[Please note that some edits were made to the text and tables/figures after this version (at the proofs stage). For a fully up-to-date version of this article see:

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The Changing Geographies of Ethnic Diversity in England and Wales, 1991-2011

Population, Space and Place

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Abstract

While ethnic diversity is traditionally an urban characteristic, new spaces of diversity are emerging. This challenges our current understandings of the *geographies* of ethnic diversity, and forces us to consider the more intricate spatial patterns and processes of ethnic group population change. Ethnic diversity, now a key feature of contemporary society in Britain, is an issue of public, policy, political and academic interest; the 2011 Census provided an opportunity to update our knowledge of how diversity has grown, and in what ways. This paper explores the new geographies of ethnic diversity in England and Wales, mapping the evolving landscape of ethnic diversity over two decades. The paper makes use of measures of diversity and clustering for small areas (wards) for consistent geographies for 1991-2011, and for the most recent decade using a district level urban-rural area classification. There is evidence of the spreading out of ethnic diversity from urban centres towards areas traditionally less diverse. New patterns of spatial mixing are emerging; the period also saw a growth of minority ethnic groups in areas outside own-group clusters. The increased share of *all* ethnic groups (White British and minority) in less urban areas challenges claims of 'White flight' from diversity. Increased ethnic diversity is clearly an important feature of contemporary population change, and the coming years are likely to see continued mixing between people and within places — and in new locales.

Keywords:

Ethnic group; Diversity; Census; Population change; England and Wales

Introduction

Britain is diversifying. A combination of increasingly varied immigration streams (in terms of origins and motivations), experiences upon arrival (including legal entitlements, response from government bodies, and public attitudes), and spatial distributions of migrants, led Vertovec (2007) to describe British society as 'super-diverse'. In the British context, as elsewhere, ethnic diversity is largely an urban phenomenon, and consistently so over time; there are more individuals identifying with a minority ethnic group in cities, and increases in diversity tend to be in urban spaces. This is a predictable outcome of the dynamics of demographic change; settlement areas attractive to newly-arrived immigrants naturally continue to draw successive migration flows, and to grow through subsequent UK-born generations. In particular, in London, a truly global metropolis (Sassen, 2001), by 2011 nearly 40 per cent of people were born outside the UK, and more than half of the population affiliated with an ethnic group other than White British[1]. Much of the rest of the country's ethnic diversity can be found in other large cities. As a consequence, diversity is now part of the social and cultural landscape of British urban spaces (Peach and Gale, 2003).

Studies of ethnic group diversity have to-date focussed on metropolitan places, and understandably so given its urban bias (Rees and Butt, 2004; Stillwell and Phillips, 2006; Holloway *et al*., 2012). Yet an increasingly complex picture of ethnic demographic change is emerging. Latino populations, largely city-dwellers, have been expanding into the rural United States (Lichter, 2012); a dispersal of established minority ethnic populations from cities is occurring throughout Europe (Finney and

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[1] Author's calculations on Census tables KS201EW and KS204EW.

Catney, 2012), including Britain (Simpson and Finney, 2009); and new immigration streams into rural areas are observable in, for example, Australia, New Zealand, and Canada (Wulff *et al*., 2008) and the UK (for example, the new settlement patterns of European 2004 'A8 accession' immigrants, following labour opportunities in rural locales; Robinson, 2010). These observations challenge our current understandings of the *geographies* of ethnic diversity, and force us to consider the more intricate spatial patterns and processes of ethnic group population change.

While minority ethnic populations outside of urban spaces are, of course, not new, there is arguably a need for greater recognition of the increasingly intricate spatiality of ethnic diversity. This is easily defensible in the British case, but its justification will also resonate with other highly diverse societies. Despite minority ethnic migration from British cities (Stillwell and Phillips, 2006; Catney and Simpson, 2010), little attention has been paid to the growing presence and diversity of minority ethnic populations in suburban and rural neighbourhoods, and the lived experiences of these groups. For example, the focus in research on solely urban areas has resulted in an unfair dismissal, or at best an undermining, of the occurrence and impact of racism in rural areas (Neal, 2002; Chakraborti and Garland 2004). The increased diversity of traditionally 'White' spaces disrupts the stereotype of an exclusively urban minority ethnic population, and draws attention to the social construction of 'Whiteness' in common perceptions of rural locales (Neal, 2002). This also raises new questions about the disadvantages minority ethnic groups may face in non-urban housing and labour markets. While this new diversity in rural areas deserves consideration, likewise due attention needs to be paid to the growth of minority ethnic groups in urban spaces which traditionally have lower levels of diversity (Neal *et al*., 2013), as a result of new international and internal migration streams, in situ population growth, and asylum dispersal policies. There is a very direct policy value in acknowledging that ethnic diversity may not be restricted to large towns and cities with a longer history of multiculturalism; new diversity may present unique challenges to neighbourhoods with little previous experience, and be associated with certain policy implications, such as resources provision and the promotion of mutual understanding between communities (Chakraborti, 2010).

It has not been possible until now to explore change in ethnic diversity for the whole population over two decades, an ethnic group question having been first introduced in the 1991 Census of Population. This paper explores the changing geographies of ethnic diversity in England and Wales, offering the first analysis of change in ethnic diversity over a twenty year period using consistent small area geographic boundaries. The paper provides evidence of the growth and spreading out of ethnic diversity from its urban centres, mapping the evolving landscape of diversity.

Diversity in debate

Debates about Britain's changing ethnic demography have received considerable attention in public, political and policy spheres, as ethnic diversity has become a feature of contemporary society. In particular, immigration, neighbourhood diversity/segregation and racial (in)tolerance have been dominant issues (Duffy and Frere-Smith, 2014). Focussing on England and Wales specifically, the release of data from the most recent Census (held in 2011) sparked renewed discussion on themes of immigration, relative levels of the foreign-born, religiosity, and ethnic diversity[2]. These well-versed debates were accompanied by refreshed attention on 'integration', inspired by the inclusion of new Census questions on national identity, main language spoken and English fluency, and passports held[3].

Academic research has of course contributed to this mix of perspectives on ethnic diversity. It has been argued that "high diversity brings many benefits — lots of different viewpoints, skills and cultures, which interact to mutual benefit" (Rees and

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[2] Hall, J. 'Census result reveals one in eight UK residents was born overseas'. *The Independent* http://www.independent.co.uk/news/uk/home-news/census-result-reveals-one-in-eight-uk-residents-was-born-overseas-8405642.html 11th December 2012. Accessed 7th June 2013.
[3] Nye, C 'Naturalising Newham - radical plan to boost integration'. *BBC News* http://www.bbc.co.uk/news/uk-24146572 20th September 2013. Accessed 7th June 2013.

