity of estimating equation (1) are presented in Table 9. Two sets of results are reported. The first column presents results when quality rating is included in the analysis, whilst the second column includes a measure of predicted quality rating since not all homes had been rated for all time periods. When the quality measure is included both total expenditure and activity significantly influence the likelihood of closure. The significant effects found are small – every £100m increase in total expenditure reduces the likelihood of closure by 0.05%, and every 1000 week increase in activity reduces the likelihood of closure by 0.25%. When per capita expenditure and activity are used then the significant effect on closure is removed. Unit cost also does not have a significant effect on closure likelihood. When predicted quality is included to extend the analysis across the whole panel then no measure of expenditure and support significantly influences the likelihood of care home closure.

There is a possibility that current LA adult social care expenditure and activity may be influenced by a care home that is likely to close. For example, LAs could try to increase their support, or if quality is negatively affected by an impending closure, could look to move their supported residents and prevent any other LA-funded residents from moving in. To allow for this, we include the 1-year lag of expenditure, activity and unit costs. The results do not change in any marked way from those in Table 9.

In terms of the other control variables, competition generally has a positive, but insignificant, effect on closure likelihood, whilst nursing homes and bigger homes are less likely to close. The quality of the model specification is assessed in detail in Allan (2020). Generally, the use of the proportional hazards model seems appropriate, although the models with predicted quality fail specification tests.

Table 9: Influence of LA adult social care expenditure and support on care home closure

Care home panel	With quality	With predicted quality
	Coefficient (z-value)	Coefficient (z-value)
Total expenditure	0.9999951** (-2.08)	0.9999982^{NS} (-1.43)
Expenditure per 65+ capita	0.981^{NS} (-0.23)	0.935^{NS} (-1.39)
Activity	0.9999975* (-1.80)	0.9999992^{NS} (-1.04)
Activity per 65+ capita	0.967^{NS} (-0.52)	0.952^{NS} (-1.47)
Unit cost	1.000^{NS} (0.47)	0.9997^{NS} (-0.62)
n	94,864	280,124

LA-level analysis

There are many potential ways to measure care home supply, for example total number of homes or total number of beds. We measure care home supply using beds per older capita, for both the population aged 65 and over and 85 and over. This is primarily to control for differences in population across local authorities, but is also chosen because of improved distribution of the data (see Figures 11-14 below), where measures of bed and care home supply are poorly distributed.

We estimate a LA-level model of care home supply as given in equation 2:

$$s_{it} = \beta x'_{it} + l_i + \varepsilon_{it} \qquad (2)$$

Where s is the measure of population-weighted bed supply for LA i in year t, L, x' is a vector of the regressors, including both the measure of LA adult social care expenditure and the controls outlined earlier, l is a time-invariant measure of unobserved individual LA factors, and ε is a random error.

Initially, we estimate a pooled OLS model which does not take in to account any time effects, assuming them fixed. As such, it assumes exogeneity between x' and l such that the lack of inclusion of the latter does not influence the size of the effect of the former. Secondly, we estimate a pooled, population averaged (PA), model using feasible generalised least squares (FGLS), which takes in to account the time factors such that the error can be correlated over time. Specifically, we allow error

terms to have an autoregressive relationship. We use an AR(1) process for the error term, i.e. the previous years' error has a correlation with the current error term (Cameron and Trivedi, 2010).[23]

It is likely that different LAs have different local factors which affect their care home supply, and so in estimating (2) it is also important to be able to control for l. To examine this we use a fixed effects (FE) model, which estimates:

$$s_{it} - \bar{s_l} = \beta_1(L_{it} - \bar{L_l}) + (\beta_2 x_{it} - \bar{x_l}) + (\varepsilon_{it} - \bar{\varepsilon_l}) \quad (3)$$

This removes time invariant effects from the model, including the LA-specific effect, l. Given the high spatial level of analysis, it is likely that there are a number of variables that we cannot control for that would have an impact on care home supply. If the omitted variables are time invariant then estimating (3) will remove any impact they would have on care home supply, i.e. $\beta_1 = 0$ in (3). To control for omitted variables that change over time within LAs we cluster standard errors by LA.[24] This allows observations to not necessarily be independent within LAs.

