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Buy-to-let gentrification: extending social change through tenure shifts

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ABSTRACT

Recent discussions of gentrification in the UK have centred on new builds and on the influence of particular public programmes. This paper focuses on a form of gentrification that has cut across both of these: buy-to-let, broadly defined as the purchase and transfer of a dwelling to the private rental market. Initiated in response to a favourable legislative and financial context, this form of property investment has not usually been considered as gentrification, likely because it is at odds with the historical link between gentrification and ownership in the UK, poses problems with consumption side explanations and is not seen as displacing low-income residents. The paper uses a detailed comparison of small-area social and tenure data from the 2001 and 2011 UK Censuses to show that buy-to-let has become a prominent tenure trajectory in gentrifying neighbourhoods. This prominence emerges from the opportunity it affords to use the general value gap created by the deregulation of the private rental sector to close rent gaps in the most urban, central and disadvantaged areas of England. This tenure shift, shown to be intrinsically linked to gentrification, creates vast opportunities for asset appreciation but also initiates long term trajectories of displacement in surrounding areas.

K**eywords: Gentrification, buy-to-let, private rental sector, tenure, displacement**

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INTRODUCTION

The last 25 years have seen a strong return of the private rental sector (PRS) in the UK. This is noteworthy since private renting had almost disappeared: while 76% of households privately rented in 1918, only 9% did so in 1991 – a figure that then increased to 12% in 2001, and to 18% in 2011 (ONS, 2013). This translates into a 1.7 million rise in the number of households private renting between 2001 and 2011. The return of the PRS was precipitated by the 1988 Housing Act which allowed landlords to more easily retake possession of their property and limited the length of tenancies, but it can also be linked to the buy-to-let mortgage launched in 1996. In this paper, the focus will be on an expanded definition of buy-to-let (BTL) which refers to the possibility this new legislation and mortgage offer to purchase a dwelling with the aim of putting it on the private rental market. This definition is motivated by the fact that while the BTL mortgage is the most common acquisition model among private landlords, the transfer of property to the PRS can occur through multiple pathways such as buying outright or through other sources of financing (Scanlon et al., 2015). The Department for Communities and Local Government's 2010 Private Landlord Survey (DCLG, 2010, page 26) also reports that 23% of the sampled PRS dwellings had not been purchased by the landlord, including 9% that had been inherited and 8% that had been built by the landlord.

There is clear evidence that the transfer of properties to the PRS has had a considerable influence on the UK housing market in the 2000s. The analysis of the use of the BTL mortgage reveals a broad geography of this investment practice (Leyshon and French, 2009) and confirms its widespread use: the period from 2003 to 2008 has been called the 'buy-to-let boom' – *"by 2007 buy-to-let accounted for 12 per cent of the value of all mortgage advances in the UK"* (BHSF, 2013, page 15). Sprigings (2008) comes closer to a figure of 30% by focusing on buy-to-let (BTL) mortgages as a percentage of house purchase mortgages only. There is also evidence that this practice has been far from innocuous. Indeed, there is support in the literature for the idea that the ubiquity of buy-to-let investments in UK in the first decade of the 21st century has led to an intersection of this practice with gentrification trajectories. Indeed, it seems as though BTL investments, driven by the broader incentives of the 1988 Housing Act and of the BTL mortgage, have occurred within each of the programmes scrutinised by gentrification researchers in the recent investigation of the relation between gentrification and public policy (Lees, 2003a, 2008; Lees and Ley, 2008).

In the case of the policies focusing on social mixing, argued by Lees (2008) to encourage gentrification, Murie and Rowlands (2008) report that developers turned to off-plan sales to buy-to-let investors to ensure that high-density mixed tenure developments remained profitable. There has also been much discussion of the role of buy-to-let in Housing Market Renewal[1] (HMR) Pathfinders – linked to gentrification in Cameron (2006), Lees (2008) and

[1] The Housing Market Renewal (HMR) Initiative "*was targeted at nine sub-regional 'pathfinders' which included 26 local authority areas. This programme has subsequently been allocated £2.2 billion to restructure failing*

MacLeod and Johnstone (2012) – with many highlighting how this trend undermined the broader aims of the programme (DCLG, 2009; Nevin, 2010; Turcu, 2012) or how it ultimately tended to be a larger driving force in these areas than public investment (Leather and Nevin, 2013). In the case of the London Olympics – discussed from the perspective of gentrification in Watt (2013), critics have been quick to point out how new developments were captured by buy-to-let investors (Monbiot, 2007; Sinclair, 2008; Wainwright, 2013) and Bernstock (2013) describes the concern from those planning the legacy of the site that the properties would be bought up by BTL investors. While there has been no specific study of the prevalence of BTL in New Deal for Communities[2] (NDC) areas – linked to gentrification by Watt (2009) and more marginally by MacLeavy (2009) and Wallace (2015), there is some indication that it has also occurred there (Parkinson et al, 2009). The small flats planned following NDC council stock transfers (Watt, 2009) are also exactly those most favoured by BTL investors (Murie and Rowlands, 2008).

The aim of this paper is to show that in the UK's current regulatory context BTL investments are intrinsically linked to gentrification. The next section situates this new form of gentrification in three theoretical debates. The paper then presents a census-based analysis of the geographical distribution of the tenure trajectories that have defined gentrification between 2001 and 2011 in England and provides evidence as to the link between BTL and gentrification.

THEORISING BUY-TO-LET AS GENTRIFICATION

Theorising BTL investments as gentrification confronts three obstacles. The first is that in the UK context, gentrification is usually associated with increases in ownership, not renting. The second derives from the first: if gentrification is no longer directly connected to buying for occupation, then this makes consumption side explanations less useful. The third is that BTL investments don't at first sight appear to be linked to the displacement of low-income populations.

neighbourhoods and rectify market failure in the target areas over the period 2002–2011" (Nevin, 2010, page 716).

[2] The New Deal for Communities (NDC) was a programme with a budget of £800 million for projects in small neighbourhoods designated as deprived which sought to "*position communities 'at the heart' of regeneration schemes*" (MacLeavy, 2009, page 850).

Buy-to-let as a possible tenure trajectory in gentrifying areas

Glass (1988) first identified the process of gentrification in 1963 London, just as home ownership had started to increase in a city where there were still more private renters than owners. This was before the introduction of Mortgage Interest Relief At Source (MIRAS) and a new Housing Act which provided incentives for improvement grants – both instituted in 1969 and aimed at encouraging home ownership. These new policies seem to have led to a shift in real estate investment strategies: *"as the return on rented property steadily fell behind comparable investment opportunities, landlords by their own volition or by the prompting of their agents sought to gain vacant possession and sell"* (Williams, 1976, page 72). The 1977 Rent Act – which prevented unlawful eviction and re-established some security of tenure – pushed gentrification even more strongly towards ownership. Thus, by from the early 1970s, and at least until the 1988 Housing Act which revalued private rental opportunities, gentrification in the UK was occurring through a *"process of tenurial transformation from private renting to owner occupation"* (Hamnett, 1986, page 403). The link between gentrification and this transfer to ownership is well established (Butler and Lees, 2006; Hamnett and Randolph, 1984; Hamnett and Williams, 1980).

What is interesting is that gentrification has continued to be tied to homeownership, even with the return of private renting. It might be that this return came too late: by the 1990s, the study of gentrification had shifted to the "*question of why individual owner gentrifiers undertake gentrification*" (Hamnett, 1992, page 118), taking with it this well-established link to ownership. This can explain why in their study of middle class gentrifiers in London, Robson and Butler (2001, page 74) excluded non-homeowners from their in-depth interviews, something which can also be found in Bondi (1999). This can also explain why tenure change, in general, has tended to fall out of recent studies of gentrification in the UK, such as in the case of super gentrification (Butler and Lees, 2006) – in which the focus is squarely on owner occupiers – or new build gentrification (Davidson and Lees, 2005) – in which the presence of renters is noted but not considered significant. UK-based gentrification research thus seems to have carried forward the initial, and contingent, link between gentrification and ownership. Over half a century later, "*it might be that the conception of gentrification now needs to include those who rent in such areas"* (Butler et al, 2008, page 86) given the "*re-emergence of private landlordism in Britain through what is known as 'buy-to-let'"* (Hamnett and Butler, 2010, pages 59-60).

