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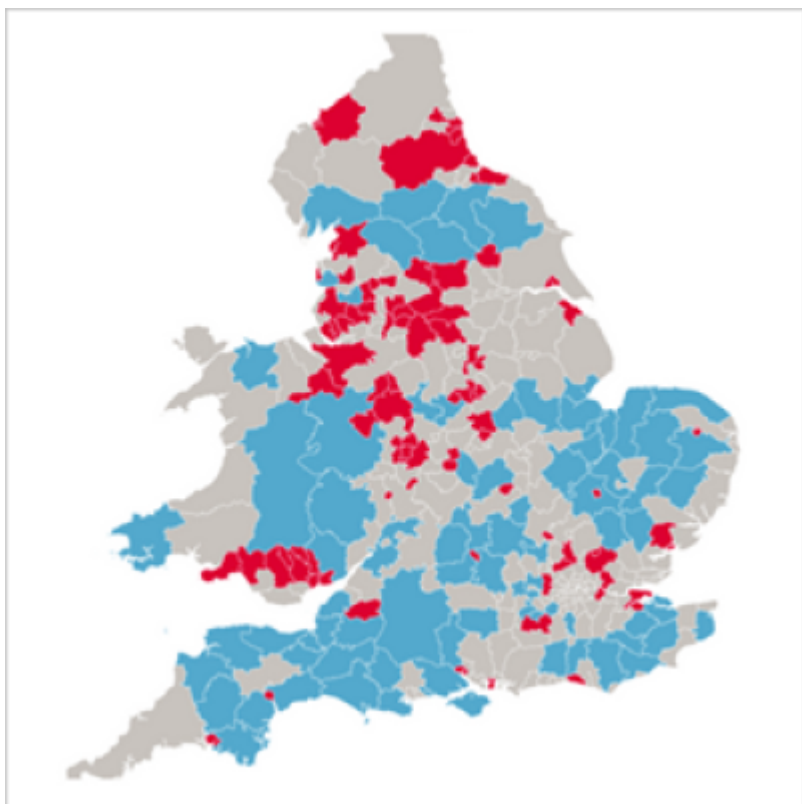# How does residential mobility shape the health of local areas?

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About 11 mins to read

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Data analysis | Analytics and data | Inequalities | Mental health | Public health

Key points

- Residential mobility – people changing where they live, by moving from one area to another – plays an important role in shaping public health in local areas. But this has often been overlooked in research and policy discussions.

- The characteristics of people moving in, moving out or staying in an area may be different. This can change the health of an area, as well as its age profile or the economic activity status of people living there. Such changes have the potential to reinforce existing geographical inequalities – for example, people who are young and in good health tend to move to areas where many other young and healthy people live.

- In this piece, we use open access area-level data on migration from the 2011 census for England and Wales to better understand residential mobility patterns and how they might contribute to geographical inequalities in health.

- Our analysis shows that areas differ in their rates of net migration among people in good health and in poor health. Local areas with high net migration of young people also have higher net migration of healthy people; areas with high net migration of people in poor health tend to have high net migration of older people.

- Further research is needed into the relationship between places, the movement of people and the health of local populations over time. Better understanding of residential mobility would inform public service planning and help achieve a better understanding of the impact of place-based interventions. This is crucial to reducing geographical inequalities in health – which is a key focus of the levelling up agenda.

Introduction

There are wide geographical inequalities in health across the UK. For instance, in the 2011 census, the percentage of people who reported being limited in their daily activities by a long-term condition or disability ranged from 11% to 27% across English and Welsh local authorities. Understanding the detail of such differences is crucial to targeting action appropriately.

We know that health inequalities are partly due to different living conditions affecting health in a place (including housing, educational and employment opportunities). For example, unemployment in Blackpool – the local authority with the lowest life expectancy for men – is twice as high as in Rutland – the local authority with the highest life expectancy. Unemployment itself can have a direct negative impact on health, but concentrations of unemployment are also an indication of a weaker economy and higher deprivation within an area. In turn this tends to mean that people living in those areas have less money to spend on housing, social activities and better quality food – all of which help support healthier and longer lives.

However, geographical differences in life expectancy are also the result of people changing where they live, by moving from one area to another. This is known as residential mobility.

There are two main ways in which residential mobility might affect health in an area. First, there are systematic differences between those who arrive (in-migrants), those who leave (out-migrants) and those who stay. People moving may differ in terms of health status, age and socioeconomic situation (among other variables). Some areas – including big cities like Newcastle – have high net migration of young people. Young people tend to be in better health than older people, so these areas generally have lower rates of long-term conditions (eg cardiovascular disease or cancer). On the other hand, areas with high net migration of older people tend to have higher rates of these conditions.

In the medium to long term, systematic differences in migration also affect health through collective effects. Over time, they can lead to changes in the local economy, the kinds of amenities that are in demand, the local tax base and funding for public services, as well as other features that can affect the health of local people.

Second, population turnover – the total percentage of people who have moved in or out of an area in a given year – also affects health, even if there are no systematic differences between people moving in and those moving out. In the UK, areas with high levels of turnover tend to

have higher psychiatric admission and suicide rates, after taking into account differences in area-level deprivation or age. Turnover is thought to affect health by weakening social capital (the strength of community relationships and trust). It may also make it more difficult for public services to identify and support people in need.