Butt, 2004: 183). The positive attributes which diverse places can offer their residents are well-known, including supportive networks and a stronger sense of neighbourhood belonging (Finney and Jivraj, 2013), the maintenance of specialised cultural services and religious institutions (Peach, 1996), and the protective effects of diversity against racism and other negative social outcomes. On the flipside of these arguments is Putnam's (2007) somewhat controversial finding, using US data, that higher diversity is associated with lower levels of neighbourhood trust and community engagement. Subsequent British-based studies have questioned Putnam's 'hunkering down' hypothesis, finding minimal connection between levels of trust and ethnic diversity, independent of economic disadvantage (e.g., Sturgis *et al*., 2011).

Examples for Britain of the *geographical* dimensions of ethnic group dynamics include analyses of the spatial distributions of ethnic groups, such as relative levels of residential segregation (Rees and Butt, 2004; Simpson, 2007; Johnston *et al*., 2013, 2015; Author, forthcoming), the processes behind these patterns including internal migration (Simpson and Finney, 2009; Stillwell and McNulty, 2012), and more critical assessments of the meaning and relevance of these issues (Finney and Simpson, 2009). Rees and Butt (2004) compared ethnic group distributions in England in the 1980s and 1990s, finding the former to be a period of concentration in metropolitan areas, while the latter marked the beginning of increased geographical spread of minority groups and growth outside their most populous areas. For the same period, Simpson (2007) showed greater residential mixing in England and Wales, and the role of migration in dispersing minority groups from co-ethnic concentrations was evidenced for Britain by Simpson and Finney (2009). Johnston *et al.* (2015) demonstrated how London's neighbourhoods had become more ethnically mixed between 2001 and 2011. This paper aims to build on this body of research which has made considerable contributions to our understanding of demographic change, by exploring specifically how ethnic diversity has expanded its geographical boundaries over time.

The paper begins with a description of ethnicity data from three decades of Census questions on ethnic group affiliation. The next section discusses change in ethnic group populations at the 'national' (England and Wales) level, before considering change at a local level. A measure of diversity is used to consider growth of ethnic diversity and its geographical spread across England and Wales. The change in distributions of ethnic groups using an area classification provides insight into how ethnic groups are being redistributed between urban and rural areas. The direct measurement of segregation using numerical indices is not the focus of this paper as it is dealt with in depth elsewhere (Author, forthcoming), but the paper does consider the spread of diversity over time, in the context of increased or decreased population clustering in the most and least populous areas of each group.

Ethnic group categorisation in the England and Wales Census

The 2011 Census provided an opportunity to take stock of the current ethnic group composition of the population of England and Wales, to assess how diverse the population has become, and in what ways. There are no comparable data in terms of population coverage and at a fine-grained geography, the Census being a legal obligation for all UK residents (although inevitably there was some undercount: Office for National Statistics, 2012a). As with other parts of the UK, the England and Wales household form has differed at every Census to date, creating issues of comparability between cross-sections of time. The 1991 Census was the first to include a question on ethnic group, and this question has seen considerable change between the three enumeration periods. The changes made to ethnic group questions/answers are interesting in their own right, their development a response to the increase in the diversity of the population. Figure 1 shows the ethnic group question from the Census household form for England for 1991, 2001 and 2011 (this question was the same in the Wales household form). The greatest changes to the ethnic group question were between the 1991 and 2001 Censuses, which saw a modification to question wording, and a more detailed range of possible responses, including a disaggregation of the

White group into three categories and the introduction of Mixed groups. Between 2001 and 2011, there was greater consistency between the two questions and their possible responses, albeit with some changes to question wording, response wording (for example, 'White British' was clarified to English/Welsh/Scottish/Northern Irish/British; this group is referred to throughout the paper as White British), ordering of groups (for example, the Chinese tick box was removed from the broad Other heading and placed instead within the Asian/Asian British heading), and the introduction of two ethnic groups — White Gypsy/Irish Traveller, and Arab.

Figure 1 about here

These inconsistencies require certain precautions to be exercised when analysing changes in ethnic group populations over time (Office for National Statistics, 2012b). Research which explored stability in ethnic group self-identification by the same individuals, using the Office for National Statistics Longitudinal Study for 1991 to 2001 (Simpson and Akinwale, 2007) and 2001 to 2011 (Simpson *et al.*, 2014), demonstrated some movement between ethnic group categories between Censuses. The studies concluded with the recommendation of a seven-group classification of ethnic groups which were most stable and thus offered fair comparison between 1991, 2001 and 2011 (Table 1); this recommendation is followed here, but inevitably leads to some loss of ethnic group detail. The residual Other category, composed of the remaining Other groups and the Mixed groups in 2001 and 2011, plus the new Arab group in 2011, is not strictly comparable between Census points. While for completeness the Other group is reported for all three time points, one should be cautious with data reported for this heterogeneous group. Analyses of change between 2001 and 2011 allow for the retention of more detailed ethnic groupings.

Table 1 about here

Undercount of minority groups in the 1991 and 2001 Censuses can lead to misleading analyses of the populations of ethnic groups; revised sub-national estimates for each ethnic group by Sabater and Simpson (2009) are used in this paper[4]. Census data for 2011 are regarded to be well-estimated (see Office for National Statistics, 2012a) and so are used in their published form.

Wards for each Census year are the main sub-national geography for analyses in this paper. The numbers of wards and their boundaries have changed at each time point. The 2011 populations by ethnic group have been converted from 2011 merged wards to 2001 CAS wards by Norman[5]; this process followed the procedure outlined in Norman *et al*. (2003) and utilised in Sabater and Simpson (2009) for 1991 to 2001. The result is a consistent set of 8,850 wards for all three time points, aligned to the 2001 ward boundaries (mean population approximately 5,700 in 1991, 5,900 in 2001 and 6,300 in 2011, although it should be noted that the population sizes of wards are highly variable for each year). Districts ($n = 348$ in 2011, with a mean of approximately 161,000 people) are also used for some analyses of 2001 to 2011 change.