Inspiration on how to proceed can be found in studies of gentrification elsewhere. Two Australian studies provided early evidence that gentrification was not intrinsically connected to ownership (Logan, 1982; Maher, 1985). In the same context, Bridge (2001, page 98) briefly mentions *"gentrifiers buying investment properties"* – a phenomenon he later reinterprets as the *"gentrifier buy-to-let market"* (Bridge, 2007, page 40). Still in Australia, Rofe (2003, page 2523) notes a trend to 'rent lifestyle' among production gentrifiers, those living in already renovated terraces or in apartments denigrated by the 'consumption gentrifiers' who were actively involved in renovating their dwellings. In their analysis of

Canadian metropolitan regions, Meligrana and Skaburskis (2005, page 1585) found larger percentage increases of renters than owners in the gentrifying areas of a number of cities. Recent European scholarship has also noted a diversity of tenure trajectories: in Dutch cities through the differentiation of Housing Association owned stock (Huisman, 2014; Teernstra, 2015), in Swiss cities through the presence of both owners and renters in new build developments (Rérat, 2012) and in Brussels through what Van Criekingen (2010) describes as a process of 'rental gentrification' whereby the PRS is being reinvested following its importance for young middle-class adults.

But three studies are particularly instructive. In Philadelphia, Smith identified three types of 'gentrifiers' – *(a) professional developers who purchase property, redevelop it, and resell for profit; (b) occupier developers who buy and redevelop property and inhabit it after completion; (c) landlord developers who rent it to tenants after rehabilitation"* (Smith, 1979, page 546) – a typology that assumes the existence of tenure trajectories both to ownership and to private rental. This is similar to the findings of DeGiovanni and Paulson's (1984) comparative study of Philadelphia and Atlanta: renters were displaced to make way for either wealthier owners or renters. Finally, Engels' (1999) detailed work on the process of gentrification in a Sydney suburb contradicted the (still) popular view that "*the gentrification process is driven purely by owner-occupiers, not by small-scale absentee owners and their middle-class tenants"* (Engels, 1999, page 1490).

It thus seems as though gentrification in the UK has been associated with home ownership only because that was the form of tenure which was growing most strongly at the time of its early study – linked to the presence of rent controls, incentives to homeowners and the growth of house prices (Hamnett and Randolph, 1984). Given that studies elsewhere have uncovered a number of different tenure trajectories in gentrifying areas, there appears to be no logical contradiction in thinking of BTL investments as a form of gentrification. What remains to be found is a way in which this can be reconciled with theoretical models used to explain the process.

Buy-to-let from the perspective of value and rent gaps

The fact that gentrification has been linked to a variety of neighbourhood trajectories, and notably to increases in private renters presents a problem for consumption oriented theories. Indeed, a central figure in these theorisations was the figure of what Smith (1979) called the 'occupier developer', a term which was at the centre of a rather heated exchange with Hamnett (1992), for whom *"owner gentrifiers should be seen as producing for personal use, and not primarily for profit"* (Hamnett, 1992, page 118). This issue becomes much less relevant with transitions to private rental: with over three-quarters (76%) of dwellings owned by a private individual landlord regarded as an investment or pension (DCLG 2010, page 29), it cannot be denied that profit, either through capital gains, rental yield or both, necessarily underlies most BTL decisions. Two explanations that foreground production rather than consumption are particularly useful in accounting for the diversity of tenure

transitions involved in gentrification: Hamnett and Randolph's (1984) value gap and Smith's (1979) rent gap. The account that follows is aligned with Clark (1992) is seeing these two theories as meshed rather than in opposition.

At the core of the value gap's focus on the difference between tenanted investment and vacant possession value – devised for a period in which the transfer from the PRS to ownership was the central gentrification trajectory, is the insight that tenure shifts are a rational response to competing investment opportunities (Hamnett and Randolph, 1984, page 269). The ease with which landlords can retake possession of their property following the 1988 Housing Act, declining investment opportunities elsewhere and the social and demographic changes of the early 2000s which increased the demand for rental properties all made BTL investments a lucrative investment (Scanlon et al., 2015). This can be expected to be true in all places to which tenants could potentially be attracted. As such, the value gap is "*generalisable over space, since policy changes and changes in economic conditions surrounding forms of tenure generally affect the entire city region*" (Clark, 1992, page 19). The broad geography of BTL (Leyshon and French, 2009), and the fact that it is linked to most of the large scale programmes initiated in the UK in the 2000s, can thus be understood as a generalised response to the new regulatory and financial context.

The rent gap – *"the disparity between the potential ground rent level and the actual ground rent capitalized under the present land use"* (Smith, 1979, page 545) – is on the other hand highly place-specific (Clark, 1992). As such, it can help explain why BTL investments have tended to target the lower end of the housing market (DCLG, 2009; NHPAU, 2008; Sprigings, 2008), to favour types of dwellings more likely to be in central city locations – new builds and terraces (Leyshon and French, 2009) – and to be so ubiquitous in the areas undergoing regeneration. Indeed, this is something that can't be completely accounted for by the value gap's insistence that tenure shifts are a reaction to a "*profit maximizing opportunity*" (Hamnett and Randolph, 1984, page 277) – there is no guarantee that the rents obtained in these areas would constitute a more profitable investment than the speculative purchase and sale of flats for owner occupation in a period of rapid real house price increases (Atkinson, 2013, page 2). In targeting these areas, BTL investors must have been looking at something else than the relation between tenanted investment and vacant possession, namely the fact that a tenure shift – and thus the closure of the value gap – "*entails at least partial closure of rent gap*" (Clark, 1992, page 20) through a long-term increase in land prices.

The tenure shift to the PRS can thus be seen as a means to attract renters to disadvantaged inner city areas which have historically not been appealing to owner occupiers. Indeed, renters, since they foreground rent levels and accessibility to work and see their stay in the area as relatively temporary, can be more easily attracted to areas which may be perceived to have less social 'cachet', such as new developments on brownfield sites or in areas

associated with concentrations of social housing[3]. There is some support for this idea in studies which highlight that trajectories to the PRS have usually occurred in gentrifying spaces distinct from those to ownership. For example, in the previously disinvested inner city of Brussels gentrification has been led by educated young adults who move in "*as private renters and for generally short-term periods*" (Van Criekingen, 2009, page 844). DeGiovanni and Paulson (1984, page 226 and note 20) report that incoming owners and renters tended to live in distinct sections of the gentrifying neighbourhoods they studied. Finally, both Logan (1982) and Maher (1985) find that the flat building boom in Melbourne in the 1960s and 1970s was associated with the arrival of middle class renters, in contrast to houses which saw larger increases of owners than renters.

In the current UK context, BTL investments can thus be thought of as a response to the generalised creation of value gaps which provides local opportunities for investors to at least partially close the rent gap by introducing middle class renters into disadvantaged but central areas.

Buy-to-let and the potential for displacement

The explanation for the absence of discussion of BTL in gentrification debates might come from the assumption that it is not linked to the displacement of low-income households. Indeed, BTL is usually understood as a process through which owners either sell to BTL investors or themselves let out their dwelling – in either case, the assumption is that the seller has done so voluntarily and is thus not 'displaced'. What this perspective does not consider, however, is the impact that such a transfer to the PRS can have on surrounding properties and areas. This is important because BTL investments tend to target the areas which house the populations most at risk of displacement. Given the long term focus on asset, and thus land value, appreciation, it is also likely that the investor will look to progressively rent to tenants wealthier than the area average.

From these facts it is possible to construct a scenario in which BTL investments could lead to the displacement of low income populations: properties in a relatively disadvantaged neighbourhood are purchased cheaply but are let to individuals wealthier than the former residents. On a wide enough scale, this would likely be associated with both an increase in rental yields and in capital value, which would put pressure on remaining renters to vacate (through rent increases or the sale of council housing stock). This is a form of indirect displacement mechanism similar to that described by Boddy (2007): "*indirect displacement could occur in areas adjacent to new-build and conversion if the general upgrading and increasing desirability of the areas led to prices or rents of existing housing increasing more rapidly*" (Boddy, 2007, page 99). The potential for rapid increases in rents is clearly present

[3] Though this doesn't necessarily mean that this form of gentrification cannot take advantage of the forms of architectural distinctiveness highlighted in Mills (1988) and Zukin (1987).

with BTL investments[4]. This is because of the short stretch of time between each change of occupant in the PRS, especially in a context like the UK were there are currently no regulations governing rent levels and little security of tenure. This causes a high rate of tenant churn: according to the Private Landlords Survey, 44% of tenants had been in the property for less than two years (DCLG, 2010, page 36). This churn in many cases entails rent increases: 48% of all landlords expected to be able to be re-let their dwelling at a higher rent if it became vacant, compared to 52% at the same rent and only 1% at a lower rent (DCLG, 2010, Annex 4.10b).

The fact that the PRS has the potential to effect rapid changes in occupants has been documented in a number of cities. In Brussels, Van Criekingen (2010, page 390) describes how the high mobility of middle-class young adults in the poorly regulated PRS is accompanied by escalating rents. In Chicago, DeGiovanni and Paulson (1984) documented intra-neighbourhood moves because of rent increases, renters of higher socioeconomic status than residents and a higher than average turnover among neighbourhood renters. The case of Sydney also shows that the PRS was quicker at replacing poor tenants by wealthier ones than gentrification linked to ownership was at replacing poor owners by wealthier ones (Engels, 1999, page 1491). This can be contrasted to the significant times lags between the original purchase by gentrifiers and the sale of the dwelling to super-gentrifiers (Butler and Lees, 2006; Lees, 2003b).