Geographical inequalities in health are partly, therefore, the result of people moving into and out of areas, and partly the result of differences in conditions in those areas. These two factors are interrelated: local conditions will help determine who moves into an area, and people moving in will help shape the conditions in local areas (for example, through gentrification).

In this piece, we use open access area-level data on migration from the 2011 census (which is the most recent available data) for England and Wales to better understand mobility patterns and how they might contribute to geographical inequalities in health.

Data and approach

Net migration in England and Wales

One way of better understanding differences between people moving is to look at net migration in different groups, classifying people by characteristics such as health status, age or economic activity. A positive net migration means that more people moved into an area than out of it, and a negative net migration means that more people moved out of an area than into it.

Figure 1 shows the percentage of in-migrants, out-migrants and net migration in lower-tier local authorities. Oxford had one of the highest net migrations, having gained 15% of its population through in-migration in the last year, and lost 9% of its population through out-migration, meaning a net migration of 6%. At the other end of the spectrum, Knowsley had higher out-migration (4%) than in-migration (3%), thereby losing around 1% of its population through residential mobility. It is worth noting that even relatively small net migration levels can hide large movements of people in and out of a local authority, potentially contributing to a change in the population composition.

The average (median) net migration across all local authorities was 0.8% (this is higher than the change in population size because people who died or moved out of England and Wales are excluded from the data).

Figure 1

Levels of net migration ranged from -1% in Knowsley to 6% in Oxford
Percentage of in-migration, out-migration and net-migration in lower-tier local authorities in England and Wales, 2010–2011

In-migration   Net migration   Out-migration

Local authorities in England and Wales
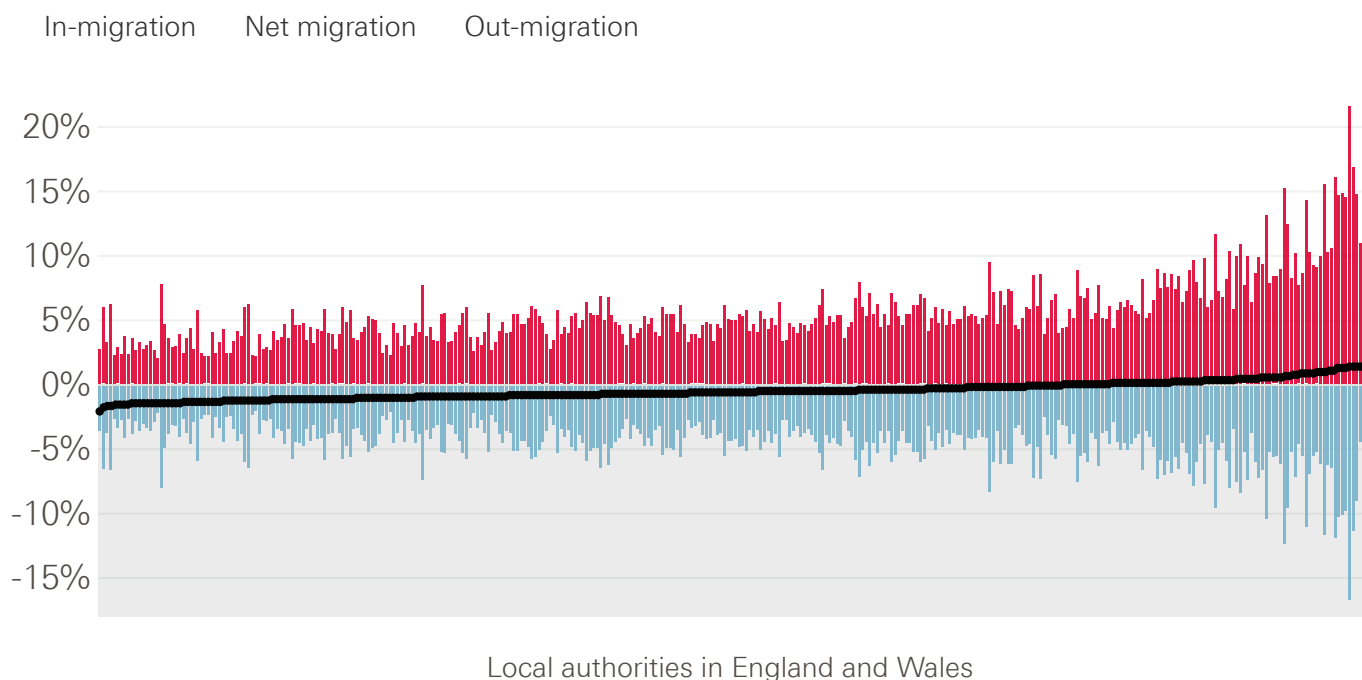
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Source: 2011 Census
We focus on lower-tier local authorities to show local area variations across England and Wales. Detailed migration data is also available at middle-layer super output area (MSOA) level, but results were less reliable due to small population size in some MSOAs.

