

DEMOGRAPHIC AND DEPRIVATION CHANGE IN THE UK, 1991-2001

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Changes in an area's population size and composition occur through ageing and through births and deaths. Population change also occurs through migration between areas, with different migration patterns for people of different ages. Since international and subnational migrants may differ in their socio-demographic characteristics from the populations they leave and join, the composition of communities can change since different types of people may be attracted to different types of areas.

The UK has strong traditions in the analysis of subnational population change over time; information which informs on the demand for housing, schooling, employment, services and pensions. National coverage analyses have tended to be for rather coarse geographies largely because small area boundary systems are liable to change (Norman, 2006). There is a need to understand population change at more local level.

Alongside research on population change, to identify relatively deprived areas in the UK, various indexes have been devised (Senior, 2002) such as the Townsend and Carstairs indexes and the Index of Multiple Deprivation (IMD), though the latter is calculated differently in each UK country. These deprivation measures influence the allocation of resources and are used in models of health outcomes. Deprivation scores tend to be time-point specific but we might want to identify whether areas have changed their characteristics over time to monitor the success of regeneration initiatives or to determine whether a change in deprivation is associated with a change in health.

Key findings of the study are as follows:

- In the UK, between 1991-2001, populations in the most urban and more deprived areas were maintained because of gains through natural change.
- A large number of people migrated away from the more urban and more deprived areas to less deprived, accessible-semi-rural locations.
- The more urban and deprived areas retain younger age populations than less urban and non-deprived areas. Relative to other areas, the less deprived and more rural areas have been ageing most.
- Area level deprivation eased during the 1990s, largely because unemployment rates fell. Fewer people rent their homes, live in overcrowded conditions and have no access to a car in 2001 compared with 1991.
- The least deprived areas tend to be located within the Coastal & Countryside and Prospering UK area supergroups, but even these areas include deprived locations.

Population change in the UK's small areas

Between 1991 and 2001, the UK's national population grew by around 1.6 million persons from 57.4 million to just over 69.1 million. This change was accounted for by a natural change gain of over 1.5 (since there was an excess of births over deaths). The rest of the population change was a net migration gain of over 115,000 persons. At national level, this net migration was the balance of people entering and leaving the UK but we do not have direct evidence on the size of the gross flows in and out of the country. In terms of national age structure, the dependency ratio for young persons reduced from 45.8 to 44.1%. Although the number of elderly rose by nearly 290,000, their dependency ratio fell slightly from 32.8 to 32.4% since the working age population grew.

For small areas within the UK (census wards and equivalents in Scotland here) we want to know the size of the population change and whether change is accounted for by natural change and/or by migration. It is not possible to derive gross migration flows so the net migration reported here is the residual of total population change less the natural change gain (loss). Between 1991 and 2001, the population growth areas were in suburban and in semi-rural locations. The far rural areas



tend towards either little change or population loss. Former mining areas in south Wales and the North East were losing population. Locations of natural change gain were predominately urban and include the traditional industrial areas. Far rural and coastal areas have experienced natural change loss with an excess of deaths over births. Locations experiencing net migration gain were mainly semi-rural areas surrounding the urban centres whereas the more urban areas had net migration loss with more people moving away than moving in.

There is a weak relationship between natural change and population change (correlation 0.18) but a strong relationship between net migration and population change (correlation 0.83). Of the UK's 10,431 wards, 62% grew in population during the 1990s. Slightly more wards experienced natural change gain (64%) than net migration gain (55%) with 50% of wards having both positive natural change and net migration gain. Net migration is more telling though because the size of this effect is larger.

Patterns across different types of areas can be revealed by looking at change across differently deprived areas (categorised into quintiles) and whether these changes were consistent across larger area types, so called local authority (LA) supergroups (Vickers and Rees, 2006). The more deprived areas marginally reduced in population size during the 1990s. There was progressively larger population growth through quintiles 3 up to the least deprived wards in quintile 1.

Disaggregating these population changes into the demographic components, quintiles 3, 4 and 5 experienced natural change gain but this was offset to differing degrees by net migration loss. Births exceeded deaths, but people were moving away from these locations. Less deprived wards also experienced natural change gain but these areas were in net receipt of migrants. Overall, there was a net movement of migrants from more to less deprived areas.