From a theoretical perspective then, BTL investments can be linked to gentrification because they have the potential to cause the indirect displacement of lower-income residents in their vicinity. Given the given the difficulties inherent in measuring displacement (Atkinson, 2000; Newman and Wyly, 2006), difficulties compounded by the fact that indirect displacement by definition takes time to occur (Davidson, 2008; Hackworth, 2002), the extent of this displacement will not be the focus of this paper. It is however important to think through the long term displacement trajectories latent in particular regulatory changes.

The theoretical account of BTL as gentrification presented above, taken to its logical conclusion, supposes a direct link between a BTL investment created tenure shift and the local social upscaling that defines gentrification. The main hypothesis of this account is that the deregulation of the PRS has made BTL investments an efficient means to chip away at rent gaps in areas unattractive to owner occupiers. The main gentrifying agent involved in this process is what Smith (1979) called the landlord developer.

[4] The fact that BTL has been linked to a marginal effect on house price growth (NHPAU, 2008) does not mean that it has not had a disproportionate effect on local house prices (Sprigings, 2008, 2013), even in Housing Market Renewal (HMR) Pathfinders (DCLG, 2009).

THE RISE OF LANDLORD DEVELOPERS

If there is no significant theoretical obstacle to considering BTL investments as a form of gentrification, there is still the question of the extent of their empirical manifestation in England. It also remains to be shown empirically that there exists a direct link between BTL investments and gentrification. These are the aims of this section, which starts with a discussion of the method used to identify the tenure trajectories associated with gentrification in England and then provides discussions of the geographical specificities of these different trajectories and of evidence which tends to support the link between BTL and gentrification.

Identifying social and tenure change

This study has foregrounded breadth over depth: it uses the opportunities opened by the comparison of the 2001 and 2011 UK censuses, for which data is available at very small geographies – in this case the Output Area (OA) which contains 300 usual residents on average. This an approach followed by a number of recent studies of gentrification (Hedin et al, 2012; Meligrana and Skaburskis, 2005; Podagrosi et al, 2011). This study is concerned with the 161,296 Output Areas (OA) in England that remained unchanged between 2001 and 2011 ('ordinary' OAs) as well as with the 9,358 2011 OAs formed by the split of 3,096 2001 OAs following large population change between 2001 and 2011 ('split' OAs – this occurred if there were more than 625 residents within the 2001 boundary in 2011). These OAs are found in 326 Local Authorities, 181 out of which can be considered predominantly urban[5].

In line with much gentrification research (Clark, 2005; Hedin et al, 2012; Hochstenbach and van Gent, 2015; Ley, 1986), an OA is considered to have experienced gentrification between 2001 and 2011 if it displays a social upscaling trajectory. While the full details on the method used to identify social upscaling (and the results of the robustness tests conducted) can be found in Appendix 1, it is worth explaining the broad strokes of this method here. The dataset used is the National Statistics Socio-economic Classification (NS-SeC) which allocates individuals to one of eight major occupational categories. To ensure maximal comparability between 2001 and 2011, it was decided that the focus should be restricted to Household Reference Persons (HRPs) aged between 16 and 64.

[5] In the analysis that follows, Local Authorities are categorised as urban or rural on the basis of DEFRA's 2011 Local Authority based Rural-Urban classification. Though this classification has 6 urban and rural categories, these have been consolidated into four for the purpose of this analysis: Urban with Major or Minor Conurbation (84 LAs), Urban with City and Town (97 LAs), Urban with Significant Rural (54 LAs), Largely and Mainly Rural (91 LAs). For more information on this classification, see Bibby and Brindley (2014).

An OA was deemed to have experienced social upscaling if the absolute number of both arrivals and departures was larger than a certain threshold (set at 7% of the total number of HRPs aged 16-64 in the OA in 2001). To ensure that the social upscaling identified corresponds to that usually associated with gentrification, it was decided that these arrivals always had to include members of the two first NS-SeC categories (Higher (1) and Lower (2) managerial, administrative and professional occupations) and that the departures always had to include members of the categories (5) Lower supervisory and technical occupations, (6) Semi-routine occupations and (7) Routine occupations. In line with other treatments of this data-set, students, those who never worked and the long-term unemployed were excluded from the analysis (Hamnett, 2015; Manley and Johnston, 2014).

These particular criteria yield 11,859 upscaling OAs between 2001 and 2011 (or 7.35% of all OAs whose boundaries have remained unchanged between 2001 and 2011)[6]. But while this focus on the co-occurrence of high NS-SeC incomers and low NS-SeC leavers is appropriate for ordinary OAs, it is not for split OAs which were unlikely to have large enough departures between 2001 and 2011. For these OAs, the important criteria was whether there had been more than three times as many arrivals of the highest NS-SeC category (Higher managerial, administrative and professional occupations) than of Routine and Semi-routine occupations (categories 6 and 7). This approach yields 1,692 OAs in 2011, split from 540 OAs from 2001 in which arrivals have predominantly been among the highest NS-SeC category (or 18.1% of all OAs that have been created following a split between 2001 and 2011).

The method used to identify the tenure trajectories that have occurred in these upscaling OAs is relatively similar to that used for social change, and it is detailed in Appendix 2 along with the results of the robustness tests conducted. In short, it aggregates tenure types into three main categories (owners, social renters and private renters)[7] and uses a similar absolute number threshold of 7% of the 2001 OA usual resident population to identify changes in the OA's tenure composition. For split OAs, two types were identified: those in which the arrival of owners between 2001 and 2011 was more twice that of private and social renters combined, and those in which the arrival of private renters was more than twice that of owners and social renters combined.

In summary, this study is concerned with identifying the tenure changes (or absences thereof) which have occurred in upscaling OAs between 2001 and 2011. In doing so, it proxies some of the other characteristics of gentrification, which is "*not only a social change but also, at the neighborhood scale, a physical change in the housing stock and an economic*

[6] Between 2001 and 2011, these 11,859 upscaling OAs were marked by the arrival of 108,126 high NS-SeC HRPs (groups 1 and 2) and the departure of 98,681 low NS-SeC HRPs (groups 5,6.7). For all OAs in England however, there were similar arrivals for both types of HRPs (around a quarter of a million each). Intense social change is an extremely localised phenomenon.

[7] This grouping of tenure categories is not unproblematic. For example, Watt (2009) discusses the often contentious transfer of Local Authority housing to Registered Social Landlords in London.

change in the land and housing markets" (Smith, 1987, page 463) in the absence of local rent and income measures (Schaffer and Smith, 1986). It is now possible to turn to the gentrification trajectories which took place between 2001 and 2011 in England.

The multiple neighbourhood trajectories of English gentrification

Table 1 below lists the tenure trajectories that were found to be the most prevalent in upscaling ordinary OAs (accounting for 95.4% of the total).

Tenure change in upscaling ordinary OAs	Abbreviation	Number of OAs in which tenure change occurred
Unidentifiable tenure change	UTC	5,357
Replacement of owners by private renters	O->PR	1,451
Sole decrease in owners	O-	1,201
Minimal tenure change in majority ownership OA	Sweat Equity Gentrification (SEG)	957
Sole increase in private renters	PR+	801
Sole increase in owners	O+	677
Replacement of social by private renters	SR->PR	285
Replacement of social renters by owners	SR->O	216
Increase in owners and private renters	O&PR+	174
Replacement of owners and social renters by private renters	O&SR->PR	114
Replacement of social renter by owners and private renters	SR->O&PR	83

Table 1: The tenure changes most prevalent in upscaling ordinary OAs in England between 2001 and 2011

In the rest of the article, the focus will narrow to three 'pairs' of tenure trajectories accompanying ordinary social upscaling in which there is only one origin or destination tenure category (the others are assumed to a combination of the 'primary' changes). In each of these pairs, the final destination is either ownership or the PRS. These are:

- The replacement of social tenants by individuals either privately renting (SR->PR; 285 OAs) or owning (SR->O; 216 OAs), which can occur through the sale on the open market by Councils or Housing Associations of social rented properties, which are then purchased and either inhabited or put for rent by the new owner (as a BTL investment). This can be achieved through refurbishment or by knocking down estates and rebuilding in the same place. Direct displacement is a clear possibility here.

- Sole increases in individuals private renting (PR+; 801 OAs) or owning (O+; 677 OAs), achieved if subdivision or rebuilding/densification leads to more units of that type, without the data showing a change in the other two tenure types. Where the final destination is the PRS, BTL investments are likely to have played a large role. Direct displacement can occur in PR+ if incoming (higher NS-SEC) private renters are numerous enough to mask departing (lower NS-SEC) private renters. In other cases, indirect displacement is most likely.