[Download image]

Residential mobility and limiting long-term illness

Figure 2 shows net migration of people according to their long-term condition or disability status. People are grouped as being:

- in **poor health** (defined as those reporting to be 'limited a lot' in their daily activities due to a health condition or disability)
- in **intermediate health** ('limited a little' in daily activities)
- or in **good health** ('not limited' in daily activities).

The average net migration for people in good health was 0.8%; average net migration for people in poor health was 0.2%.

Figure 2

Areas in red tend to attract people of all health statuses, above the average net migration for all local authorities. These include Canterbury, with a net migration of 4.5% among people in good health and 0.5% among people in poor health.

Areas in blue, including Knowsley, have below average net migration for all health groups. This means that, regardless of whether they are affected by long-term health conditions or disabilities, people are less likely to move to or stay in these areas than other areas.

Areas in orange tend to attract people in good health more than average, but people in poor health less than average. Many urban (geographically smaller) local authorities, including Plymouth, Oxford and Newcastle, fall into this category.

Areas in yellow have above average net migration for people in poor health, and below average for people in good health. These are predominantly rural (geographically bigger areas) with a lower cost of living, including Wales, the Midlands and the East of England.

All four categories together show that the health of people moving into and out of lower-tier local authorities varies across England and Wales.

If the residential mobility patterns shown in Figure 2 were sustained over time, areas with higher net migration of people in good health (areas in orange) would see an improvement in rates of chronic conditions, while areas with higher net migration of people in poor health (areas in yellow) would likely become less healthy, compared to if there was no residential mobility.

Areas with above or below average net migration for all health groups may become more or less healthy through residential mobility, depending on relative levels of net migration among people in good or poor health. However, areas with high net migration in all categories tend to be economically buoyant, and are therefore likely to be healthier than areas with below average net migration for all categories.

Residential mobility and age

As Figure 3 shows, older people tend to have poorer health. As a result, some of the differences in migration by health status may mirror migration by age. Area-level data on migration are not available disaggregated by both health and age, but we can examine migration patterns by age.

Figure 3

The percentage of people whose daily activities are limited by a long-term health condition or disability increases with age

Percentage of people reporting they are limited a lot, limited a little, or not limited by a long-term health condition or disability, by age group – England and Wales, 2011

Limited a lot   Limited a little   Not limited

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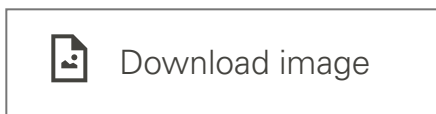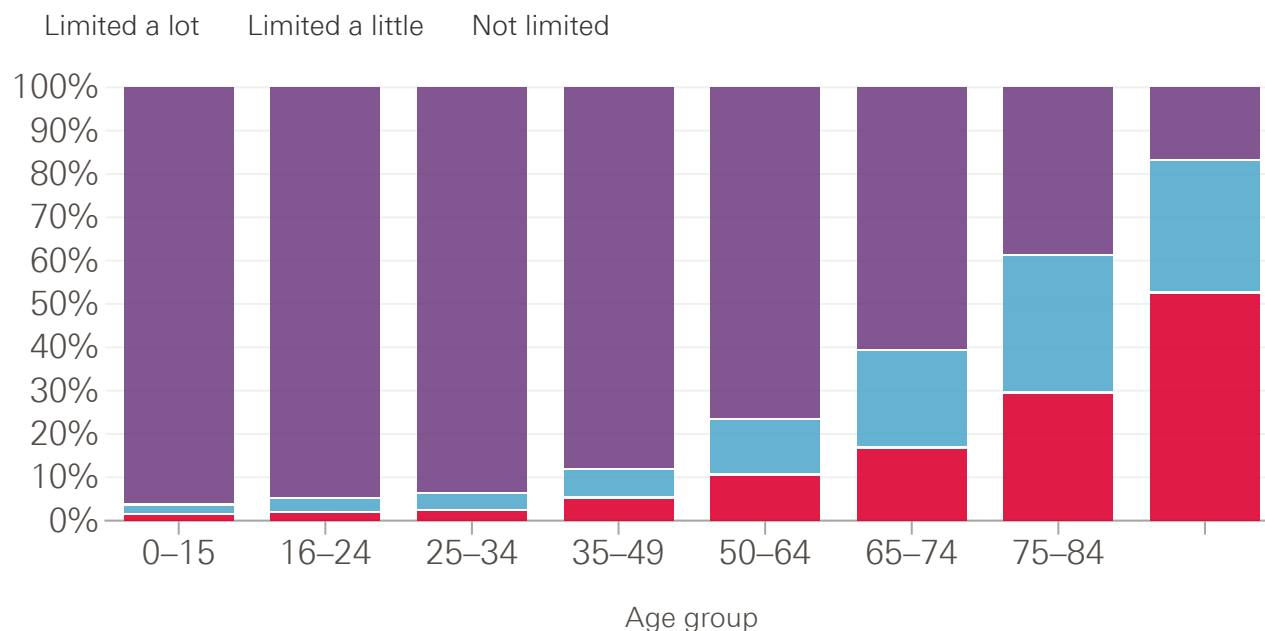© 2022

Source: 2011 Census

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Figure 4 shows that many rural and coastal areas disproportionately attract people aged 65 and older, while more urban local authorities – smaller areas on the map – attract more under 35s than the national average. Areas with sustained high net migration of young people would tend to become younger (and therefore healthier) over time, while areas with high net migration of older people would become less healthy over time, compared to if there were no residential mobility.

