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Internal migration in the United Kingdom: Analysis of an estimated inter-district time series, 2001-2011

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Abstract This paper examines how internal migration between local authority districts within the United Kingdom has evolved during the first decade of the twenty-first century. Based on estimates derived from data assembled from a range of sources, the paper demonstrates the extent of decline in the longstanding pattern of net migration from urban to rural regions, driven to a large extent by the fall in the intensity of migration from urban to rural areas, and the reversal of the south to north net migration pattern due to the increase in moves from urban north to urban south.

Keywords: Internal migration; districts; United Kingdom; net migration; urban-rural; north-south

Introduction

Internal population migration in the United Kingdom (UK) has long been the focus of attention by researchers with more recent studies including those, for example, by T Champion (2005) Dennett and Stillwell (2010) and Fielding (2012). During the 2000s, attention has focused on international migration, primarily because of the social and economic impacts of large flows of immigrants from various overseas origins. Also, there has been much discussion around shortcomings of official migration statistics and the need to improve the processes of data collection and mid-year population estimation (National Statistics 2006). This discussion has centred on the international rather than the internal dimension of migration. Whilst this focus is understandable, we must remember that internal migration involves substantially more people at the local authority level in the UK than does international migration and has a profound effect on the population structure of local areas across the country over time.

In this paper, we seek to establish how internal migration in the UK has evolved between the 2001 and 2011 Censuses. This will provide a useful context for the analysis of 2011 migration statistics when they are published by the Office for National Statistics (ONS) and will enable us to understand migration dynamics in the preceding decade. In this instance, whilst the availability of data restricts our analysis to the local authority district level rather

than a more refined spatial scale, migration patterns and trends are presented for the whole of the UK and therefore capture cross-border flows between districts that have previously not been estimated or analysed for the UK as a whole.

The paper begins with a short discussion of how the estimates of inter-district migration for the UK have been generated from datasets provided by the UK's national statistical agencies. There are then three sections in which we present substantive results. Rather than have an initial review of the literature, we have included paragraphs in each section that provide some context for the results presented. The first results section uses a set of migration indices across the full ten-year time series to establish trends that have taken place for the UK as a whole. The indices vary from those that measure migration intensities and migration distance to those that indicate spatial connectivity and flow inequality on the one hand and migration impact including the aggregate net migration rate and migration effectiveness on the other. The second results section examines the spatial patterns of net migration at the district scale but separates migration into migrations within national boundaries in the UK and migrations across borders, and uses data for three 12 month periods selected from the full time series. In the third results section, the aim is to summarise the spatial patterns by splitting districts using an urban-rural classification and geographically between the north and south so that the predominant streams of aggregate migration and the key changes over the decade can be identified. Following these analyses, the paper finishes with some conclusions and a discussion of policy implications.

The estimated time series of inter-district migration

In 2001, independent censuses carried out by the three national statistical agencies (NSAs) – the ONS, the National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA) – asked the same question about where each usual resident was living 12 months previously. The results were collated by ONS into a set of UK origin-destination flow statistics published as the Special Migration Statistics (SMS) at output area, ward and district scales. It is likely that the same process will be repeated for 2011. Statistics on annual sub-national migration in the UK between censuses are compiled separately by the NSAs and fed through to ONS who assemble an aggregate mid-year population estimate (MYE) of the population of each local authority district in the UK together with estimates of the components of change using a common methodological approach (ONS 2011). Each of the NSAs is responsible for producing more detailed MYEs for the local authority districts

within its borders and each NSA makes use of administrative and survey datasets in so doing. There are, however, a number of data availability and consistency problems associated with the internal migration data used in the population estimation process. These problems are discussed by [the author's paper] whose work involved the construction of complete matrices of sub-national migration statistics on an annual basis which can then be used to monitor migration trends throughout the UK in a comprehensive manner. The methodology used in creating the estimated time series of flows is spelt out in detail in [the author's paper] and will not be repeated here since the aim of this paper is the identification of the trends and patterns revealed by the estimates.