- Sweat Equity Gentrification (SEG; 957 OAs): upscaling OAs in which home-owners were the majority in 2001 (twice as numerous as social and private renters combined) and where there was no major disruption in the tenure mix (to ensure this is the case, the threshold used for other tenure trajectories was here halved – see Appendix 2 for details). In these OAs, any social change must be predominantly accommodated within the ranks of the area's homeowners – presumably through lower NS-SeC owner occupiers selling to incoming higher NS-SeC individuals – though some of it could also be incumbent upscaling. If instead of a purchase by another owner occupier the dwelling is acquired by a BTL investor or if the owner decides to put the dwelling on the PRS, then the tenure trajectory would consist of a replacement of owners by private renters (O->PR; 1,451 OAs). Indirect displacement is most likely here.

These six trajectories are clear evidence of the multiple neighbourhood trajectories associated with gentrification (Engels, 1999) in what can be considered 'ordinary' OAs. But these changes have occurred alongside much larger scale developments, some of which can be understood as New Build Gentrification (NBG) following Davidson and Lees (2005). Here, another pair of upscaling split OAs has been identified: the upscaling split OAs in which more than twice as many new residents are owners than private or social renters (379 OAs) and those in which more than twice as many residents are private renters than owners or social renters (669 OAs). These can be labelled 'new build' ownership gentrification (NBOG) and 'new build' BTL gentrification (NBBG) respectively. Indirect displacement in surrounding areas is a possibility here.

What emerges from all these figures are two broad categories of tenure trajectories: those halves of the pairs which have ownership (SEG; O+, SR->O; NBOG) and those which have the PRS (O->PR; PR+; SR->PR; NBBG) as final tenure destination. The latter tenure trajectories are what can be labelled as 'buy-to-let gentrification', and these have a numerical advantage. Based on the criteria laid out in the preceding section, buy-to-let gentrification occurred in 3,206 OAs between 2001 and 2011, as compared to 2,229 for what can be called ownership gentrification. It thus seems as though landlord developers have acquired a crucial role in recent English gentrification. As the next section will show, these two types of gentrification trajectories also have very different geographies.

The geography of English gentrifications

The map in Figure 1 below shows the centroids (with size increased for legibility) of upscaling OAs, both ordinary and split, separated out according to whether the tenure trajectories had ownership (black dots) or the PRS (white dots) as their final destination. On the map, the darkest shading represents the most urban Local Authorities under the DEFRA-ONS Rural-Urban Classification.

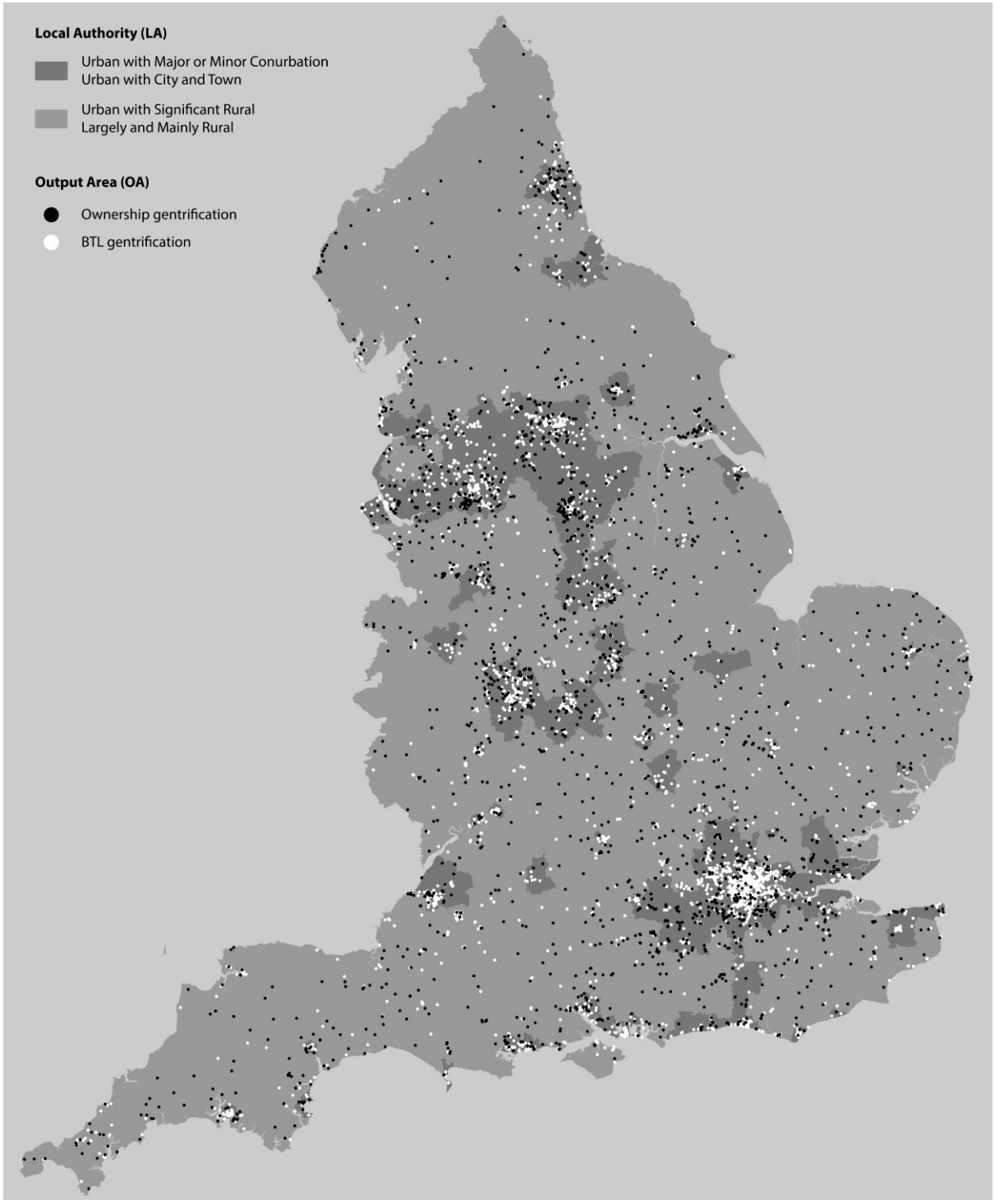

Figure 1: Buy-to-let and ownership gentrification in England (OA centroid size increased for legibility).

It seems as though BTL gentrification has taken over from ownership gentrification in the most central areas of the most urban English Local Authorities. The rest of this section will provide numerical evidence for this and show that BTL gentrification also took place in areas that were more disadvantaged in 2001.

The more 'urban' nature of BTL gentrification can easily be shown for England as whole: the 84 Local Authorities categorised as 'urban with a major or a minor conurbation' (out of the 326 LAs in England) concentrate just over half of all BTL gentrification (50.1%). Another 27.5% of BTL gentrification is found in LAs in the second most urban category ('urban with city and town'), leaving only 22.4% for the 145 more rural LAs. In contrast, 50.9% of ownership gentrification occurred in the two most rural types of LAs. The prominence of BTL gentrification in more urban LAs also holds for 8 of the 9 English regions (with only the North East showing similar proportions of both types of gentrification across urban and rural LAs).

It is also the case that tenure changes associated with BTL gentrification have occurred more 'central' places, with density taken as a proxy: ownership gentrification occurred in OAs with an average 2011 population density of 30.6 persons per hectare, compared to 100.6 persons per hectare for OAs with BTL gentrification. This is true for each pair of tenure changes and it is also the case for the 63,828 OAs located within the LAs categorised as predominantly Urban with a Major or Minor Conurbation (UMMC) by DEFRA-ONS.

The final characteristic that sets BTL and ownership gentrification apart is the social composition of the OAs targeted. To show this, OAs were categorised based on the relative number of HRPs aged 16-64 in NS-SeC groups 1 (Higher managerial and professional occupations) as compared to those of groups and 6 and 7 (Semi-routine and Routine occupations) combined in 2001[8]. Compared to all OAs in England, gentrifying OAs with both trajectories to ownership and to the PRS were less likely to be in OAs with a predominance of higher NS-SeC residents and more likely to be in OAs where both high and low NS-SeC groups were present in 2001. However, 45% of ordinary BTL gentrification occurred in OAs which had a predominance of HRPs of groups 6 and 7, compared to just over 26% for ordinary ownership gentrification. A look at the individual tenure trajectories confirms the overall impression that BTL gentrification has led the gentrification of OAs with a predominance of low NS-SeC HRPs: 70% of all gentrification in these OAs has occurred through trajectories to the PRS.