Figure 4

The age of people moving into and out of an area varies across the country

Net migration according to age group – local authorities in England and Wales, 2010–11

Below average net migration (all age groups)
Above average net migration (all age groups)
Above average net migration (0–34yo)
Above average net migration (35–64yo)
Above average net migration (65 and older)

🔍 Local authority
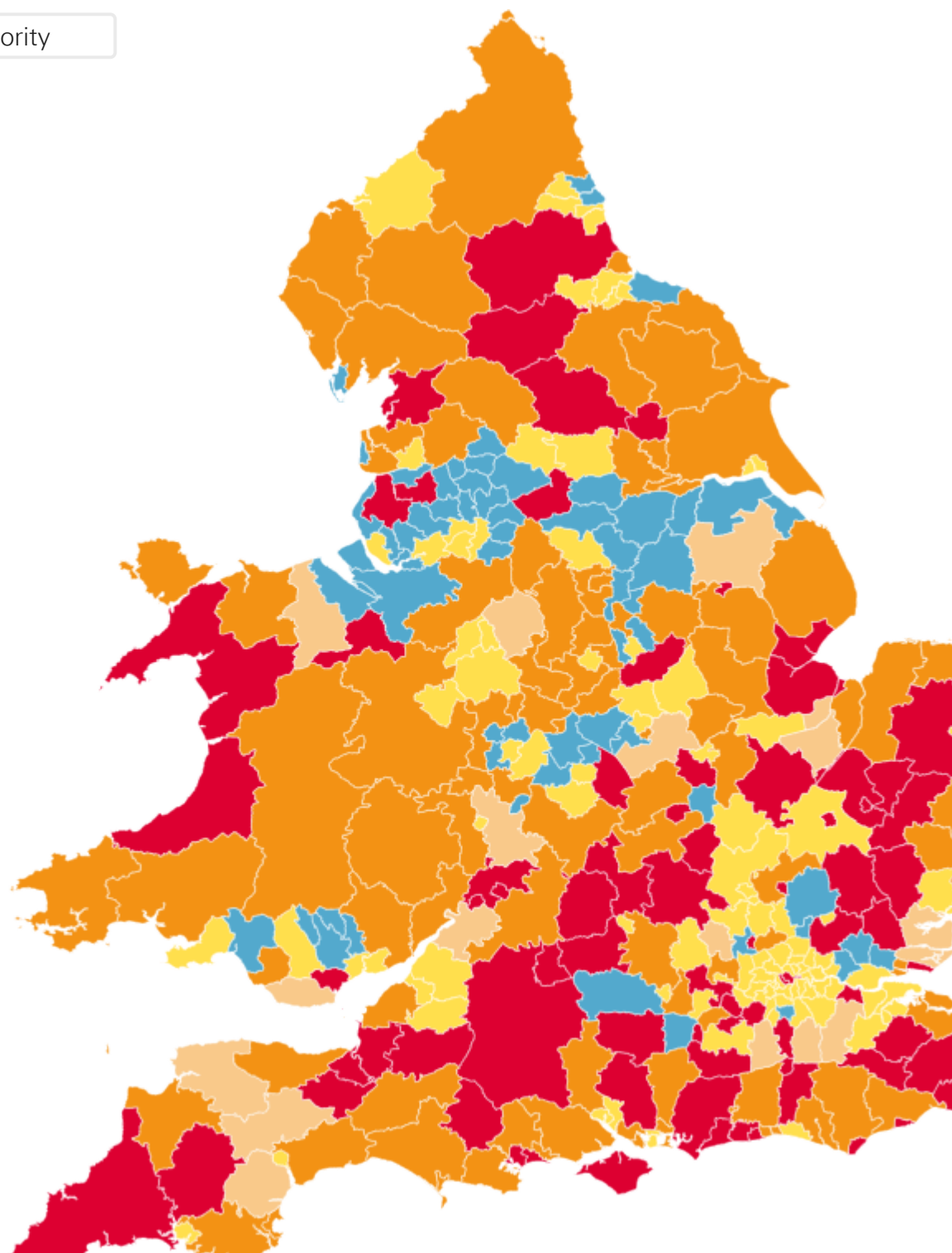
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Source: 2011 Census • Median net migration: <35 yo: 0.53% — 35-64 yo: 0.67% — 65+ yo: 0.20%

Residential mobility and economic activity

Looking at patterns in economic activity can also help understand geographical inequalities in health. In Figure 5, we analyse net migration in three groups:

- people who are **economically active** (non-students either employed or searching for work)
- people who are **economically inactive** (non-students unable to work or not looking for work)
- **students** (including economically active and inactive).

Students have strikingly different mobility patterns compared with non-students. Younger and healthier students help improve the health profile of cities to which they move. Their migration also shapes the health of areas they leave, since they tend to be young and of higher socioeconomic status than their peers who do not leave for education or employment, thereby contributing to higher rates of chronic conditions in those areas.