There are clear gradients of dependency ratios across the deprivation quintiles. In both 1991 and 2001, the young dependency ratio increases with the level of deprivation but the elderly ratio decreases. Over the decade the young ratio reduced by a similar amount in every quintile. The elderly dependency ratio increased in the least deprived wards, stayed the same in quintile 2 but decreased with increasing deprivation during the decade.

Figure 1 shows the population change during the 1990s by the deprivation quintiles of the wards within each supergroup. Within Cities & Services, Coastal & Countryside, Mining & Manufacturing and Prospering UK, population increased more with decreasing deprivation. In the more deprived wards within these supergroups, population showed either no change or reduced. In London, the opposite occurred with the population level almost unchanged in the least deprived wards but increasing with each successive deprivation quintile.

There are strong similarities in the components of change between Cities & Services and Mining & Manufacturing areas with the more deprived wards experiencing natural

change gain whilst net migration loss occurred; the result being little change in overall population size. The less deprived wards in these LA types increased population through both natural change and net migration gain. In LAs classified as Countryside and Coastal, the more deprived wards also have natural change gain and net migration loss which effectively balance each other. The less deprived wards show substantial net migration gain but this is offset slightly by natural change loss.

The national picture is dominated by the large population increase in the least deprived wards in Prospering UK which comprises both natural change and net migration gains. The more deprived wards, as in other supergroups, show natural change gain but net migration loss. London shows a very different pattern. During the 1990s, London's population grew due to natural change gain and this growth was mainly in relatively deprived wards. Overall there was a net migration loss, effectively all from quintile 5.

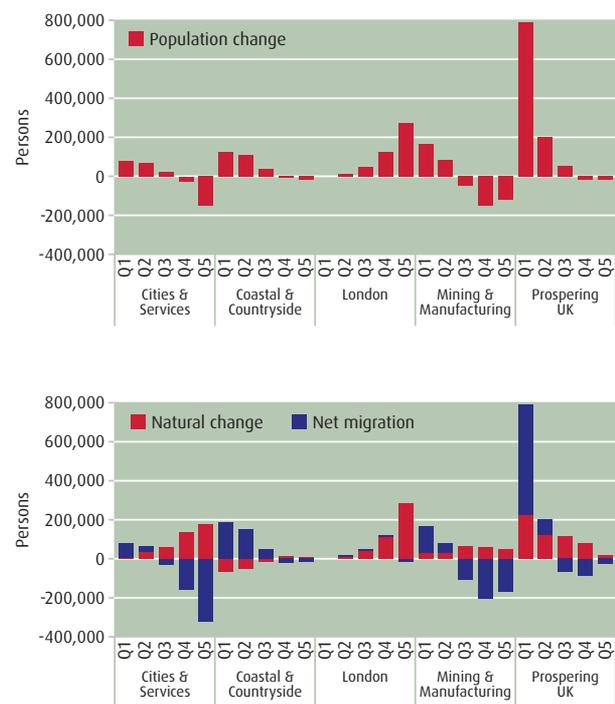


FIGURE 1. UK POPULATION CHANGE, 1991-2001, BY DEPRIVATION QUINTILE WITH EACH SUPERGROUP

Apart from less deprived wards in Cities & Services, in both 1991 and 2001, the young dependency ratios increased with deprivation in all supergroups except London, with the proportion of persons aged 0-19 reducing over the decade (Figure 2). In London, the young dependency ratio falls with increasing ward deprivation but reduces in each quintile during the 1990s as in other areas. The elderly dependency ratios reduce with increasing ward deprivation in all supergroups except Mining & Manufacturing where the relationship is flat. Generally, in the less deprived wards the elderly dependency increased between 1991 and 2001 but decreased in more deprived quintiles.



Deprivation change in the UK's small areas

We might want to identify whether areas changed their level of deprivation over time. Here, Townsend scores (Townsend, 1987) have been calculated for all wards across the UK in 1991 and 2001. For each ward in both years the level of an input variable is expressed relative to the 1991-2001 national average. Higher positive Townsend scores indicate greater levels of deprivation, more negative scores indicate less deprived areas. A change in a ward's score indicates whether that location became more or less deprived over time.