[8] This cannot be extended to split OAs as it requires a 2001 resident population for each OA. A threshold of more than three times was used to categorise the OAs. These results are robust to the following changes: using NS-SeC groups 1 and 2 combined instead of just group 1; using NS-SeC groups 5, 6 and 7 combined instead of just groups 6 and 7; using thresholds of over 2 or over 1.5 times rather than of over 3 times to delimit categories.

The fact that BTL gentrification occurred more often than ownership gentrification in more disadvantaged areas in 2001 also finds support in data on local house prices, here the ONS' House Price Statistics for Small Areas (HPSSAs) provided at the MSOA level[9]. Table 2 below shows the ratio of the average house price for MSOAs with upscaling OA trajectories to the PRS to those with OA trajectories to ownership. The overall picture is one of lower 2001 house prices where trajectories to the PRS occurred, and this is the case in each of nine regions of England and for each pair of tenure trajectories (with new builds in the East of England as the only notable exception to this pattern).

Tenure trajectory pair	East Midlands	East of England	London	North East	North West	South East	South West	West Midlands	Yorkshire and The Humber
BTL / ownership gentrification	**0.77**	**0.88**	**0.91**	**0.71**	**0.83**	**0.74**	**0.82**	**0.81**	**0.85**
O->PR / SEG	0.76	0.82	0.89	0.73	0.72	0.74	0.81	0.71	0.74
PR+ / O+	0.75	0.92	0.87	0.75	0.79	0.75	0.90	0.74	0.80
SR->PR / SR->O	0.96	0.85	0.89	0.78	0.77	0.81	0.87	0.88	0.97
NBBG / NBOG	0.92	1.35	0.86	0.71	0.95	0.74	0.62	1.00	1.01

Table 2 Ratio between the 2001 average house prices of MSOAs containing gentrifying OAs with transitions to ownership and the PRS

There thus seems to be a clear spatial separation in the operation of gentrification: between 2001 and 2011, BTL gentrification has been most prevalent in more urban, central and disadvantaged OAs than ownership gentrification. This is true for vast majority of English regions and holds for both ordinary and split OAs. These results support the idea that the UK legislative and financial context of the early 21st century have allowed BTL investments to be used to extend gentrification to disadvantaged but centrally located areas in England's

[9] MSOAs are OA-weighted as a MSOA value is counted in the tenure trajectory average for every one of its OAs with the relevant trajectory (the findings are similar without duplicate MSOAs). The house prices used are for all types of dwellings.

largest cities unreachable through ownership gentrification. It however remains to be shown that the aim of BTL investments more generally has been to use the newly created value gaps to close rent gaps across England.

Testing the theoretical link between BTL and gentrification

The theoretical model used posits that BTL investors are taking advantage of the deregulation of the PRS (and thus responding to the opening of a value gap) to attract wealthy tenants to disadvantaged but central areas unattractive to owner occupiers (and thus working to close the rent gap). Taken to its logical conclusion, this supposes an intention by BTL investors to effect social change through tenure change. While the fact that most landlords in the DCLG's 2010 Private Landlord's Survey indicated that they regarded their PRS properties as an investment or pension points in this direction, it is also possible to use the results of the Census based analysis to provide more empirical verification. This is because a general pattern seems to underlie the spatial distribution of shifts to the PRS – a pattern which poses problems for the idea that BTL investors were indifferent as to the social changes occurring in the areas they purchased in. To show this, the focus will be on the ONS' 2011 Area Classification for Local Authorities[10], with the relevant figures shown in table 3 below.

Starting with the frequency of shifts to the PRS, investors appear to have targeted those places with the largest reservoirs of high NS-SeC tenants. Here, central London clearly stands out: in 2001, the 20 London boroughs that make up categories 3a and 3b of the ONS' Area Classification housed 9.1% of all HRPs in England but 26.2% of all HRPs of NS-SeC group 1 in the PRS, figures which yield a location quotient for both combined of 2.9. These same two London categories make up 8.5% of all OAs in England but 14.3% of those with shifts to the PRS between 2001 and 2011[11], yielding a combined location quotient of 1.68. The link between high NS-SeC tenants in 2001 and shifts to the PRS between 2001 and 2011 also seems verified for most of the other categories, with relatively high values in both for categories 4 and 5 and low values in both for categories 1 and 8.

The second important dimension is the geographical distribution of social upscaling and downscaling within shifts to the PRS, with the trajectories associated with downscaling the inverse of those associated with upscaling – see Appendix 1 for details. The results are

[10] The ONS' 2011 Area Classification for Local Authorities uses a cluster analysis on socio-economic and demographic data from the Census to identify areas of the country with similar characteristics. More information, including maps of the groups and sub-groups obtained, can be found at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/ns-area-classifications/ns-2011-area-classifications/index.html

[11] This does not include split OAs. These have not been included in the analysis here because social downscaling in this type of OAs seems to be linked with overcrowding rather than large capital investments as in the case of upscaling.

surprising here: shifts to the PRS are less 'successful' at achieving upscaling in the Greater South East (the regions of London, South East and East of England) than in the rest of England. While they account for 42% of all OAs, these three regions represent 60% of all downscaling OAs with shifts to the PRS. Looking at this from the perspective of the Area Classification, it clearly emerges that the differences in the ratio between upscaling and downscaling across categories are mainly due to the tenure trajectory O->PR, where downscaling sharply outnumbers upscaling in every category, and to some extent PR+ in the more suburban ones, with the relation between downscaling and upscaling remaining largely positive and relatively constant across categories for SR->PR.

The fact that O->PR had a lower 'success rate' can be explained by the absence of a 'natural limit' for this tenure trajectory when compared to PR+ and SR->PR. This can be linked to its lower capital requirements – all this tenure trajectory requires is that a property from the existing stock be put for sale. This contrasts with the other trajectories in which the properties released are linked to specific real estate schemes, be it small new builds, sub-divisions or council estate regeneration. From this perspective, the low success rate of O->PR can be explained as the result of the uncoordinated action of BTL investors all interested in the same areas without there being a significant limit to the release of properties.

The spatial distribution of upscaling and downscaling shown table 3 thus seems to have emerged from an oversupply of PRS properties through the O->PR trajectory in the most sought after areas in relation to the number of potential high NS-SeC tenants. As high NS-SeC tenants are likely to favor accessibility and thus central city locations, this oversupply is most manifest in more suburban locations as these tenants are sucked into inner city properties. There is indeed a clear difference between the 'cities' (groups 3b and 5) and their 'suburbs' (groups 3a, 4 and 7) in terms of the ratio between upscaling and downscaling. The fact that the other three groups (1,6 and 8) had under-representations of high NS-SeC tenants and were not in the most sought after regions seems to have afforded investors the space to take less risks.

Both the survey information and the spatial distribution of shifts to the PRS that actually occurred between 2001 and 2011 point towards a general logic that seems to go against the idea of a BTL investor indifference to social change. Thus, while it is of course not the case that every single transfer to the PRS will inexorably cause gentrification, the distribution of these transfers does seem to accord with a general intention of BTL investors to attract high NS-SeC tenants.

	Location quotients:		Upscaling to downscaling ratios:		
	NS-SeC group 1 in the PRS (2001)	shifts to the PRS (2001-2011)	O->PR	PR+	SR->PR
English Countryside (1)	0.61	0.65	0.79	1.47	5.71
London Cosmopolitan Central (3b)	3.72	1.49	1.04	1.49	2.37
London Cosmopolitan Suburbia (3a)	1.75	1.95	0.26	0.33	0.83
Suburban Traits (4)	0.98	1.32	0.34	0.53	1.23
Business and Education Centres (5)	1.20	1.24	1.08	1.36	1.68
Coast and Heritage (6)	0.75	1.19	0.75	1.12	1.00
Prosperous England (7)	1.25	0.69	0.43	0.85	2.10
Mining Heritage and Manufacturing (8)	0.36	0.86	1.16	1.45	1.37

Table 3: Relation between upscaling and downscaling in OAs with shifts to the PRS for England and its regions

CONCLUSIONS

This paper has shown that much of the gentrification which took place in the neighbourhoods of English urban regions between 2001 and 2011 can be traced back to the use of BTL investments by landlord developers. In contrast to the historical attachment of UK gentrification to ownership and direct displacement, this points to the operation of gentrification through a diversity of tenure and displacement trajectories. In turn, this re-legitimises a production centred approach that points to the meshed nature of value and rent gaps. The analysis of census data lent support to the idea that BTL investments pushed gentrification into previously unreachable areas, a response to the value and rent gaps created in the most central and disadvantaged sections of England's cities by the deregulation of private renting and the introduction of the BTL mortgage. There is also strong evidence that BTL as an investment practice is intrinsically linked to gentrification trajectories.