Figure 5

Residential mobility types

It is likely that similar forces – including employment opportunities, cost of housing, access to amenities – drive residential mobility by limiting long-term illness, age and economic activity, since these characteristics are closely interrelated. Local areas with high net migration of young people also had higher net migration of healthy people; areas with high net migration of people in poor health tended to have high net migration of people of retirement age. This is because changes in economic activity and health, which are patterned by age, can prompt decisions to move, and there is therefore considerable overlap in trends in different groups.

We wanted to combine the health, age and economic activity classifications to group together local areas with similar residential mobility characteristics. Using cluster analysis comparing net migration in all health, age and economic activity groups, we categorised local authorities into three main residential mobility types (shown in Figure 6):

- low net migration across groups
- high net migration for students and young people
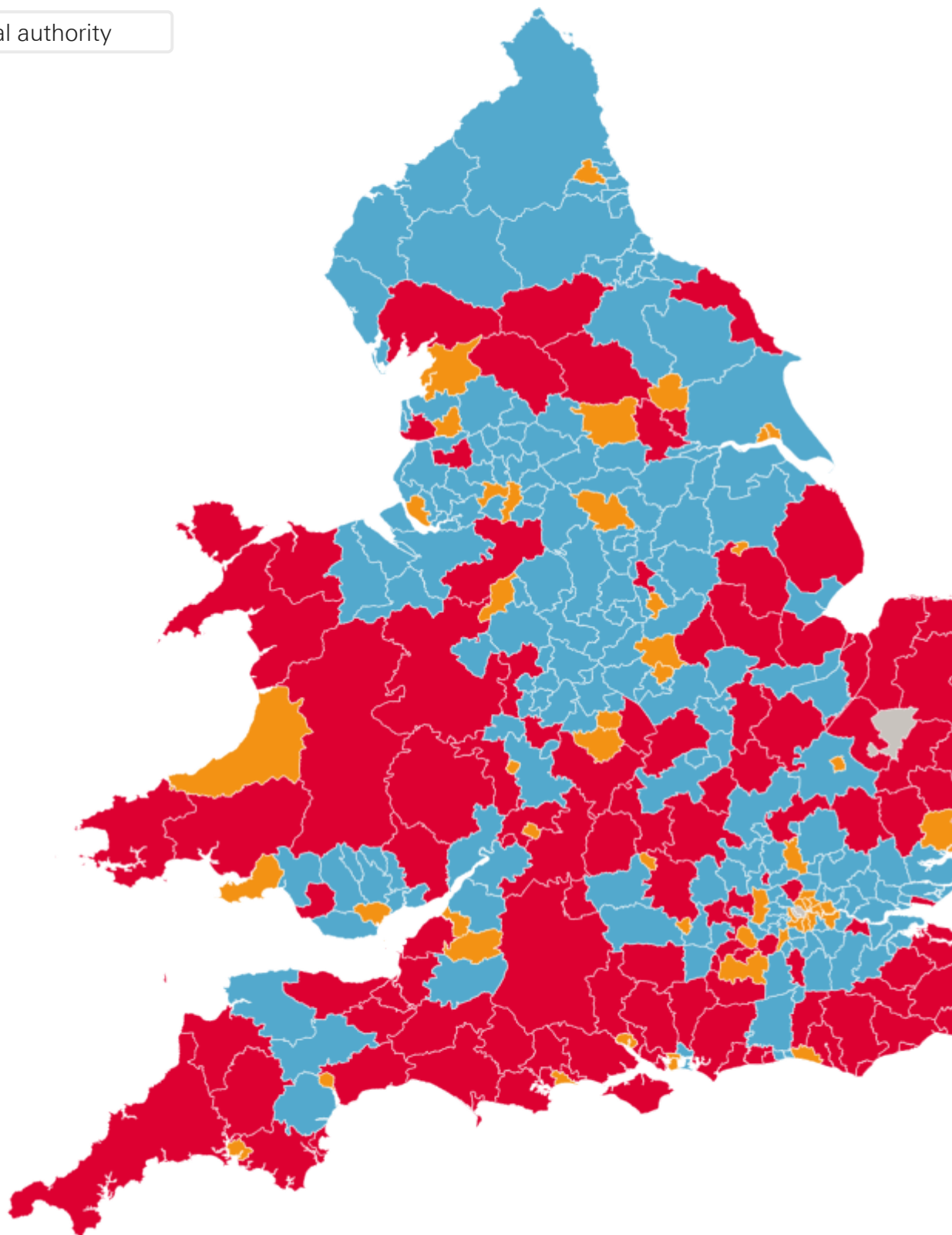- high net migration across groups
- outliers.