The time series data covers ten years, beginning in 2001/02 and ending in 2010/11, and involves estimates of the mid-year to mid-year migration flows between a set of areas based on local government districts adopted from 1 April 2009 and used by the NSAs for producing their MYEs. The boundaries of the 406 spatial units – referred to throughout the paper as 'districts' – are shown in Figure 1 which consist of 326 local government areas in England including the City of London, 32 London Boroughs, 36 Metropolitan Districts, 56 Unitary Authorities (UAs) and 201 Non-Metropolitan Districts (which may variously be referred to as Shire Districts, Borough Councils or District Councils). Wales is comprised of 22 UAs whilst Scotland contains 32 Council Areas and Northern Ireland is made up of 26 Local Government Districts.

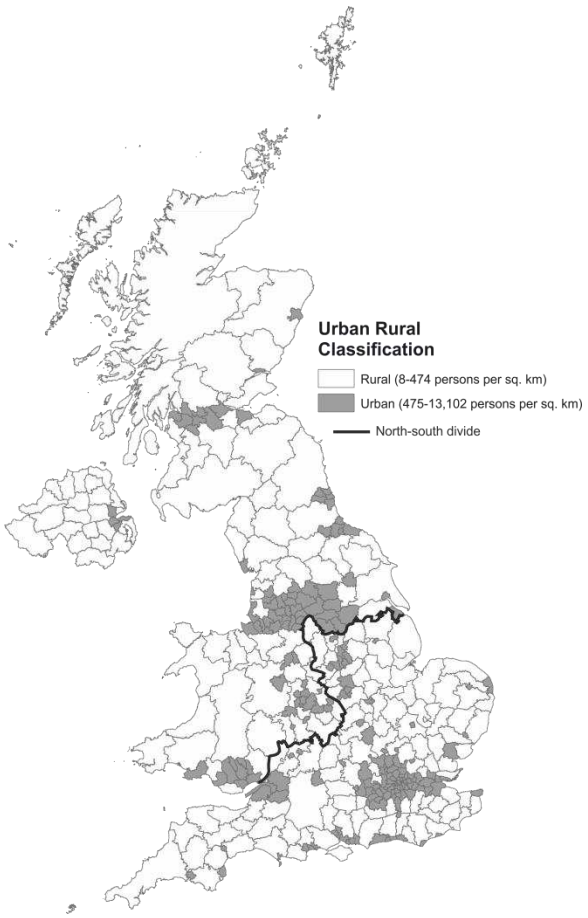


Fig. 1 Districts of the UK and the classifications used

One important output of the work is that it provides estimates of flows between districts that cross the boundaries of the four nations as well as flows that take place between districts within each country. The former, that we refer to as cross-border flows, have not been estimated in a comprehensive or consistent way before and we use the distinction between cross-border and intra-national flows to examine the spatial patterns of net migration later in the paper. We also use two district classifications in the paper as summary frameworks with which to identify the macro trends taking place between districts categorised as urban or rural and as belonging to either the north or the south. Various area classification systems have been created to measure rurality and each of the NSAs has its own urban and rural classification, but the problem is that a consistent definition across the whole of the UK is not available. In order to provide a classification that is both consistent across the UK and transparent in its methodology, a simple measure of population density has been derived from the 2001 Census to create rural and urban categories, which can be seen in Figure 1. The 'rural' areas (unshaded) have a population density of between 8 and 474 people per square

kilometre whereas the 'urban' areas (shaded) are those with a population density of between 475 and 13,102 people per square kilometre. Each category contains half (203) of the districts in the UK. Rural areas comprise 38% of the UK population in each year, and urban areas comprise 62%. Population density is used widely as a proxy for the urban-rural dimension (see Stillwell *et al.* 1992, Rees and Kupiszewski 1999) and is an unambiguous and transparent measure which can be applied to any spatial system.