Ethnic group population change between 1991 and 2011

Table 2 shows, for England and Wales, the number of individuals in each of the broad time-comparable seven-group categories for 1991, 2001 and 2011, along with the 'non-White' population (dropping quotations hereafter). Each group's percentage share of the total population for that corresponding year and percentage point change over the two decades is also included. In addition, ratios of change in the absolute numbers of each group between the time periods are given; these act as an indicator of the comparative rate of change between periods. The Other group is included as a residual eighth group, but given issues of comparability over time is shown in italics.

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[4] Data downloadable to users in UK higher and further education institutions at http://ukdataservice.ac.uk/
[5] Sincere thanks to Paul Norman for the provision of a lookup for consistent geographies.

Table 2 about here

England and Wales has become considerably more diverse over the last two decades —
the 1991 non-White population of around three million people has since well more than
doubled, although non-White groups remained the minority, and collectively constituted
just one seventh of the population in 2011. The White group increased its absolute
population in the same proportion (ratio) between 1991 and 2001 and between 2001 and
2011, but saw a decrease in its percentage share of the population at both time points,
most notably between 2001 and 2011 (-5 percentage points; not shown). This
corresponds to the decreasing populations of the White British (discussed later in the
paper) and White Irish, although compensated by the growth of the Other White group
(which includes Eastern Europeans, whose populations grew significantly via
immigration following the joining of Accession countries to the European Union in
2004). The Indian population constituted the largest non-White minority ethnic group in
England and Wales at all three time points, and by 2011 comprised two and a half per
cent of the population. Excluding the Other group, the largest difference between
decades for any group is by the African group between 2001 and 2011, when the group
more than doubled its population.

The population in each ethnic group will grow or decline depending on the balance of
immigration and emigration, and births and deaths. Simpson and Jivraj (2015) estimated
the relative contributions of these demographic processes to the growth of ethnic groups
since 2001. To summarise, they found that natural change was responsible for the
growth of ethnic groups more than by immigration for those groups with a longer
established history of immigration to the UK, in particular the Caribbean group, but also
the Pakistani and Bangladeshi groups. The Indian group was an exception to this trend,
growing more through immigration between 2001 and 2011. The Other White, African
and Chinese groups grew largely through immigration.

Table 2 shows substantial growth of the 'Other' group. The drivers behind this growth likely include the diversification of new immigration streams to the UK, fertility, and to some degree changes in ethnic group categorisation between Censuses which resulted in transfers between ethnic groups by individuals over time (for example, the movement of the Chinese category from the Other to Asian heading, affecting the Other Asian category (see Figure 1); Simpson *et al*. (2014) detail these changes and their impact). Growth of Other groups also serve as a reminder that pre-defined ethnic group categories in censuses and other surveys inevitably fail to accommodate the growing diversity of the population. Any category which encompasses 'Other' (Other White, Other Asian, Other Black Other Mixed and Other) is, by definition, a category used for self-identification where the ethnic group choices provided are not applicable or clear-cut; the statement that "diversity is variety" (Rees and Butt, 2004: 181) has never been more true in England and Wales.

The Mixed groups which form part of this broad Other category (identifiable in 2001 and 2011), and which make an important contribution to increased ethnic diversity, have seen considerable growth in the period. Since 2001 there has been a near-doubling of people reporting themselves as being of a Mixed or Multiple ethnic group, to over 1.2 million in 2011, equating to an 82 per cent rise on the 2001 figures. The Mixed group grew mainly through births (Simpson and Jivraj, 2015). Growth in mixed ethnic identities can be interpreted partly as an outcome of mixed ethnicity relationships; children to parents of different ethnicities may choose to affiliate with a Mixed ethnic group (or, for very young children, be ascribed a Mixed ethnicity by their parents, who complete the form on their behalf).

Geographic spread of ethnic diversity

Is the increased ethnic diversity England and Wales experienced over the last twenty years, in particular in the most recent decade, associated solely with areas with traditionally higher diversity? Figure 2 shows percentage point change in ethnic groups other than White between 1991 and 2011, for the consistent 2001 Census wards described earlier. Growth of non-White groups has been highest in London and other large cities including Birmingham and Manchester. Cities with traditionally high levels of diversity, including Bradford and Leicester, saw a continued growth in their non-White populations. However, there is also evidence of growth in areas outside these most urban locales, in less populous areas. Only 145 of the 8,850 wards saw a decrease in their non-White proportions, 105 of which decreased by less than one percentage point.

Figure 2 about here

A measure of ethnic diversity borrowed from ecologists provides a guide as to how equal the distribution of each ethnic group is in a given area. This reciprocal diversity index (RDI) is given by:

$$\text{RDI}_i = \left(\left(1 - \left(1 / \left(\sum_{j=1}^{M} \left(\frac{x_{ij}}{t_i} \right)^2 \right) \right) \right) / M - 1 \right) \times 100$$

Where i refers to an area, j indicates a group, and there are M groups; x_{ij} indicates the number of people in area i who are members of group j, and t_i is the total number of people in area i. The index is standardised to the range 0,1 by subtracting 1 and then dividing by M-1 (see Simpson, 2007, who also applies this measure to a study of ethnic group populations); here, values are then multiplied by 100. A value of 100, then,

indicates that all groups in area *i* are in equal proportion. A value of 0 occurs where the whole population of the area is of the same ethnic group. As an illustrative example, Figure 3 shows the ethnic group population size and proportion of the most diverse ward in England and Wales in 2011, Dollis Hill in Brent. This ward, where no one ethnic group accounted for more than 14 per cent of the population (the White British and Other White groups each constituted this proportion of the area's population), has an RDI score of 56, as calculated using all 18 ethnic groups.

Figure 3 about here

There were few wards in England and Wales which are so diverse that they have an almost equal proportion of people in each ethnic group. Unsurprisingly, ethnic diversity continued to be concentrated in England rather than Wales, and in London and other large cities over less urban places; in 2011, the top 15 most diverse wards were located in inner or outer London, except for Soho in Birmingham (with an RDI value of 45). The rest of these wards were located in the highly diverse London districts of Newham and Brent, plus one ward in Croydon.

However, the geographies of diversity have changed over the period. Figure 4 is a ward level map of RDI for comparable geographies for 1991-2011. The calculation is for the whole population, using the seven-category classification in Table 1 plus the residual eighth group Other[6]. This gives a mean RDI[7] of 1.5 in 1991, 2.2 in 2001 and 3.6 in 2011, demonstrating clearly the increase in ethnic diversity over time. Note that the inclusion of a greater number of ethnic groups will lower diversity by this measure, as it is less likely that each ethnic group will be in equal proportion, given the small numbers in some groups. Therefore, if 16 comparable ethnic groups for 2001 and 2011 are used

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[6] Cartograms have been avoided in this paper given their emphasis on places where population density is highest, which thus masks the increased diversity and mixing in non-urban locales.
[7] One ward in the City of London district had a very small yet diverse population, and thus has a large RDI value; this is misleading given its small population base. This does not substantially affect the mean RDI values, and so was included in order to maintain a consistent number of zones across years.