Figure 6

Local authorities can be grouped into three main categories of residential mobility

Residential mobility categories, based on long-term health condition, age and economic activity – local authorities in England and Wales, 2010—11

Low net migration across groups   High net migration for students and young people
High net migration across groups   Outliers

🔍 Local authority

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Source: [2011 Census](#)

The first category is areas with **low net migration across groups**. Knowsley is one extreme example, with net out-migration in all health, age and economic activity groups (Figure 7).
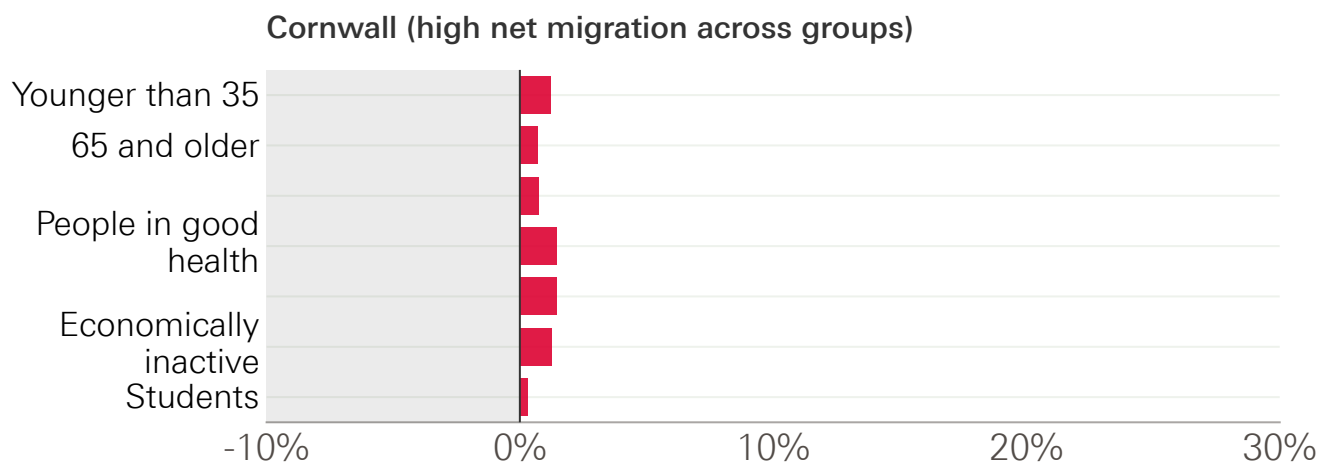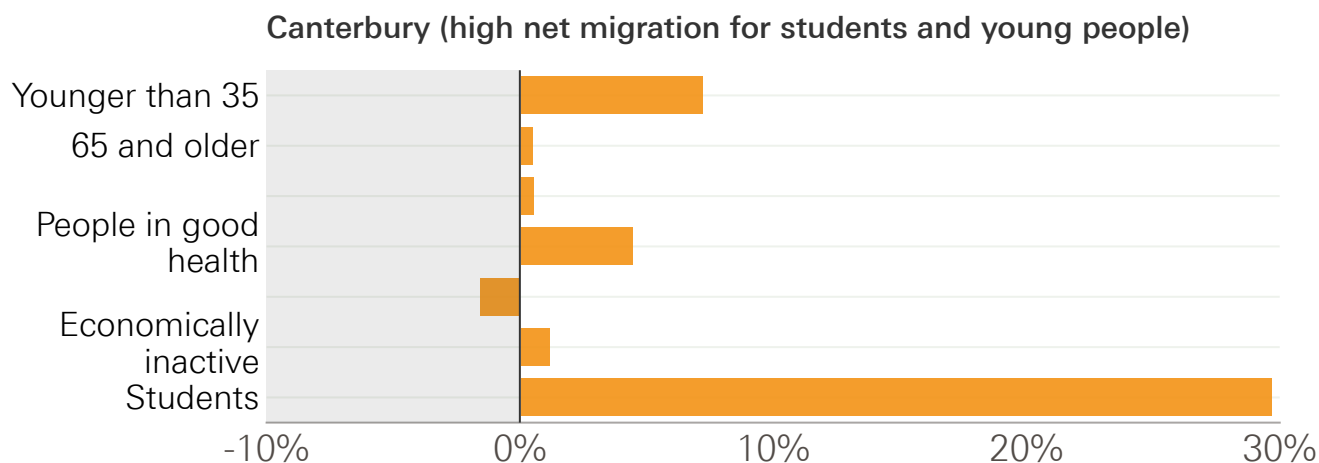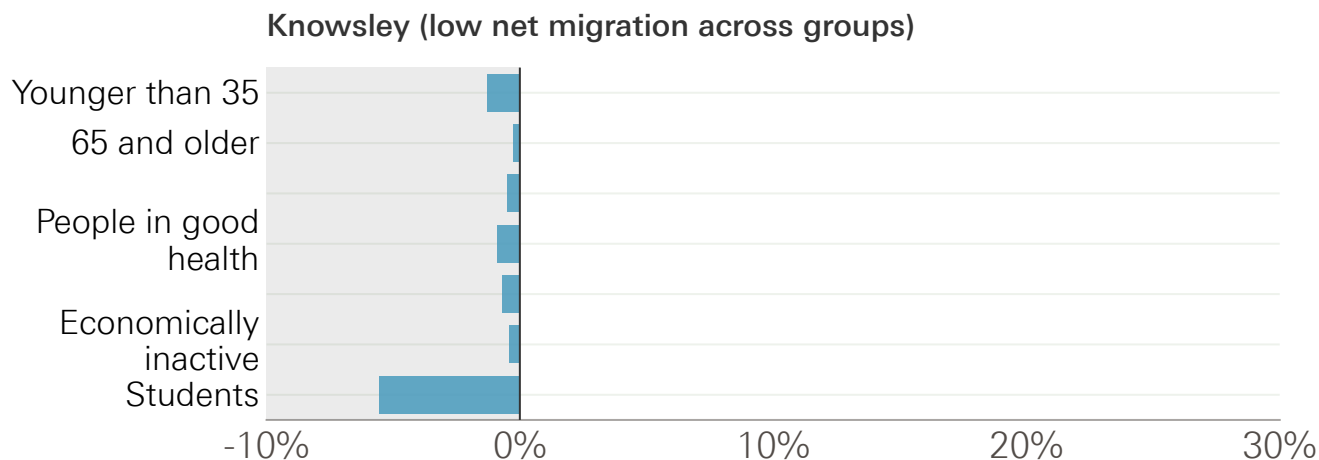
The second category of local authorities has **high net migration for students and young people** (aged 0–34). For example in Canterbury, net migration was 7% among people aged 0–34 and almost 30% among students.