The important issue here is that the rise of the landlord developer is linked to the existence of both significant rent gaps in the inner cities and to value gaps produced by the current UK policy context. This can help explain why despite a sharp slowdown in new BTL loans following the 2008 Global Financial Crisis, these have now returned to levels close to the pre-crisis peak (Scanlon et al., 2015, page 4). Similarly, while there have been recent reductions in the advantages enjoyed by BTL investors (increased stamp duty and changes to mortgage tax relief), Scanlon et al. (2015) note that demand for private renting will likely continue increasing. While these two phenomena may have affected the value gap, they

have not done so to the point where it is no longer profitable to use the transfer of properties to the PRS as a means to close rent gaps. This type of gentrification will thus likely continue as an "*unassailable capital accumulation strategy for competing urban economies"* (Smith, 2002, page 443).

The example of UK BTL gentrification in the first decade of the 21st century thus brings out the importance of the regulatory context in which the housing market operates. Given the intersection of value and rent gaps, any change to the regulatory context which leads to the creation of value gaps will also likely facilitate the closing of existing rent gaps. The tenure transfers that ensue are far from innocuous. This was already clear in Hamnett and Randolph's (1984) account of the transfer of dwellings from the PRS to ownership in 1970s London but can be seen more generally in the commonly accepted link between gentrification and the transfer of dwellings to ownership. The case of the UK clearly shows how each swing of the pendulum between ownership and the PRS – to ownership in 1970s and back to the PRS in the 2000s – creates vast opportunities for asset appreciation for those able to take advantage of the newly created value gaps to chip away at existing rent gaps at the same time as displacement trajectories for those who happen to be in the way.

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ONLINE APPENDICES

Identifying social upscaling and downscaling in ordinary Output Areas

The identification of the Output Areas (OAs) in which there has been a social upscaling trajectory between 2001 and 2011 relied on the analysis of the datasets *CAS045 NS-SeC of Household Reference Person (HRP) by age (of HRP)* from the 2001 UK Census and *LC6101EW - NS-SeC by sex by age - Household Reference Persons* from the 2011 UK Census.

The NS-SeC dataset allocates individuals aged 16-74 to eight major occupational categories on the basis of their occupation title and of information on their employment status, whether they are employed or self-employed and whether or not they supervise other employees. These eight categories are:

1. Higher managerial, administrative and professional occupations;

2. Lower managerial, administrative and professional occupations;

3. Intermediate occupations;

4. Small employers and own account workers;

5. Lower supervisory and technical occupations;

6. Semi-routine occupations;

7. Routine occupations; and

8. Never worked and long-term unemployed.

According to the ONS' 2011 Census Glossary of Terms (ONS, 2014), a Household Reference Person (HRP) is an individual within a household chosen to characterise the whole household. If the person lives alone, then it is the HRP. If a household contains only one family, then the HRP is the Family Reference Person (FRP). In a lone parent family, the lone parent is the FRP. In a couple family, the "*FRP is chosen from the two people in the couple on the basis of their economic activity (in the priority order: full-time job, part-time job, unemployed, retired, other). If both people have the same economic activity, the FRP is identified as the elder of the two or, if they are the same age, the first member of the couple on the form*" (ONS, 2014, 18). In the case of multi-family households, the HRP is chosen among the FRPs using the same criteria as in the case of the selection of the FRP in a couple family. The same goes for a household with ungrouped individuals. As described in the body of the text, only HRPs aged between 16 and 64 were included in the analysis (thus excluding those 65-74). This decision was motivated by two reasons:

- an error in ONS' processing of the 2001 Census which under-estimated the number of economically inactive individuals aged 65-74 who had never worked. ONS estimates the shortfall to be in the region of 150,000-200,000 for England and Wales.

- the large proportion (21.1%) of individuals in the category 'CS0450055 Not classifiable for other reasons : ALL HRPs' in the 2001 NS-SeC dataset, a category which does not exist for the 2011 NS-SeC dataset. Given that the analysis uses absolute changes in the numbers of HRPs to measure upscaling, such a large loss of data for 2001 could have an influence on local OA trajectories. For example, it is possible that 20 high NS-SeC HRPs categorised as 'Not classifiable for other reasons' in 2001 are then categorised correctly in 2011. This would appear in the analysis as a significant increase in the number of high NS-SeC HRPs in the OA without any actual social change. As 89.3% of HRPs aged 65-74 were in this 'Not classifiable for other reasons' category in 2001, it was decided to exclude this age range from the analysis to minimise this issue. Without this age range, the proportion of 'Not classifiable for other reasons' in the 2001 data falls to 8.3%.

Using only the age range 16 to 64 thus alleviates some of the issues with the 2001 NS-SeC dataset. The decision to use HRPs instead of usual residents is motivated by the same attempt to reduce the influence of the 'Not classifiable for other reasons' category to a minimum. If usual residents are used instead of HRPs, the proportion of 'Not classifiable for other reasons' moves back to 16% of all values in the 2001 NS-SeC dataset.

For social upscaling to occur between 2001 and 2011, the two first NS-SeC categories (Higher (1) and Lower (2) managerial, administrative and professional occupations) had to feature among the arrivals into the OA and the groups (5) Lower supervisory and technical occupations, (6) Semi-routine occupations and (7) Routine occupations had to feature among the departures. As presented in the table 6 below, groups 3 and 4 could either be attached to the arrival of higher NS-SeC HRPs or to the departure of the lower NS-SeC HRPs. Students, those who never worked and the long-term unemployed were excluded from the analysis.

Table 6 below presents the 11,859 OAs (or 7.35% of all ordinary OAs, those whose boundaries have remained unchanged between 2001 and 2011) where social changes have been considered as upscaling. As discussed in the body of the paper, an OA was deemed to have experienced social upscaling if the absolute number of both arrivals and departures was larger than a certain threshold. For the purpose of the analysis this threshold was set at 7% of the total number of HRPs aged 16-64 in the OA in 2001, but with a minimum value of 5 for OAs with less than 71 HRPs (one standard deviation below the mean 2001 OA total HRP population) and with a maximum value of 7.8 for OAs with over 111 HRPs (one standard deviation above the mean 2001 OA total HRP population). The minimum and maximum values are there to ensure that variations in OA HRP population are taken into

account without nonetheless enabling thresholds that are either very small (less than 3.5 for an OA with less than 50 HRPs) or very large (over 14 for OAs with more than 200 HRPs).

While this method may potentially capture some generalised in situ upward shifts in the NS-SeC distribution – in other words upscaling without residential movement – this seems quite unlikely given the strict criteria used here. Indeed, a significant number of HRPs would have had to shift from NS-SeC categories 5,6&7 to categories 1&2 within a 10 year period. There is also some numerical evidence that this has not occurred on a large scale in England between 2001 and 2011. Among the 11,859 OAs defined as upscaling, only 136 OAs (or 1.2% of all upscaling OAs) had not experienced any significant change in either their age structure, ethnic structure or country of birth profile. More precisely, these 136 OAs were the only upscaling OAs with a relatively similar mean age in 2001 and 2011 (with an increase of more than 5 years – an increase of 10 years being the expected outcome in the case of a perfectly stable population) and limited changes in ethnic terms (with changes in both those of White British and non-White British ethnicity contained between -10 and 10 individuals between 2001 and 2011) and in terms of country of birth (with changes in both those born in and outside of the UK contained between -10 and 10 individuals between 2001 and 2011).

Social change 2001-2011	Selection criteria	Number of OAs with 7% std. dev. threshold x
4567 down, 123 up	4<0 & 567<0 & 12>0 & 3>0 & 4567<-x & 123>x	4,949
3567 down, 124 up	3<0 & 567<0 & 12>0 & 4>0 & 3567<-x & 124>x	3,327
34567 down, 12 up	3<0 & 4<0 & 567<0 & 12>0 & 34567<-x & 12>x	1,520
567 down, 123 up	567<0 & 3>0 & 12>0 & 567<-x & 123>x	765
567 down, 124 up	567<0 & 4>0 & 12>0 & 567<-x & 124>x	591
4567 down, 12 up	4<0 & 567<0 & 12>0 & 4567<-x & 12>x	359
3567 down, 12 up	3<0 & 567<0 & 12>0 & 3567<-x & 12>x	295
567 down, 12 up	567<0 & 12>0 & 567<-x & 12>x	53

Table 6: Criteria used to identify upscaling social changes in OAs between 2001 and 2011

To ensure that the figures in the table above are not too sensitive to the criteria and threshold chosen, a number of robustness tests were conducted. First, a number of different criteria were tested at the 7% specification described above.

The broadest one included all OAs in which there was a shift upwards in the NS-SeC composition of the OA. In addition to the eight trajectories in Table 6, this meant including trajectories such as '567 down, 1234 up' (6,226 OAs, the largest category) or '567 down, 34 up' (462 OAs) and yielded 18,865 upscaling OAs. As can be expected, this specification produced large numbers of potential 'gentrifiers' and 'displaced' but groups 3 and 4 play a

large role in these movements. For example, in these upscaling OAs, there were 71,373 arrivals of HRPs from groups 1 and 2 combined as compared to 46,474 for groups 3 and 4 combined.