(all ethnic groups shown in the last two columns of Table 1, but with White Gypsy/Irish Traveller merged with Other White in 2011, and Arab with Other in 2011), mean RDI values decrease to 1.8 in 2001 and 3.2 in 2011.

Figure 4 about here

By examining Figure 4, it is apparent that ethnic diversity has been spreading out to new local areas — while London remained highly diverse (home to 42 per cent of the non-White population of England and Wales in 2011), wards outside London which were previously less diverse have experienced a growth of diversity, commensurate with the findings of Rees and Butt (2004) for the 1990s. A ring outside London is observable, as are growing patches of diversity across the rest of England and Wales, including in and around major cities like Birmingham, Manchester and Leeds, but also less urban locales. A new geography of diversity has emerged over the two decades, with formerly 'White' spaces increasing their ethnic mix.

This measurement of diversity is potentially useful as a tool for visualising ethnic group distributions; even the most diverse wards in England and Wales are not dominated by one minority group, nor is increased diversity constrained to 'traditionally' diverse locales. A lack of published data on migration by ethnic group at the time of writing negates testing the processes behind the patterns observed in Figure 4, but these new geographies of ethnic diversity will be attributable to a combination of migration from cities evidenced for previous periods, associated with the processes of suburbanisation and counterurbanisation (for example, Simpson and Finney, 2009); new immigration to rural areas (for example, for labour opportunities aligned with new waves of Eastern European immigration; Robinson, 2010); and the growth of minority ethnic groups in situ, particularly of those groups with young age profiles (Simpson and Jivraj, 2015).

Ethnic group clustering

It would be expected that this spreading out of diversity would be associated with a growth of minority ethnic groups where they are least populous. In order to test this, quintiles were derived as follows: the percentage of each ethnic group (of the total population) in each ward in 1991 was sorted from smallest to largest; next, the cumulative population of that group was computed and used to obtain five sets of wards each with equal populations of that group (quintile 1 = wards with smallest percentages of that ethnic group; 5 = largest). Table 3 shows changes in areas with most and least of that group in 1991, all for consistent 2001 ward boundaries. The values given are change in the number of a group, as a percentage of the population in the first of the two years compared (i.e., 1991 to 2001 and 2001 to 2011).

Table 3 about here

With the exception of the White group over the periods 1991 to 2001 and 2001 to 2011, and the Chinese group between 2001 and 2011, growth has been consistently highest in areas where the ethnic group is least populous. In-line with Johnston *et al.*'s (2015) study of ethnic concentration in London between 2001 and 2011, these findings suggest greater ethnic mixing in small areas over time. For several minority ethnic groups, this pattern is most obvious for the most recent decade, where growth in the most concentrated areas is much lower than in other areas.

An ethnic urban-rural cascade or flight from diversity?

The early 2000s, in particular, can be described as a decade of diversification. The decade also saw changes to the majority (White British) group. The group decreased its

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proportional share from 87 per cent of the England and Wales population to 80 per cent, but declined by just one per cent on the group's 2001 population. This group's older age profile will have been associated with higher mortality, and lower fertility than younger on average minority ethnic groups (Simpson and Jivraj, 2015), which, in addition to emigration, will have contributed to this decline. While relatively small, the decrease in the size of this group received considerable attention, particularly in relation to London, where the group decreased its share from 60 to 45 per cent. One interpretation of this change in London has been that it is the outcome of a negative response to increased diversity, inspiring new (and rather premature, given the lack of published ethnic group-specific internal migration Census statistics at the time of writing) debate about 'White flight'[8] — the selective out-migration of White individuals as the non-White composition of an area increases to a 'tipping point' (for an overview see Brama, 2006). The aim here is not to directly test the White flight hypothesis, but to compare changes in the share of White British and minority groups in London, to assess how ethnic group population distributions have changed over time, and if unique or common patterns of change are identifiable for the White British and minority groups. In turn, this section also explores further the spreading out of minority populations, by considering how diversity has changed across the urban-rural spectrum.

This analysis makes use of an England and Wales district level area classification scheme of 13 area types, which is based on their common socio-economic and demographic characteristics and administrative status. Champion (2005) revised a much earlier version (Office of Population Censuses and Surveys, 1981) of the classification to 2001 boundaries, and to account for distance from a metropolitan boundary, to distinguish the more remote area types. 2011 districts, which saw a change in boundaries in the inter-censal period, are used here for 2001 and 2011 data analyses, and have been allocated to this classification, along with an aggregation of the 13 area types into seven (inner and outer London, metropolitan areas, other large cities, other

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[8] Easton, M 'Why have the White British left London?' *BBC* http://www.bbc.co.uk/news/uk-21511904 20th February 2013. Accessed 12th November 2013.
The Economist 'Racial segregation. Everyone out: Whites are fleeing Britain's inner cities. But so is everybody else' *The Economist* http://www.economist.com/news/britain/21577384-whites-are-fleeing-britains-inner-cities-so-everybody-else-everyone-out 11th May 2013. Accessed 10th July 2013.

urban, mixed urban-rural and mainly rural), for less detailed categorisation[9]. This aggregated urban-rural scale is unlikely to have changed for many, if any, districts. The typology is favoured over other area classifications as it uses familiar terminology for area types, and does not include ethnic group data for the classification scheme. This means it is useful for analyses how ethnic geographies vary from cities to rural areas, and to explore dispersal from cities over time. Earlier applications of this scheme include Champion (2000) and Simpson and Finney (2009).

Figure 5 shows change in ethnic groups' shares within urban-rural typologies, between 2001 and 2011. The analysis does not in this case date back to 1991 given that White British has only been recorded as a separate group from the White category since 2001. However, it is possible to include the Mixed groups which were introduced as categories in 2001; here they have been summed into one category. White groups other than White British are also included (see Figure 5 notes for population sizes). In Figure 5, the share of a given ethnic group in each area type has been calculated whereby that ethnic group's share sums to 100 per cent. The chart shows the differences in these percentages from 2001 to 2011, which sum to zero for each ethnic group. Gain in an ethnic group's share in one area type must correspond to their loss in another area type(s). For example, six per cent of the White British population resided in outer London districts in 2001, and this decreased to five per cent in 2011; Figure 5 shows this decline of one percentage point over the decade. Decreasing shares do not necessarily correspond to decreasing populations numerically, but rather the percentage of an ethnic group in each area type.