The third category is local authorities with relatively **high net migration across groups** (other than students): for example, Cornwall has above average net migration among all health, age and economic activity groups. This third category is the most diverse, with varying levels of net migration for economically active and inactive people, and in different age groups; many local authorities in this group are characterised by high out-migration of students, usually because they do not include a university.

Figure 7

Patterns of net migration in groups differ across the three residential mobility groups
Net migration in different groups in three example local authorities

Knowsley (low net migration across groups)

Canterbury (high net migration for students and young people)

Cornwall (high net migration across groups)

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Source: 2011 Census

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We included limiting long-term illness in the residential mobility groups we derived, but other health domains also vary across groups (Figure 8). In 2015, adults were more likely to be overweight/obese in local authorities with general low net migration (average of 63.3% across local authorities), compared with general high net migration (average 60.6%) and high net migration among young people and students (average 59.9%).

Different associations were found for mental health: the prevalence of common mental health disorders in 2017 was lowest in local authorities with general high net migration (average 14.2%), and higher in areas with general low net migration (average: 16.5%). It was highest in local authorities with high net migration of students and young people (average: 18.7%). This is consistent with previous research showing high levels of mental health conditions among young people. Residential mobility patterns may affect the prevalence of these outcomes by changing the composition of the local population, although our analysis did not enable us to determine whether these links are causal, nor whether high levels of residential mobility have an effect on health outcomes independently of compositional changes (for example, by weakening social capital).

Figure 8

Download image

How can a better understanding of residential mobility improve our understanding of geographical health inequalities?

People changing where they live ('residential mobility') within England and Wales is not random – for example, young people tend to move to larger cities – and these trends in residential mobility can reinforce existing geographical inequalities in health by concentrating similar people in a given area.

Young people – who are less likely to have physical health conditions but more likely to have mental health conditions – contribute to lower rates of chronic conditions and higher rates of mental ill health in their areas. In contrast, older people tend to move to areas with more older people, adding to the local prevalence of physical health conditions.

The recent Deaton review highlighted that the demand for high-skilled workers is increasingly concentrated in a few areas (primarily London), leading to self-reinforcing patterns whereby young people with high educational attainment and earning potential congregate in areas with better labour market prospects.

Previous studies have highlighted the contribution of residential mobility to health inequalities. A study by Norman and colleagues found that migration accounted for most of the widening inequalities in health between the least and most deprived areas in England and Wales between 1971 and 1991. Another study showed that 30% of rural-urban inequality in mortality in England was due to residential mobility.

Understanding residential mobility is therefore key to understanding the drivers of geographical inequalities in health. Our analyses, which could be repeated using the 2021 census data when they are released, show differences in scale and patterns of residential mobility between different areas over the short term. Further research is needed into the relationship between places, population movement, and the health of populations in a place over time.

At the national level, the missions set out in the government's levelling up white paper aim to reduce various inequalities (health, economic, wellbeing) throughout the UK, in part by reducing residential mobility flows to London and the South East. Monitoring of detailed migration data broken down by health, economic and social outcomes could help improve understanding of how inequalities shift. Among other things, such data could show how much of the changing health of an area, and the inequalities between areas, are the result of residential mobility, rather than changes in the existing resident population's risk factors (eg through ageing or historical lifelong exposures) or access to healthy living conditions.

At the local level, a better understanding of residential mobility patterns could help commissioners, ICSs and public health teams with planning and delivery of health and broader public services locally. For example, information on diagnosed long-term conditions among people moving into an area would help with the planning of services to meet local needs, including new patient consultations, signposting and referrals. It could also help inform decisions about the nature of housing stock required in local areas. Joint Strategic Needs

Assessments in some local authorities (eg Somerset) consider residential mobility flows of people moving into and out of the area. However, this information is not usually useful for local public health teams because of insufficient detail on health. More up-to-date estimates of local population needs and size can help to support a better allocation of funding to local areas.