The results of estimating (2) and (3) are presented in Table 10 for the preferred measure of LA social care support, total expenditure per (1000) older (85+) capita.[25] The results for the other control variables do not change a great deal across the specifications and so the findings for the other measures of social care support are presented in Table 11. We assess whether u_i = 0, i.e. whether there are individual fixed effects, with an F-test. In all estimations the use of fixed effects model is preferred to OLS. The use of a fixed effects over random effects is assessed using a Hausman test. In all estimations the Hausman test significantly rejects the null hypothesis that a random effects (RE) model would be appropriate.[26]

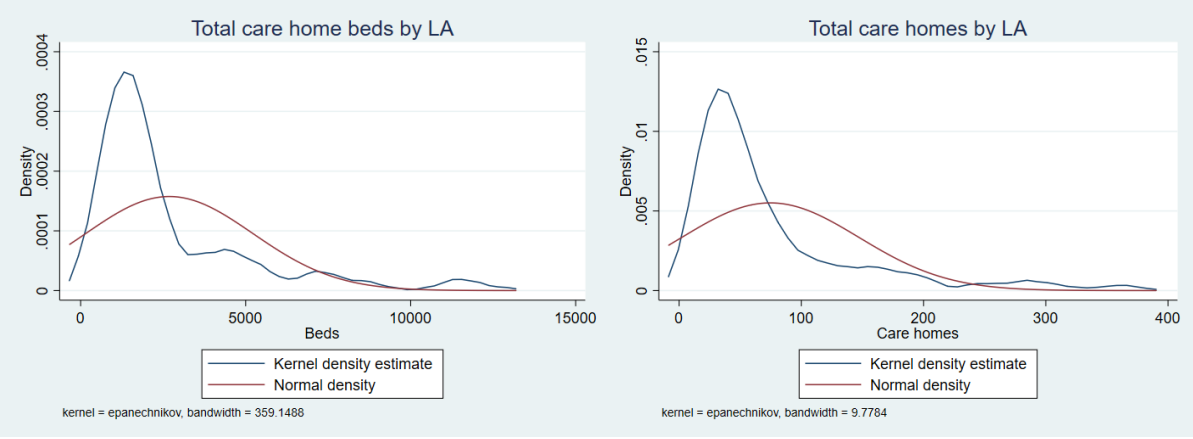
[23] In particular, $\varepsilon_{it} = \rho\varepsilon_{it-1} + \mu_{it}$.

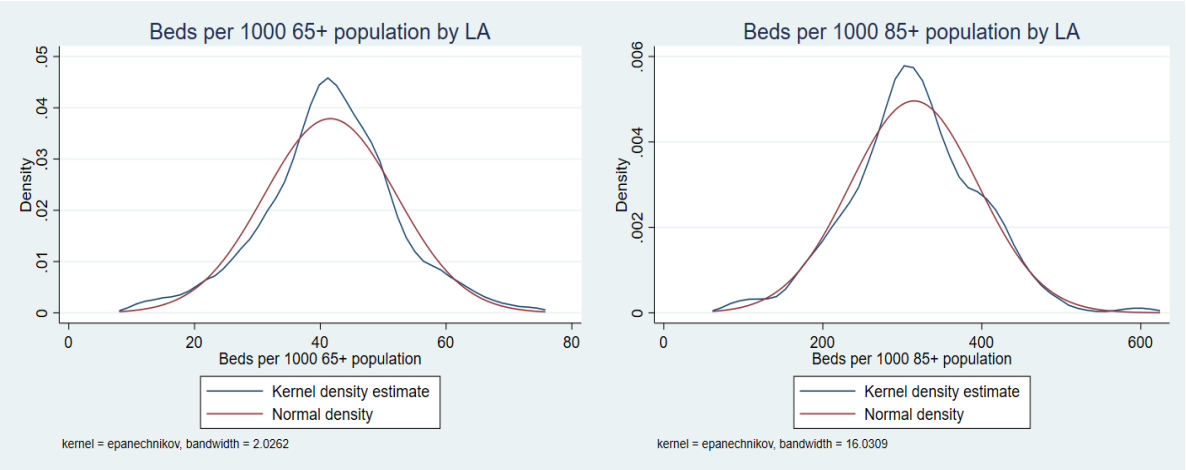
[24] For the PA models the standard errors are not clustered by LA but are robust to heteroscedasticity.

[25] For all the results presented, we used beds per 1000 85+ population as the measure of supply.

[26] We also estimated a Mundlak correction model which allows for FE in a RE estimation by including the means of time varying variables in the estimation (Mundlak, 1978). We find that the means of the time varying variables are jointly significant, another indication that the FE model is appropriate for this data.