The second district classification shown in Figure 1 is that between the north and the south and follows the former Government Office Region boundaries, where London, the South East, South West, East Midlands and East of England constitute the south, whilst the West Midlands, North East, North West, Yorkshire and the Humber, Wales, Scotland and Northern Ireland are classed as the north. When the two classifications are combined, districts above the north-south line are defined as either urban-north or rural-north, whilst those below are defined as urban-south or rural-south. In the north reside 49% of the UK population in each year of the time-series and 51% are in the south.

Trends in aggregate migration indicators

The 2001 Census informs us that around 6.2 million people moved usual residence during the preceding year, of which 2.7 million or approximately 40% moved between local authority districts. The overall level of migration between the districts over the 10 year study period fluctuates between 2.7 and 3 million, with 2006/07 being the year with the largest number of migrations across the time series. By the end of the period, 2010/11, the number of migrations between districts in the UK has fallen back to around 2.8 million.

Crude migration intensity (*CMI*) is one of a series of aggregate measures of migration proposed by Bell et al. (2002) for cross-national comparison and is defined as:

$$CMI = (M/P)100 \quad (1)$$

where M in our context is the total number of internal migrations between districts in a given mid-year to mid-year period and P is the population at risk of migrating in the corresponding year. This population is reported by each of the NSAs as part of the MYEs, and the end of period figure is used in these calculations. For example, the 2001/02 estimate uses the 2002 MYE (it makes no difference to our results if the first year MYE or average of two years is used). The intensity calculation returns the ratio of the number of migrations to the population at risk, expressed as a percentage, which can be indexed to the first year of the

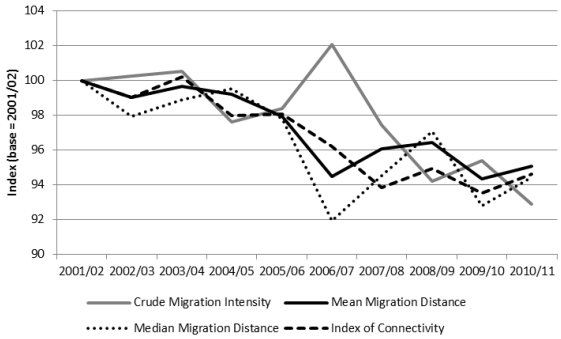
time series to enable consistent comparison over the decade. The CMI values vary around 4.5% and 4.9% of total population during the period. Figure 2a illustrates a decline in the indexed CMI, which falls from 100 in 2001/02 to 93 in 2010/11. This, however, conceals the year on year fluctuation and, in particular the rise in CMI between 2004/05 and 2006/07, when it peaked at 2% above the base value, before reaching a decade low by the end of the time series. The indexed CMI has been plotted alongside two summary measures of the distance moved by migrants in the system which give an indication of changes in the spatial dimension of internal migration. Both the mean and the median migration distance get shorter during the time series. We use the median migration distance because Bell et al. (2002, p. 449) suggest that *"the median is clearly preferable to mean as the distribution of distances is negatively* [right] *skewed, reflecting the strong distance decay effect which consistently occurs"*. The median value of 50km in 2001/02 is around half the mean distance of 107km and it declines to 47kms by 2010/11 or by nearly 6% of its initial value. The migration distance indicators are measured from inter-district migrations (and so intra-district migration distances are not counted).

The sharp peak in CMI seen in Figure 2a corresponds with a fall in migration distance in 2006/07. The year 2006/07 saw the frenzied peak of risky mortgage lending with virtually no deposit required. The additional mortgages led to an increase in the number of residence related migrations which were predominantly short distance.