Figure 5 about here

Figure 5 suggests an increased minority ethnic presence in areas outside major metropolitan centres. A cascade of urban deconcentration, particularly from London, is

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[9] Details of the 2011 classification of districts, including each district's urban-rural classification, can be accessed at: http://www.ethnicity.ac.uk/

evidenced. Every ethnic group has decreased its share in inner London, and all but the Bangladeshi, Caribbean and Pakistani groups have decreased their shares in outer London too. Decreasing shares in inner and outer London by the White British, Other White, Indian and Mixed groups are matched by decreases in metropolitan areas, and gains in less urban areas. Other urban areas have seen increased shares for the White British and all minority groups, as have both types of rural area, except for small losses by the Chinese and Other groups in mixed urban-rural and mainly rural areas, and small losses by the Other White group in mixed urban-rural areas and the Pakistani group in mainly rural areas.

Loss in the Caribbean share in inner London was matched by an increased share in outer London, and elsewhere. The African group was shown to be 'over-represented' in inner London in 2001 (Simpson and Finney, 2009), and this group's share in London remained the highest of all groups, although declining. The African group has seen loss of its share in London, in particular by nearly 20 percentage points from inner London, accompanied by gains in urban areas outside London, but also less urban area types. The fairly recent settlement in Britain of some in the African group saw a favouring of London in the 2000s (Simpson and Finney, 2009); the proportional loss of this group in London in the following decade, as shown in Figure 5, was perhaps somewhat greater than what might be expected, suggestive of a cascade of movement away from initial settlement favouring other areas, or immigration to new areas (for example, as a result of policy favouring regional dispersal of asylum-seekers, established at the start of this period (Zetter *et al*., 2005)).

The minority ethnic group most consistently losing its share from major urban centres and gaining in rural and less urban areas is Indian. This is possibly reflective of this group's settlement history and relatively superior socio-economic and educational prosperity in Britain (for example, Catney and Sabater, 2015), which might be associated with movement to rural areas as part of the counterurbanisation process discussed later. Pakistani loss from major urban centres and gain in less urban

settlements is observable, yet more modest. Bangladeshi loss in share from inner London (which includes the London Borough of Tower Hamlets, where this group is populous) corresponds with an increased share in outer London, and also all other area types. Reduction in Chinese shares in rural areas and gains in urban areas (except London) corresponds to what Simpson and Finney (2009: 47) found directly using migration data for the early 2000s, explained by "migration to urban areas of the children of geographically isolated Chinese immigrants who favoured the catering industry in the 1960s and 1970s". The Chinese group has traditionally been geographically spread compared to other groups (with low levels of segregation: Author, forthcoming). This change in patterning could also be explained by the movement of Chinese retirees re-joining other family members in more central locales. The immigration of Chinese students, who will be mainly temporary residents of the UK, will be centred towards university towns and cities which may have lower concentrations of Chinese; they may not necessarily gravitate towards London, but the other urban area types shown.

The increased share over time of minority ethnic groups in less urban areas is indicative of greater residential mixing, rather than movement towards co-ethnic clusters, as also evidenced in Table 3. It is not possible to formally test the 'White flight' hypothesis using these data, but the common change in shares for the White British group *and* all other ethnic groups from London and towards other areas does not support the notion that the White British are changing their residential patterning in a way which is distinct from minority ethnic groups. The area type with the largest increase in White British share is mixed urban-rural areas. Rather than this gain being suggestive of a 'retreat' by the White British population into these areas, their 'attractiveness' is also apparent for the Indian, African, Caribbean, Mixed, Bangladeshi and Pakistani ethnic groups, of which three minority groups increased their share more than the White British group. Change in shares could be due to the balances of internal migration, immigration/emigration, and natural change, which are not tested here; further work on how common the local gains and losses for each ethnic group are in certain locales using migration data (not available at the time of writing) would be particularly

insightful. On-going work by Kaufmann and Harris (2014) has aimed to explore the impact of White racism on out-migration from diversity, finding a weak correlation. For earlier time points, Stillwell (2010) showed a net movement of those in White groups from London away from areas where they are least numerous to where they were more concentrated, but emphasised that this is in the context of the banal process of suburbanisation.

Aside from direct immigration to new areas and growth in situ, internal migration will serve to increase the ethnic diversity in previously less diverse locales shown in Figure 4. Previous British-based research has shown that, following the expected initial minority concentration in immigrant settlement areas, there has been a deconcentration of immigrants and their descendants over time; this migration is not ethnically-selective, but common to all ethnic groups (Simpson and Finney, 2009; Stillwell, 2010), differentiated by economic means rather than ethnic group affiliation (Catney and Simpson, 2010). Work by Ford and Champion (2000) reminds us that out-migration from London is nothing new. Indeed, the patterns of migration and the motivations behind these movements are a familiar story — counter-urban movement at a given life course stage (Champion, 2005), the green pull of non-city life attracting (rather than pushing) ex-urban dwellers including young families and retirees to less urban environs. This ethnic deconcentration from cities over time, and a consequential diversification in rural areas, is supported by Figures 2, 4 and 5. Of course, it should be remembered that loss in shares does not necessarily equate to loss in population; London in particular is being constantly refuelled by migration from other parts of the UK and outside, acting to retain its dominance in terms of both population and ethnic diversity. Johnston *et al*. (2015) provided evidence of increased diversity within London's suburbs, where many previously 'majority-White' areas had become more ethnically mixed.

Summary and conclusions

Ethnic diversity, which is now a key characteristic of contemporary society in Britain, is an issue of public, policy, political and academic interest. The 2011 Census provided an opportunity to update our knowledge of how diversity has grown in England and Wales, and in what ways. This paper provided insight into 'national' (England and Wales) level population change for each ethnic group between 1991 and 2011, and, for consistent small areas over time, the *geography* of this change. This was a response to the argument posed at the start of the paper, which called for a need for enhanced understandings of the increasingly complex spatial patterns of ethnic diversity. The growth of diversity outside traditionally diverse spaces, including newly diversifying urban and rural locales is relevant not just in the British context, but is also echoed by observations made outside the UK, for example in the US and Europe (Lichter, 2012; Finney and Catney, 2012). A greater appreciation of the increase in, and shifting geographies of, ethnic diversity has relevance for policy-relevant issues including rural racism, tolerance, and convivial community dynamics for new and established communities (Neal, 2002; Chakraborti, 2010).