Figures 11-14: Kernel density estimates of care home supply measures (total beds, total homes, beds per 65+ capita and beds per 85+ capita)





In the pooled OLS model based on estimating (2), we find that total older adult residential care expenditure per older capita significantly affects care home bed supply. Indeed, for all the measures of LA adult social care support apart from unit cost there is a significant positive relationship between support and bed supply. The significant effect weakens or disappears when looking at the PA model in column 2 of each table. For the preferred specification of FE models presented in the third columns of Tables 10 and 11 total expenditure per capita and total activity per capita significantly influence care home bed supply, the former only weakly so. The magnitude of these effects is fairly small. For the average LA, a 10% decrease of 769 weeks in activity per thousand 85+ capita would reduce beds supply by 1.5 beds per thousand 85+ capita (0.5%). The respective reduction in bed supply for expenditure per thousand 85+ capita under the same 10% reduction scenario are 1.3 beds per thousand 85+ capita (0.4%). To put the 10% reduction in to context,

between 2012 and 2017 activity and expenditure per thousand 85+ capita has fallen by 22.8% and 16.4% for the average LA, respectively.

For the control variables, competition significantly decreases bed supply, whilst increasing total population and the proportion of older people claiming carers' allowance within a LA increases bed supply. We also find significant negative wage effects on care home bed supply in LAs, both for regional average direct care hourly wage and for the introduction of the NLW. Specifically for the latter, the introduction of the NLW reduced bed supply by 3.4 per thousand 85+ capita, or 1.4% for the average LA. This could be an indication that reducing adult social care expenditure per capita is having a negative effect on care home supply through the pressure this exerts on wages.

There are some caveats to these findings. First, the significant effect found for activity and (weakly for) expenditure per capita on bed supply are not present when weighting both bed supply and expenditure and activity with aged 65 and over population. Second, the significant effects found in the PA models are not found when the autoregressive nature of the errors is increased beyond AR(2). Third, there is likely to be a high degree of endogeneity still present in these models, i.e. care home bed supply is likely to influence LA social care support.[27] We experimented with some dynamic models allowing for lags of the dependent variable to be included as regressors and instrumenting both competition and LA social care support with lags.[28] There was no significant effect of LA social care support in these models, but there was evidence of serial correlation in the error term which breaks a key assumption for this model.

[27] We ran a 2SLS model of LA bed supply using two lags of activity and expenditure per capita as instruments and this suggested that both expenditure and activity per capita were highly endogenous with bed supply. Note, that this model specification does not take in to account any time specific effects likely to be present in the model.

[28] In particular, we estimated an Arellano-Bond model with one lag of beds per capita as an additional regressor and two lags of both competition and LA social care support as instruments.

Table 10: Effect of total LA expenditure and other factors on local care home bed supply

	OLS		PA		FE	
Variable	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**
Tot. exp. per 1000 older capita	16.00***	4.01	1.45*	0.861	2.93*	1.56
Avg. reg. hourly wage	-66.46***	19.20	-8.17***	2.93	-9.17**	4.49
NLW	23.30***	7.43	-3.73***	1.23	-3.51*	1.84
Competition (log avg. HHI)	-14.01**	6.37	-89.35***	19.21	-147.99***	29.40
House price (log)	-86.22***	13.05	-7.27***	2.80	-2.10	5.46
Population (log)	6.02	6.20	21.15	13.73	192.48***	69.96
PC 80+ (%)	-1.99**	0.868	0.678**	0.319	0.726	0.437
CA 65+ (%)	-15.04	35.84	-3.26	20.09	68.76**	29.35
AA 85+ (%)	-1.11	0.686	-0.207	0.170	-0.095	0.258
DLA 85+ (%)	-2.28	2.73	-1.33	1.77	-1.18	2.35
R^2 (within)	0.591				0.0010 (0.553)	
n	1,050		1,050		1,050	
Specification	0.001***	0.0003	0.0005^{NS}	0.0006		
F-test (l_i = 0)					101.23***	
Hausman					256.67***	

Notes: NLW = National Living Wage; PC = Pension credit; CA = Carers' Allowance; AA = Attendance Allowance; DLA = Disability Living Allowance. Also includes dummy variable controlling for change in reporting of expenditure and activity by LAs. *, ** and *** indicate significance at the 10, 5 and 1% levels, respectively.

Table 11: Effect of various measures of LA social care support for older people on local care home bed supply

	OLS		PA		FE	
Variable	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**	**Coef.**	**Std. Err.**
Total expenditure	0.001***	0.0003	0.0001*	0.00007	0.0001	0.0001
Total activity	0.0006***	0.0002	0.00004	0.00005	-0.00002	0.00009
Total activity per 1000 older capita	0.015***	0.002	0.001*	0.0005	0.002**	0.001
Unit cost	-0.031	0.036	0.003	0.006	-0.0003	0.009

Notes: *, ** and *** indicate significance at the 10, 5 and 1% levels, respectively.