In contrast, the strictest specification entailed using only those trajectories where groups 1 and 2 alone increased. From Table 6 above, it can be seen that this yielded 2,227 OAs (or about 1.4% of all upscaling ordinary OAs in England). This has the advantage of completely taking out the influence of groups 3 and 4 but produces the very small figure of an arrival of 11,023 HRPs from groups 1 and 2 combined.

In between these two extremes, two other specifications were tested. The first only allowed increases to group 123 and yielded 8,104 upscaling OAs. The other is the one finally chosen in which the central criteria is that any upscaling OA included the arrival of groups 1 and 2 and the departure of groups 5, 6 and 7, yielding 11,859 upscaling OAs (or 7.35% of all ordinary OAs in England). This method was found to be preferable as it takes into account both arrivals and departures. In any case, both of these produced similar results: 2.6 times more arrivals of 12 than 34 and 2.3 more departures of 567 than 34 for upscaling only to 123 and 2.4 and 2.5 respectively for the chosen specification.

The idea here is that some degree of flexibility regarding the presence of 3 and 4 as arrivals in gentrifying areas seems realistic given the number of OAs which have seen an arrival of a majority of groups 1 and 2, accompanied by some 3 or 4. This can be linked to the fact that groups 3 and 4 were those which increased the most between 2001 and 2011 – it is thus to be expected that they co-vary to some extent with both high and low NS-SeC groups. However, the important point is that tenure trajectories to the PRS always outnumber those to ownership in upscaling OAs, whatever the specification discussed here is chosen. The gap is narrowest for the strictest criteria (the 2,227 OAs where upscaling is only to groups 12) – 418 vs 396 OAs. It is widest for the broadest criteria (the 18,865 OAs with any upward shift in NS-SeC composition) – 4,272 vs 2,860. It falls somewhere in the middle for the chosen specification (the 11,859 OAs in which arrivals had to include groups 1 and 2 and departures groups 5, 6 and 7) – 2,651 vs 1,881. This indicates that trajectories to the PRS (and thus BTL investors) have indeed played an important role in gentrification in England during the first decade of the 21st century.

As concerns the threshold used to determine what population movements were significant enough to count as upscaling, four strategies were tested for the broadest specification presented above (and which yielded 18,865 upscaling OAs at the 7% threshold). The first used an absolute number threshold to determine which changes were significant – thresholds of 0, 5 and 10 were tested, yielding 40,634, 22,522 and 7,090 upscaling OAs respectively. The second used a percentage of the total HRP population as an absolute threshold. This yielded 26,678 upscaling OAs at a 5% threshold and 10,607 at a 10% threshold. A third method used the change in the share of the NS-SeC groups to determine which changes were significant. A requirement of a 1% change in the share of the groups yielded 34,724 upscaling OAs. This dropped to 14,779 for a 2.5% change in the shares and to

2,519 for a 5% change in the shares. The fourth method is the one outlined above (absolute threshold set at 7% of the HRP population with minimum and maximum thresholds based on +/- one standard deviation from the average 2001 HRP population at OA level), and which is a combination of the absolute and percentage methods. In general, it yields a number of upscaling OAs (18,865) in the middle of the distribution.

Social downscaling trajectories were identified using the same criteria as upscaling: both arrivals and departures had to be above a threshold set at 7% of the total number of HRPs aged 16-64 in the OA in 2001, but with a minimum value of 5 for OAs with less than 71 HRPs (one standard deviation below the mean 2001 OA total HRP population) and with a maximum value of 7.8 for OAs with over 111 HRPs (one standard deviation above the mean 2001 OA total HRP population). Students, those who never worked and the long-term unemployed were likewise excluded from the analysis and NS-SeC groups 3 and 4 could also be attached to the arrival of higher NS-SeC HRPs or to the departure of the lower NS-SeC HRPs. However, this time the two first NS-SeC categories (Higher (1) and Lower (2) managerial, administrative and professional occupations) had to feature among the departures from the OA and the groups (5) Lower supervisory and technical occupations, (6) Semi-routine occupations and (7) Routine occupations had to feature among the arrivals. The social trajectories linked to social downscaling are listed in table 7 below. To maintain a symmetry with social upscaling, trajectory 12->34567 was not considered as downscaling. This yields a total of 10,397 ordinary OAs with social downscaling trajectories in England between 2001 and 2011, as compared to the 11,859 OAs with upscaling trajectories.

Social change 2001-2011	Selection criteria	Number of OAs with 7% std. dev. threshold x
123 down, 4567 up	12<0 & 3<0 & 4>0 & 567>0 & 123<-x & 4567>x	3,845
124 down, 3567 up	12<0 & 4<0 & 3>0 & 567>0 & 124<-x & 3567>x	4,069
1234 down, 567 up	12<0 & 3<0 & 4<0 & 567>0 & 1234<-x & 567>x	1,033
123 down, 567 up	12<0 & 3<0 & 567>0 & 123<-x & 567>x	235
124 down, 567 up	12<0 & 4<0 & 567>0 & 124<-x & 567>x	239
12 down, 4567 up	12<0 & 4>0 & 567>0 & 12<-x & 4567>x	635
12 down, 3567 up	12<0 & 3>0 & 567>0 & 12<-x & 3567>x	651
12 down, 567 up	12<0 & 567>0 & 12<-x & 567>x	50

Table 7: Criteria used to identify downscaling social changes in OAs between 2001 and 2011

Identifying tenure change in ordinary Output Areas

Table 8 below lists the criteria used to identify the tenure trajectories derived from the analysis of the datasets Tenure - People, 2001 (UV43) and Tenure - People, 2011 (QS403EW) from the 2001 and 2011 UK Censuses respectively. The symbols SR, PR and O in table 8 below represent the change in the number of residents within the tenure categories 'social renting', 'private renting' and 'owning' respectively between 2001 and 2011.

Tenure change 2001-2011	Selection criteria (based on the 2001-2011 change in O, PR and SR)	Number of OAs with 7% std. dev. threshold x
Increase in all three tenure types	O>x & SR>x & PR>x	1,689
Decrease in all three tenure types	O<-x & SR<-x & PR<-x	20
PR up	PR>x & -x<SR<x & -x<O<x & PR>2*(O+SR) & PR>-2*(O+SR) & PR>2*max(O & SR) & PR>-2*min(O & SR)	14,589
O up	O>x & -x<SR<x & -x<PR<x & O>2*(SR+PR) & O>-2*(SR+PR) & O>2*max(SR & PR) & O>-2*min(SR & PR)	7,036
SR up	SR>x & -x<O<x & -x<PR<x & SR>2*(O+PR) & SR>-2*(O+PR) & SR>2*max(O & PR) & SR>-2*min(O & PR)	2,022
PR down	PR<-x & -x<SR<x & -x<O<x & PR<2*(O+SR) & PR<-2*(O+SR) & PR<2*min(O & SR) & PR<-2*max(O & SR)	212
O down	O<-x & -x<SR<x & -x<PR<x & O<2*(SR+PR) & O<-2*(SR+PR) & O<2*min(SR & PR) & O<-2*max(SR & PR)	16,207
SR down	SR<-x & -x<O<x & -x<PR<x & SR<2*(O+PR) & SR<-2*(O+PR) & SR<2*min(O & PR) & SR<-2*max(O & PR)	2,927
O and SR up	O>x & SR>x & -x<PR<x & O>2*PR & O>-2*PR & SR>2*PR & SR>-2*PR	596
O and PR up	O>x & PR>x & -x<SR<x & O>2*SR & O>-2*SR & PR>2*SR & PR>-2*SR	5,774
PR and SR up	PR>x & SR>x & -x<O<x & PR>2*O & PR>-2*O & SR>2*O & SR>-2*O	2,267
O and SR down	O<x & SR<x & -x<PR<x & O<2*PR & O<-2*PR & SR<2*PR & SR<-2*PR	383
O and PR down	O<x & PR<x & -x<SR<x & O<2*SR & O<-2*SR & PR<2*SR & PR<-2*SR	100
PR and SR down	PR<x & SR<x & -x<O<x & PR<2*O & PR<-2*O & SR<2*O & SR<-2*O	26
O & SR down, PR up	O<-x & SR<-x & PR>x	1,362
PR & SR down, O up	PR<-x & SR<-x & O>x	20
O & PR down, SR up	O<-x & PR<-x & SR>x	16
PR down, O & SR up	PR<-x & O>x & SR>x	15
O down, PR & SR up	O<-x & PR>x & SR>x	2,043
SR down, O & PR up	SR<-x & O>x & PR>x	1,968
SR down, PR up	SR<-x & SR<2*O & PR>x & PR>2*O & -x<O<x	3,537
SR down, O up	SR<-x & SR<2*PR & O>x & O>2*PR & -x<PR<x	2,918
O down, PR up	O<-x & O<2*SR & PR>x & PR>2*SR & -x<SR<x	20,721
O down, SR up	O<-x & O<2*PR & SR>x & SR>2*PR & -x<PR<x	715
PR down, O up	PR<-x & PR<2*SR & O>x & O>2*SR & -x<SR<x	201
PR down, SR up	PR<-x & PR<2*O & SR>x & SR>2*O & -x<O<x	43
Minimal tenure change in O majority areas in 2001	-(x/2)<O<(x/2) & -(x/2)<SR<(x/2) & -(x/2)<PR<(x/2) & O_2001 > 2*(SR_2001 + PR_2001)	9,442
Minimal tenure change in SR minority areas in 2001	-(x/2)<O<(x/2) & -(x/2)<SR<(x/2) & -(x/2)<PR<(x/2) & SR_2001 > 2*(O_2001 + PR_2001)	564
Minimal tenure change in PR minority areas in 2001	-(x/2)<O<(x/2) & -(x/2)<SR<(x/2) & -(x/2)<PR<(x/2) & PR_2001 > 2*(O_2001 + SR_2001)	23
Unidentifiable tenure change	All remaining OAs	63,860