Population change in England and Wales in the 1990s and early 2000s represents two decades of ethnic diversification. Some geographical patterns observed for 1991 (Peach, 1996) were also features in 2011, as might be expected, such as the dominance of England over Wales in levels of diversity, and London over other cities. However, while cities continue to be home to the majority of minority ethnic populations, a diversification into suburbs and rural areas, observed for the 1990s (Rees and Butt, 2004), was a significant feature by 2011. Growth in ethnic diversity has been accompanied by a spreading out of minority groups to new locales. The evidence presented suggests that new patterns of spatial mixing are emerging. The measurement of ethnic diversity in neighbourhoods used here showed how wards in less urban locales that have not traditionally been associated with diversity have seen a growth of minority populations. Ward level analysis also demonstrated how growth of minority ethnic

groups was in areas where they were least clustered. A district classification scheme helped to demonstrate the growth in minority ethnic groups in areas outside major metropolitan centres. Increased minority shares in areas outside London are observable for all ethnic groups — White British *and* minority, challenging claims of 'White flight' from diversity. This changing geography of diversity needs further attention to understand the processes which have led to increased minority ethnic presence in non-urban places, a major contribution to which will be internal migration from urban to rural locales; this was not testable here due to the absence of ethnic group migration data at the time of writing, but was suggested through the analysis of the ethnic group urban-rural cascade presented, and is supported by evidence for earlier periods (for example, Simpson and Finney, 2009). It is beyond the scope of this paper to explore the relationships between socio-economic conditions and changing levels of diversity, but individual- and area-level analyses of these correlations might provide further insight into the evolving patterns of ethnic diversity. These new geographies have certain policy implications which deserve increased attention, such as where resources can best be targeted, how these are identified at the local level, and what challenges are being faced by new and 'host' communities.

Being able to effectively measure ethnic diversity is particularly important for assessing population change over time and evaluating the persistence of ethnic inequalities (Southworth, 1996). However, since the ethnic group question was first introduced in the 1991 Census these aims have become increasingly difficult. Not only did the minority ethnic population grow considerably in the twenty year period, but diversity grew within these the 'non-White' groups. The growth of 'Other' and Mixed groups described in this paper are testament to a diversity of diversity. There is also considerable heterogeneity in single ethnic groups, such as the African group which has grown from a multiplicity of origins. The increased diversity in new places evidenced in this paper is therefore echoed by increased diversity within ethnic groups. This also raises interesting questions about the limitations of the catch-all residual 'Other' categories, which unarguably serve to 'other' those who do not neatly fit into pre-prescribed categories. The different elements of self-identified ethnicity, 'race',

citizenship, nationality and national identity, parentage, country of birth, and immigrant or generational status, might have varying importance to an individual, and may also differ in their import at different times and in different contexts. Phinney (1996) provides an overview of how an individual's minority ethnic identification might change over time, suggesting the need for a more holistic consideration of other indicators of identity such as religion, language, and country of birth (Simpson *et al*., 2014), and their intersections with other demographic characteristics and cultural 'markers' such as age, gender, social class and educational attainment.

However it is measured, it is clear that the England and Wales population is increasingly more ethnically diverse, both nationally and locally, and that ethnic diversity is now a norm in contemporary society. Although from a much lower level of diversity, Scotland and Northern Ireland have also been diversifying over the decade (National Records of Scotland, 2013; Northern Ireland Statistics and Research Agency, 2013), meaning that the UK population is much more diverse than ten years previous. Increased ethnic diversity is clearly an important feature of contemporary population change, and the coming years are likely to see continued mixing between people and within places — and in new locales.

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1991-2011 ethnic group	1991 group(s)	2001 group(s)	2011 group(s)
White	White	White British White Irish Other White	White English/Welsh/Scottish/Northern Irish/British White Irish White Gypsy/Irish Traveller Other White
Indian	Indian	Indian	Indian
Pakistani	Pakistani	Pakistani	Pakistani
Bangladeshi	Bangladeshi	Bangladeshi	Bangladeshi
Chinese	Chinese	Chinese	Chinese
African	Black African	Black African	Black African
Caribbean	Black Caribbean	Black Caribbean	Black Caribbean
Other	Other Asian Other Black Other	Mixed White-Caribbean Mixed White-African Mixed White-Asian Other Mixed Other Asian Other Black Other ethnic group	Mixed White-Caribbean Mixed White-African Mixed White-Asian Other Mixed Other Asian Other Black Arab Any other ethnic group

Notes: based on the recommended ethnic group aggregation described in Simpson et al. (2014).

Table 1. Ethnic groups from the 1991, 2001 and 2011 Censuses of England and Wales, and consistent categories for comparison over time

Ethnic group	1991 population (% of total)	2001 population (% of total)	2011 population (% of total)	Ratio 01:91 change	Ratio 11:01 change	1991-2011 change (% point)
White	47,429,019 (93.46)	47,747,351 (91.19)	48,209,395 (85.97)	1.01	1.01	-7.49
Indian	891,827 (1.76)	1,053,302 (2.01)	1,412,958 (2.52)	1.18	1.34	0.76
Pakistani	494,973 (0.98)	727,727 (1.39)	1,124,511 (2.01)	1.47	1.55	1.03
Bangladeshi	176,912 (0.35)	286,693 (0.55)	447,201 (0.80)	1.62	1.56	0.45
Chinese	173,184 (0.34)	233,346 (0.45)	393,141 (0.70)	1.35	1.68	0.36
African	255,336 (0.50)	494,669 (0.94)	989,628 (1.76)	1.94	2.00	1.26
Caribbean	569,621 (1.12)	572,212 (1.09)	594,825 (1.06)	1.00	1.04	-0.06
Other	*757,161 (1.49)*	*1,244,677 (2.38)*	*2,904,253 (5.18)*	*1.64*	*2.33*	*3.69*
Total	50,748,033 (100)	52,359,976 (100)	56,075,912 (100)	1.03	1.07	n/a
Non-White	3,319,014 (6.54)	4,612,625 (8.81)	7,866,517 (14.03)	1.39	1.71	7.49

Notes:

n/a is not applicable.