6. Conclusion

This report has assessed local care home supply in England. In particular, this has included an analysis of LA-level supply of care home places over time, competition in local markets, and the quality and price of care homes. The report has then used quantitative analysis to investigate the impact that local authority social care support for older people has on older people care home supply.

Overall, the evidence shows that there is still a large level of care home supply, but that it is not keeping up with increases in the ageing population. This is unsurprising given that policy has increasingly been focussed on prevention, and then care at home and in the community for those that do require support. Care homes are increasing in size, suggesting greater concentration and less choice in care homes. There is instability in the care homes market and exit from the market has increased over time. Care home closures in England are positively related to poor quality and high competition (Allan and Forder, 2015), and the effect of competition on quality has been linked to (low LA-funding) price (Forder and Allan, 2014).

Overall, it is clear that care home markets can generally be considered competitive. Concentration is increasing over time, and there are some LAs where the average care home market could be considered as concentrated. This part of the analysis has not considered the differences in markets/clientele between residential and nursing homes, nor taken into account that care homes may have the same owner. Both of these factors would increase measures of concentration. Again, we have looked at care homes as an individual element of available adult social care which does not present a complete picture on adult social care supply across LAs. For example, LAs with care homes markets that are more concentrated may have greater availability of other forms of social care.

In terms of quality and price of care homes, data availability is scarcer. We have shown that overall a range of qualities are generally found across LAs, with some indication that consistent and very high quality are more generally found in the southern counties of England. At regional level, on average prices are higher in the south of England. Lower prices and levels of self-funders in regions in the north of England may put increasing pressure on local care home markets.

Increasing demand means that the social care system is under pressure and LAs have been reducing expenditure and supporting fewer people. LAs have a statutory responsibility from the Care Act 2014 to ensure the sustainability of their local social care market. These market shaping responsibilities will necessarily include determining what level of different forms of social care provision are

available to service users. As such, reductions in the supply of one form of care provision need not necessarily impact on the availability of social care services to the local population overall if other forms of care are being promoted. However, it is of interest to assess whether LA social care support impacts on the supply of social care provision in their local market.

We assessed this in two ways looking at the care homes market for England. First, at the care home-level, we have found that the likelihood of closure of a care home is significantly affected by total expenditure and activity, but that the significant effect was removed when looking at per capita support. Second, at the LA-level we have found that bed supply per older capita is significantly affected by expenditure and activity per capita. However, in the case of both assessments of the impact of LA social care support on care home markets, the magnitude of the impact found is generally very small.

The size of the effect may be small because of the ability of care homes to extract a higher fee from self-funding residents. The fairness, and continued ability for care homes to be able to do so, are open to question. In the former case, there are often differences in the quality of provision (e.g. larger room, sea view) which can account for the price differential, but within care homes there are unlikely to be differences in the level of care. There was also evidence at the LA-level that wages and the introduction of the NLW had a detrimental effect on care home supply. This may, at least in part, be driven by reduced LA support for people in care homes. Further investigation of these areas is required.

There are some caveats to this quantitative assessment, not least the very likely endogeneity that exists between supply and LA social care support. This is something that could be addressed in future work, but it is difficult to find appropriate instruments. Nonetheless, these results give an initial indication of the impact that LAs have on their respective local care home markets. There is an increasing policy focus on care at home and alternative forms of social care to long term institutional care. As such, LAs need to be wary that changes to funding and support of people in care homes will impact that particular social care market. As shown elsewhere, it is important that there are open consultations and discussions between LAs and providers (Allan and Darton, 2020).

References

ADASS (2017) *ADASS Budget survey 2017*, Association of Directors of Adult Social Services, London.

Allan, S. (2018) *Price and quality across English care homes: Evidence from a secret shopper survey, Report commissioned by the Live-in Care Hub*, PSSRU Discussion Paper 2945, PSSRU, Canterbury.

Allan, S. (2020) The impact of domiciliary care provision on care homes markets, PSSRU, draft report.

Allan, S. & Darton, R. (2020) Barriers and enablers to social care supply, PSSRU Discussion Paper 2020-03, PSSRU, Canterbury.

Allan, S. & Forder, J. (2015) The determinants of care home closure, *Health Economics, vol. 24 (S1)*, pp. 132-145.