Residential mobility may also limit the impact of place-based public health interventions. People who have experienced a certain intervention may leave the area, taking any health benefits with them, while other people – who haven't participated in the programme – move in, thereby diluting its local (perceived) impact. For example, an early years dental intervention in Manchester did not achieve its expected impact because only 43% of eligible children were still living in Manchester at age 3–5. This may be particularly true for healthy life expectancy, the target health outcome for the government's levelling up programme, which is less easily amenable to short-term change. High levels of net migration may therefore lead to underestimating the effect of place-based health interventions or policies, including levelling up funds. Evaluations of place-based interventions should consider residential mobility in sample size calculations and estimations of effect (as the evaluation of the New Deal for Communities did).

Conclusion

Understanding what drives health inequalities between different areas is key to designing the action required to tackle them. Better understanding of the composition and timing of residential mobility can better inform longer term public service planning and ensure interventions can be effectively designed to support the needs of people living in and moving between areas.

Who moves, and where they move to, plays an important role in shaping public health in an area, but this has often been overlooked in research and policy discussions. Provision of better data on the characteristics of people moving between areas is key to improving understanding. A first step is to scrutinise the detailed migration data derived from the 2021 census (expected in 2023). This will help provide more recent residential mobility estimates, which in turn will help inform decision making to reduce inequalities and improve public health.

Supporting content

Table 1: Classification used for residential mobility by limiting long-term illness or disability

	People not limited in daily activities ('in good health')	People limited a little in daily activities	People limited a lot in daily activities ('in poor health')
Above average net migration (all health groups)	Above average ↑	Above average ↑	Above average ↑
Above average net migration (people in good health)	Above average ↑	Below or above average ↑↓	Below average ↓
Above average net migration (people in poor health)	Below average ↓	Below or above average ↑↓	Above average ↑
Below average net migration (all health groups)	Below average ↓	Below average ↓	Below average ↓

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Table 2: Classification used for residential mobility by age

	0–34 years old	35–64 years old	65 years old and older
Above average net migration (all age groups)	Above average ↑	Above average ↑	Above average ↑
Above average net migration (0–34 years old)	Above average ↑	Below or above average ↑↓	Below average ↓
Above average net migration (35–64 years old)	Below average ↓	Above average ↑	Below average ↓
Above average net migration (65 years old and older)	Below average ↓	Below or above average ↑↓	Above average ↑
Below average net migration (all ages groups)	Below average ↓	Below average ↓	Below average ↓

Table 3: Classification used for residential mobility by economic activity

|	Economically active non-students	Economically inactive non-students	Students
Above average net migration (all groups)	Above average ↑	Above average ↑	Above average ↑
Above average net migration (economically active)	Above average ↑	Below average ↓	Below average ↓
Above average net migration (students)	Below average ↓	Below or above average ↑↓	Above average ↑
Below average net migration (economically active)	Below average ↓	Below average ↓	Above average ↑
Below average net migration (economically inactive)	Below average ↓	Above average ↑	Above average ↑
Below average net migration (students)	Above average ↑	Above average ↑	Below average ↓
Below average net migration (all groups)	Below average ↓	Below average ↓	Below average ↓

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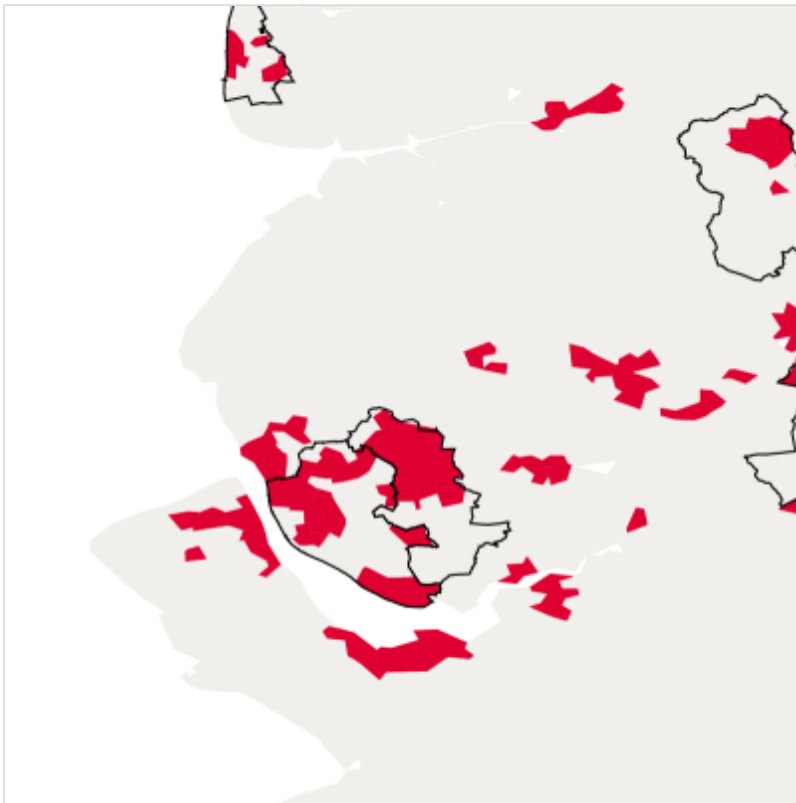
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