Table 8: Criteria used to identify tenure changes in OAs between 2001 and 2011

In the same way as for the identification of social change, the threshold was set at 7% of the total population of the OA in 2001 but with a minimum value of 16.4 for OAs with less than 234 residents (one standard deviation below the mean 2001 OA total population) and with a maximum value of 24.4 for OAs with over 347 residents (one standard deviation above the mean 2001 OA total population). As for the social change, this is to ensure that variations in OA population are taken into account without nonetheless producing thresholds that are either very small (less than 10 for an OA with less than 140 residents) or very large (over 35 for OAs with more than 500 residents).

As can be seen in Table 8, the criteria chosen to identify tenure changes is based on two main ideas. First, for any change in the tenure categories to be significant, the departures and arrivals that constitute it have to be larger/smaller than the chosen threshold. This is similar to the criteria used to identify social upscaling above. The difference lies in the second criteria which is that in any movement which does not involve all three tenure types (either through the replacement by one type by another or through the sole increase in one tenure category), the tenure types not concerned should always be half as large (or small) as those which underwent change. This can be illustrated by comparing two OAs. In the first (E00000028) there has been an increase of 36 private renters alongside a decrease of 6 social renters and of 40 owners. There is no doubt that the trajectory O->PR best describes this tenure trajectory. This can be contrasted to the case of OA E00082917 in which there was an increase of 78 private renters in parallel to a decrease of 33 owners and 19 social renters. In this case there is also a similarity to the O->PR trajectory but the large loss of social renters also makes it possible that the trajectory is closer to O&SR->PR. Neither of these can be chosen with any certainty however: O->PR because owners are clearly not the only type of residents leaving the OA and O&SR->PR because the departure of social renters is below the threshold of 7% of the OA population (21.8 for this particular OA). Together, these two criteria thus ensure that the tenure trajectories identified are robust.

The downside to this approach is the high number of OAs in which a tenure trajectory cannot be identified with enough certainty. The close to 40% of all OAs in England in this situation can thus be thought of as ‘incomplete’ or ‘hybrid’ tenure trajectories. But it is still possible to say something about the general trends in these ‘unidentifiable’ OAs. Indeed, they show a similar broad movement towards the private rental sector: between 2001 and 2011, these ‘unidentifiable’ OAs saw the arrival of 872,309 private renters, alongside the departure of 293,090 owners and 116,175 social renters. It is thus likely that many of these take incomplete forms of the tenure trajectories O->PR, SR->PR or PR+. The high number of O- trajectories (16,207) is also noteworthy in this context. Together, they represent the departure of 644,386 owners. At the same time, these OAs have seen the arrival of 116,429 private renters (and only 8,867 social renters) and 37.4% of them have increases of over 10 private renters. Again, some of these O- may be incomplete O->PR trajectories.

The criteria chosen to identify tenure change trajectories from this census dataset thus produce a high number of OAs which cannot be precisely allocated to the ‘pure’ tenure trajectories in Table 8. But they ensure that the tenure trajectories that are identified are

unique and clearly distinguished. As for the identification of social upscaling, a number of robustness tests have been carried out as concerns the threshold used to separate out significant changes in the tenure categories.

Table 8 below shows the figures obtained for the tenure trajectories discussed in the body of the text for the same four methods used to define the threshold as were presented in the section above on social change. What is immediately clear is that the ratio between tenure trajectories to the PRS and to ownership is high for low thresholds but decreases in line with increases in the threshold. This can be explained by looking at the tenure trajectory 'MTC, O majority' more carefully. This category is responsible for all of the increase in the number of tenure trajectories to ownership when the thresholds get stricter. The reason for this is simple: this trajectory is defined as those OAs in which home-owners were the majority in 2001 (twice as numerous as social and private renters combined) and where there was no major disruption in the tenure mix. It thus follows that a higher threshold for disruption in the tenure mix will, in a context such as England where ownership is the majority tenure, naturally produce more such OAs at the expense of the other tenure trajectories.

	Abs. 15	Abs. 25	Abs., 35	Pct. 5%	Pct. 10%	Pct. 15%	Share, 5%	Share 10%	Share 15%	Pct. Std. dev. 5%	Pct. Std. dev. 7%	Pct. Std. dev. 9%
O->PR	29337	15836	7902	28958	11714	4226	44715	21738	9447	28962	20721	14118
PR+	13929	14378	12314	13378	13707	10823	2297	594	188	13541	14589	14209
SR->PR	5309	2560	1026	5429	1649	403	8504	3128	996	5384	3537	2124
MTC, O majority	18761	43589	64913	18598	54574	80043	37644	75109	91984	18819	33630	48399
O+	6790	6487	5069	6853	6191	4224	1109	332	103	6914	7036	6425
SR->O	3576	2321	1224	3724	1756	579	5514	2794	1039	3671	2918	2084
UTC	26057	27727	21208	26592	26116	15323	31664	25918	14220	26528	29321	27348
PRS / O	1.8	0.6	0.3	1.7	0.4	0.2	1.3	0.3	0.1	1.7	0.9	0.5
MTC, O majority as % of O trajectories	34.0	54.4	70.2	33.3	61.6	79.9	49.6	72.1	85.7	33.6	46.1	57.4

Table 8: Number of OAs per tenure trajectory to ownership or the PRS for four types of thresholds.

The easiest way out of this situation would be to select a high threshold while taking out the trajectory 'MTC, O majority' from the analysis. This would however cause a serious bias by focusing only on tenure disruptions and ignoring the social changes that occur within the ranks of homeowners. The solution chosen here is to be define the lack of disruption in the tenure mix more strictly by using half the threshold value. An example is illustrative here. If the full value of the threshold x were taken, an OA in which there were over 60 movements in or out of tenure categories would still be categorised as having experienced a minimal tenure change. This would be the case for OA E00054149 in Bradford with a total population of 379 in 2001 and thus a threshold x=24.4 having seen the departure of 23 owners and the arrival of 22 social renters and 24 private renters between 2001 and 2011. With x/2, the most 'extreme' OA categorised as a minimal tenure change is OA E00078518 in Swindon which had a population of 375 in 2001, x=24.4 and experienced 34 movements in or out of tenure categories: a departure of 10 owners and 12 social renters alongside an arrival of 12 private renters. Overall, the average number of movements in tenure categories drops from 24.1 to 13.7 with only x/2 as a threshold for minimal tenure change. This approaches shifts a large percentage of the formerly 'MTC, O majority' OAs to the category 'unidentifiable' but ensures that this category is meaningful and not just a residual.

As in the case of social change, the choice of the specification of a change larger than 7% of the 2001 OA population bounded by a standard deviation on either side is motivated by the search for a compromise between the absolute number and the pure percentage approach. But it also emerges from a downside of the change in shares approach. Table 8 shows that the number of OAs categorised as PR+ and O+ remain relatively constant across all specifications except those that are based on the change in shares. The stability can be explained by the fact that in the case of O+ and PR+ all the change is concentrated in one category and is thus likely to be more robust to changes in the threshold than for tenure changes where large changes are needed in two or more of the categories. The near disappearance of these two tenure trajectories with the use of shares can be linked to the fact that these tenure trajectories involve by definition only marginal decreases, if any, changes in the other two tenure categories. To effect a change in the shares thus requires very large arrivals of either private renters or owners. For example, in a hypothetical OA with a hundred residents of each tenure type in 2001, and assuming two out of the three remain constant, an arrival of 90 residents is necessary to effect a 15% change in the shares. This is a much larger OA level change that required by any other of the specifications and this specification was thus considered as sub-optimal as compared to the other specifications.