Allan, S., Gousia, K., & Forder, J. (2020) Exploring differences between private and public prices in the English care homes market, Health Economics, Policy and Law, Published online by Cambridge University Press: 03 February 2020. DOI: https://doi.org/10.1017/S1744133120000018

Allan, S. & Vadean, F. (Forthcoming) The association between staff retention and English care home quality, Journal of Aging and Social Policy.

Barron, D.N. & West, E. (2017) The quasi-market for adult residential care in the UK: Do for-profit, not-for-profit or public sector residential care and nursing homes provide better quality care?, *Social Science & Medicine 2017*, doi:10.1016/j.socscimed.2017.02.037.

Burns, D., Cowie, L., Earle, J., Folkman, P., Froud, J., Hyde, P., Johal, S., Rees Jones, I., Killett, A. and Williams, K. (2016) *Where does the money go? Financialised chains and the crisis in residential care*. CRESC Public Interest Report, Centre for Research on Social-Cultural Change, Manchester.

Cameron, A.C. & Trivedi, P.K. (2010) *Microeconometrics using Stata, Revised Edition*, Stata Press, College Station, Texas.

Care Quality Commission (2016) *How CQC regulates: Residential adult social care services, Provider handbook*, Care Quality Commission, Newcastle.

Care Quality Commission (2017) *The state of adult social care services 2014 to 2017: Findings from CQC's initial programme of comprehensive inspections in adult social care*, Care Quality Commission, Newcastle.

Competition & Markets Authority (2017) Care homes market study, Final report, Crown Copyright, London.

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

Cox, D.R. (1972) Regression Models and Life-Tables, Journal of the Royal Statistical Society, Series B (Methodological), Vol. 34(2): 187-220

Department for Communities and Local Government (2013) *A guide to the local government finance settlement in England*, Crown Copyright, London.

Draca, M., Machin, S. & van Reenen, J. (2011) "Minimum Wages and Firm Profitability", American Economic Journal: Applied Economics, vol. 3, no. 1, pp. 129-151

Fernandez, J.-L., Snell, T., & Wistow, G. (2013) *Changes in the patterns of social care provision in England: 2005/6 to 2012/13*. PSSRU Discussion Paper 2867, London School of Economics

Forder, J. & Allan, S. (2011) *Competition in the Care Homes Market*, Report for the OHE Commission on Competition in the NHS. London: Office of Health Economics.

Forder J. & Allan, S. (2014) Competition in the English care homes market, *Journal of Health Economics, 34(1)*: 73–83.

Forder, J. and J.-L. Fernandez (2011). *Length of stay in care homes. Report commissioned by Bupa Care Services,* PSSRU Discussion Paper 2769, Canterbury: PSSRU.

Giupponi, G. & Machin, S. (2018) *Changing the Structure of Minimum Wages: Firm Adjustment and Wage Spillovers*, CEP Discussion Paper 1533, Centre for Economic Performance, LSE, London.

Humphries, R., Thorlby, R., Holder, H., Hall, P., & Charles, A. (2016) Social care for older people: Home truths. The King's Fund and Nuffield Trust, London.

Ipsos Mori (2017) Care Homes: Consumer Research, Ipsos MORI report for the CMA, Ipsos MORI Social Research Institute, London.

Kendall, J., Matosevic, T., Forder, J., Knapp, M., Hardy, B., & Ware, P. (2003) The motivation of domiciliary care providers in England: new concepts, new findings, *Journal of Social Policy 32 (4)*, 489–512.

Knapp, M., Hardy, B., & Forder, J. (2001) Commissioning for quality: ten years of social care markets in England, *Journal of Social Policy 30 (2)*, 283–306.

LaingBuisson (2015) *Care of older people: UK market report, 27th Edition*, Laing & Buisson Ltd., London.

Machin, S. & Wilson, J. (2004) Minimum wages in a low-wage labour market: Care homes in the UK, *The Economic Journal, vol. 114*, pp. C102-C109.

Mundlak, Y. (1978) On the pooling of time series and cross section data, *Econometrica, 46*: 69–85.

Netten, A., Darton, R., Bebbington, A., Brown, P. (2001) Residential or nursing homecare? The appropriateness of placement decisions, *Ageing and Society 21*,3–23.

Snell, T. (2017) *Analysing social care expenditure from PSS-EX1 and ASC-FR: A note on the comparability of data sources*, PSSRU, draft report.

Vadean, F. & Allan, S. (2017) *The effects of minimum wage policy on the long-term care sector*, PSSRU Discussion Paper 2932, PSSRU, Canterbury.