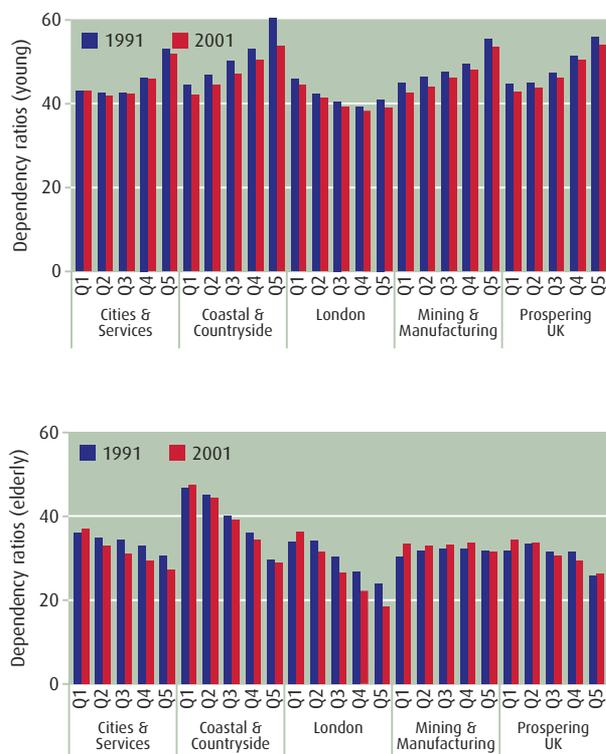


FIGURE 2. DEPENDENCY RATIOS, 1991-2001, BY DEPRIVATION QUINTILE WITH EACH SUPERGROUP

In 1991, the average across wards in the UK was 0.36. In 2001, the average was -1.87 indicating that deprivation eased overall. Table 1 shows the national rates of each input variable in both years and the average with which ward levels have been compared. The percentage of each variable reduced between 1991 and 2001. Unemployment was relatively high in 1991 but was low in 2001. Trends towards smaller households means that household overcrowding fell. Levels of car ownership have risen over time so that fewer households did not have access to a car in 2001 than in 1991. Similarly, there are trends towards home ownership so levels of people renting their home have fallen. Deprivation reduced between 1991 and 2001 by an average of 2.23 Townsend scores.

Figure 3 illustrates average Townsend scores for wards within each deprivation quintile in 1991 and 2001. Whilst there is little difference in the levels of deprivation in

quintiles 2-4, compared with 1991, in both quintiles 1 and 5 the levels of deprivation improved. Across each supergroup area, wards improved their level of deprivation.

Year	Unemployment %	Household overcrowding %	No access to car %	Non-home ownership %
1991	8.73	2.04	28.41	31.25
2001	3.13	1.53	22.97	28.90
Average	5.93	1.78	25.69	30.08

TABLE 1. NATIONAL LEVELS OF TOWNSEND SCORE INPUT VARIABLES, 1991-2001



FIGURE 3. AVERAGE TOWNSEND SCORES, 1991-2001, BY DEPRIVATION QUINTILE Error bars are standard deviations

Table 2 shows the largest improvement was for wards in Mining & Manufacturing areas which improved on average by 2.66 Townsend scores. London experienced the lowest level of improvement, 1.41 scores. On average, wards in Prospering UK areas are the least deprived.

Supergroup	1991	2001	Change
Cities & Services	2.59	0.22	-2.37
Coastal & Countryside	0.32	-2.10	-2.42
London	4.45	3.04	-1.41
Mining & Manufacturing	1.76	-0.90	-2.66
Prospering UK	-1.37	-3.37	-2.00

TABLE 2. AVERAGE TOWNSEND SCORES FOR WARDS WITHIN SUPERGROUP AREA TYPES, 1991-2001

Conclusions

In the UK, for population change between 1991-2001 at small area level, the major demographic changes identified were that populations in the most urban and more deprived areas were maintained because of natural change gain. Consistent with previous research showing counterurbanisation effects (Champion, 1989), a large number of people migrated away from these more urban and more deprived areas to less deprived locations. Thus, the more urban and deprived areas retain younger age populations than less urban and non-deprived areas. As a result, relative to other areas, the less deprived and more rural areas have been ageing most. Further investigations of population change during the 1990s would extend this work to express the impact as percentages of ward populations and to add in age dimensions to the net migration estimates to determine the impact between different area types and levels of deprivation.

Using the Townsend index to measure ward level deprivation in a comparable way in both 1991 and 2001 shows that deprivation eased during the 1990s. In general, this was largely because unemployment was substantially lower in 2001 than in 1991, but also because levels of household overcrowding, no access to a car and non-home ownership all reduced. The least deprived areas tend to be located within the supergroups Coastal & Countryside and Prospering UK, but even these areas include deprived locations.

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