The Other ethnic group is italicised given possible issues of comparability over time for this group.

Sources: 2011 Census, Table KS201EW (Crown Copyright), and complete population estimates based on the 1991 and 2001 Censuses (Crown Copyright). Author's own calculations.

Table 2. 1991, 2001 and 2011 England and Wales populations by ethnic group (eight-group classification)

	% change 1991 to 2001 in lowest own-group quintiles (1-4)	% change 1991 to 2001 in highest own-group quintile (5)	% change 2001 to 2011 in lowest own-group quintiles (1-4)	% change 2001 to 2011 in highest own-group quintile (5)
White	0	2	0	4
Indian	21	5	40	7
Pakistani	50	34	64	13
Bangladeshi	64	54	66	14
Chinese	39	17	67	78
African	98	78	120	13
Caribbean	4	-15	7	-12
Other	75	22	136	115

Notes: The top five wards (for harmonised 2001 geographies) in the highest 1991 own-group quintile lie within the following districts: White: Monmouthshire, Powys, Isle of Anglesey, Wear Valley and Hambleton; Indian: Leicester and Ealing; Pakistani: Pendle, Bradford and Peterborough; Bangladeshi: Tower Hamlets and Oldham; African: Southwark, Lewisham and Lambeth; Caribbean: Brent, Lambeth and Haringey; Chinese: City of London, Liverpool, Camden and Cambridge; Other: Suffolk Coastal, City of London, Cherwell and Forest Heath. Note that these top five wards include some wards for which the population of that group are very small, especially City of London.

Sources: 2011 Census, Table KS201EW (Crown Copyright), and complete population estimates based on the 1991 and 2001 Censuses (Crown Copyright). Author's own calculations.

Table 3. Ethnic group percentage change in areas of high and low own-group populations, wards in England and Wales, 1991-2011

Figure 1. Ethnic group questions in the (a) 1991, (b) 2001 and (c) 2011 England Census household form
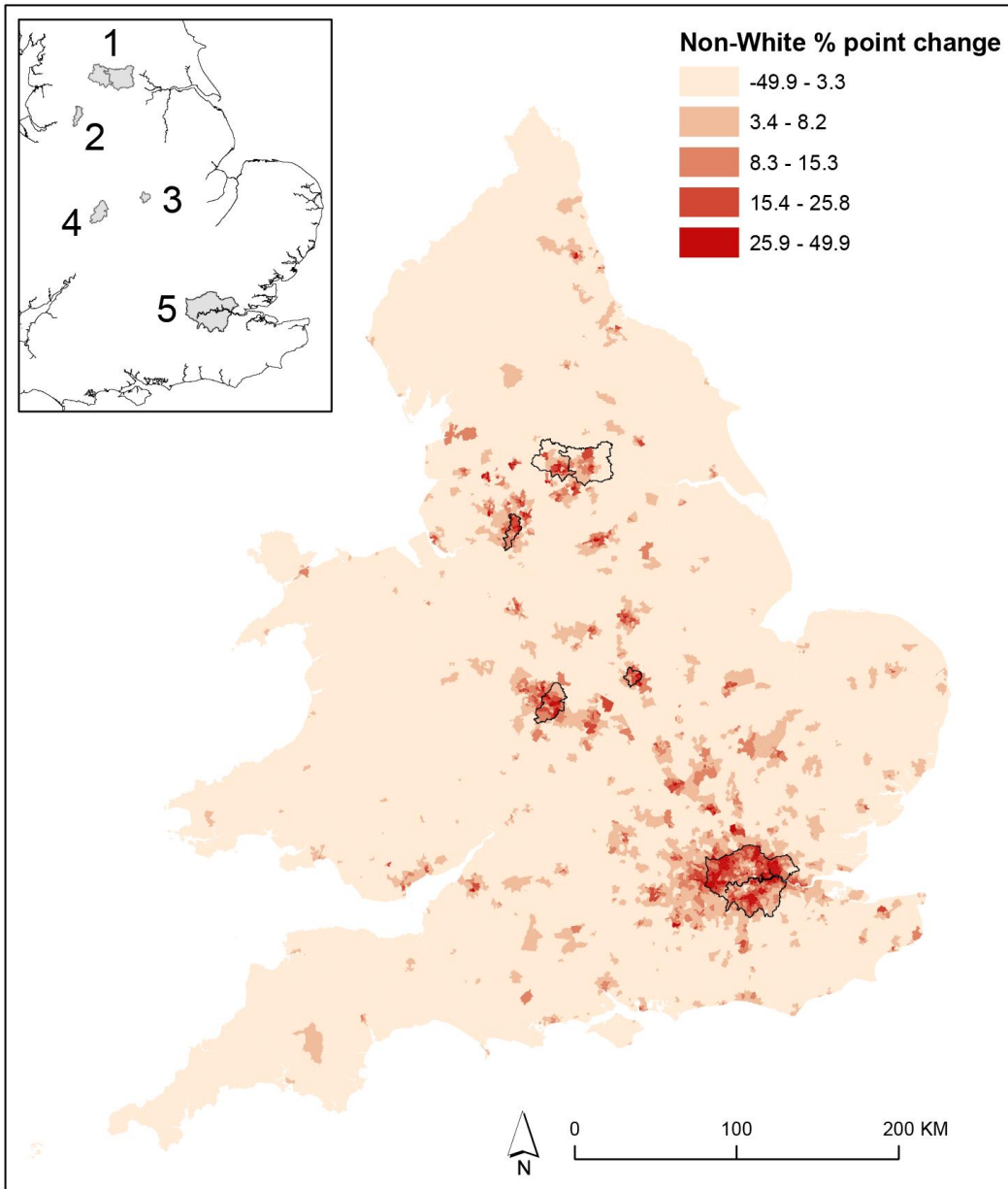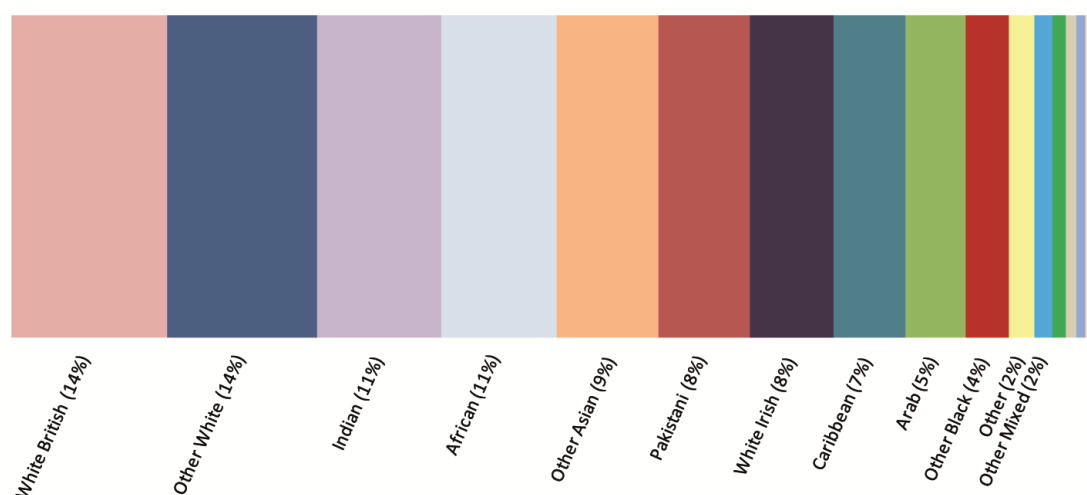
Figure 2. Change in the 'non-White' population, 1991- 2011, England and Wales

Notes: Selected place labels (for 2011 boundaries) are as follows: 1 = Districts of Bradford and Leeds; 2 = Greater Manchester County; 3 = District of Leicester; 4 = District of Birmingham; 5 = London Region.

Sources: 2011 Census, Table KS201EW (Crown Copyright), and complete population estimates based on the 1991 and 2001 Censuses (Crown Copyright). Author's own calculations.

White British (14%) Other White (14%) Indian (11%) African (11%) Other Asian (9%) Pakistani (8%) White Irish (8%) Caribbean (7%) Arab (5%) Other Black (4%) Other (2%) Other Mixed (2%)

White British = 1,924; Other White = 1,844; Indian = 1,532; African = 1,423; Other Asian = 1,263; Pakistani = 1,135; White Irish = 1,027; Caribbean = 896; Arab = 731; Other Black = 537; Other = 312; Other Mixed = 217; Mixed White and Caribbean = 172; Mixed White and Asian = 139; Bangladeshi = 97; Mixed White and African = 92; Chinese = 82; White Gypsy Irish Traveller = 2. Total population = 13,425.

Each count is divided by the total population, giving (to three decimal places): 0.143, 0.137, 0.114, 0.106, 0.094, 0.085, 0.076, 0.067, 0.054, 0.040, 0.023, 0.016, 0.013, 0.010, 0.007, 0.007, 0.006, 0.000.

The square of each of these values is then taken and the resulting squared values are summed, giving 10.445. Next, 1 is subtracted from this value and the product is divided by M-1 (M = 18, so the denominator is 17): (10.445-1)/17 = 0.55557. Finally, multiplication by 100 gives 55.557.

Figure 3. The distribution of ethnic diversity in the most diverse ward in England and Wales in 2011: Dollis Hill in Brent (outer London)

Source: 2011 Census, Table KS201EW (Crown Copyright). Author's own calculations.
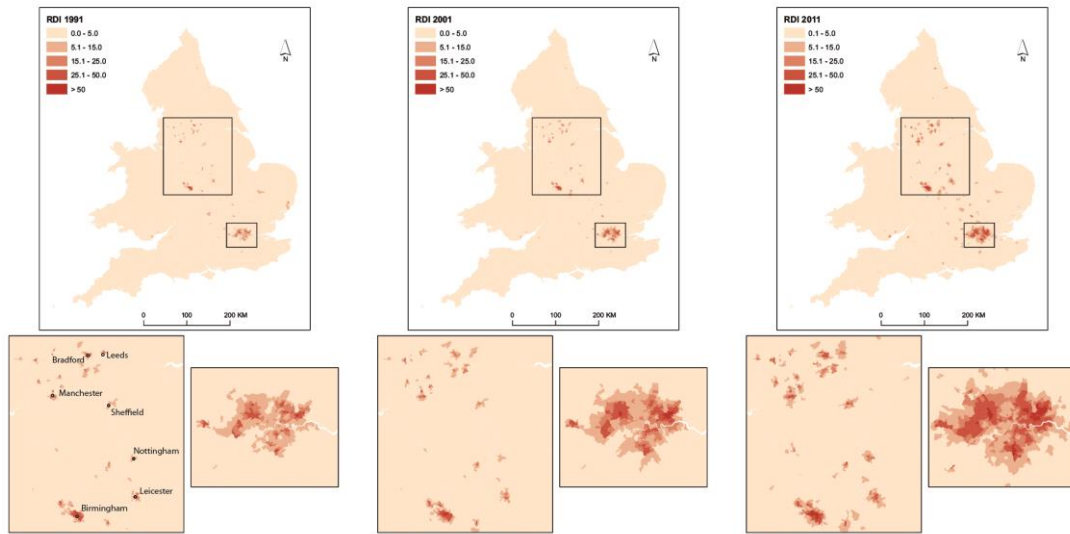
Figure 4. Mapped reciprocal diversity index (RDI) scores, 1991, 2001 and 2011, England and Wales (with inserts for mid- and northern England and London)

Sources: 2011 Census, Table KS201EW (Crown Copyright), and complete population estimates based on the 1991 and 2001 Censuses (Crown Copyright). Author's own calculations.

Figure 5. Ethnic group spread across the urban-rural cascade, 2001-11

Notes:

White Irish (and White Gypsy or Irish Traveller in 2011) has been merged with Other White; Mixed refers to all four Mixed groups; and Other is an aggregation of Other Asian, Other Black and Any Other (and Arab in 2011).

Populations of these aggregated ethnic groups: Other White (2001 n = 2,026,116; 2011 n = 3,074,709); Mixed (2001 n = 671,954; 2011 n =1,224,400); Other (2001 n = 572,723; 2011 n =1,679,853). White British 2001 n = 45,721,236; 2011 n = 45,134,686. All other ethnic groups are detailed in Table 2.

Examples of 2011 districts in classifications outside of London include: Metropolitan areas: Birmingham, Bradford and Manchester; Other large cities: Leicester, Nottingham and Cardiff; Other urban: Lancaster, Luton and Oxford; Mixed urban-rural: Cheshire East, Warwick, Winchester; Mainly rural: Cotswold, Powys, West Devon.

Sources: 2011 Census, Table KS201EW (Crown Copyright), and complete population estimates based on the 2001 Census (Crown Copyright). Author's own calculations.