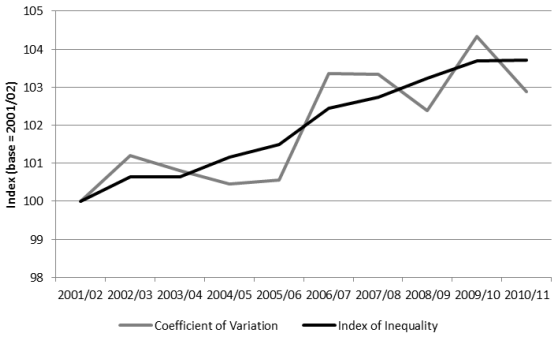
The fourth measure shown in Figure 2a is an index of connectivity, the time series of which measures changes in the linkages between districts in terms of migration. The index of connectivity (I_C) is a simple measure of spatial connectivity since it involves a count of the number of non-zero flows between each origin area and all destination areas. Stillwell and Hussain (2010) use the index in the context of measuring ethnic migration in the 2001 Census, finding that 65% of local authority districts were connected by migration moves to one another, with the large metropolitan areas predominant in the most linked districts. In our analysis, a link of 10 migrants or more has been used to provide the connectivity score to allow for rounding and adjustment (and that the flows are estimates) throughout the data time series. The index of the extent to which districts are connected to each other by 10 or more migrants is therefore defined as:

$$I_C = 100\ \frac{Number\ of\ flows\ with > 10\ migrantions\ between\ districts}{Total\ number\ of\ pairs\ of\ districts} \qquad (2)$$

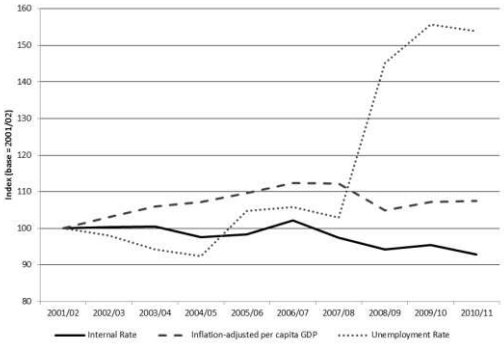
As a system-wide measure for all UK districts, the level of connectivity falls between 2001/02 and 2010/11, from over 31.5% of districts being connected to each other at the beginning of the decade to just under 30% at the end. Together, these four indexed measures in Figure 2a show that within the UK, the proportion of the population who migrate between districts is falling and those that do migrate are travelling shorter distances at the end of the period, with fewer districts being connected by 10 or more migrants. These falls are consistent with patterns seen in a number of other countries, as reported by Bell and Muhidin (2009) in a cross-national comparison of internal migration.



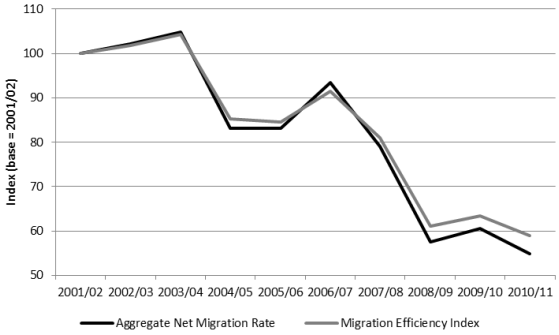
a. Intensity, distance and connectivity



b. Inequality



c. Unemployment and GDP



d. Aggregate net migration and efficiency

Note: the time series variables plotted in Figures 2a-d are computed as [100 x (migration index for year / migration index for 2001-02)].

Fig 2. Indicators of aggregate migration, unemployment and GDP, 2001/02 to 2010/11, indexed to 2001/02

A second set of migration indicators can be used to provide further insights into what is happening to internal migration at the macro or aggregate level. The index of migration inequality (I_{MI}) is the difference between the observed distribution of inter-district flows (M) and the expected distribution (M'), where:

$$I_{MI} = 0.5 \sum_{i} \sum_{j \neq i} \left| \frac{M_{ij}}{M_{++}} - \frac{M'_{ij}}{M'_{++}} \right| \quad (3)$$

and where $M'_{ij} = \sum_i \sum_{j \neq i} M_{ij} / [n/(n-1)]$, n is the number of districts, $M_{++} = \sum_i \sum_{j \neq i} M_{ij}$ and $M'_{++} = \sum_i \sum_{j \neq i} M'_{ij}$. Here, the expected distribution assumes that all district to district flows are of the same magnitude, irrespective of how far apart are the origins and destinations or different their respective population sizes. The index derives from the family of dissimilarity indices and varies between 0 and 1, with values closer to 1 suggesting greater inequality. Figure 2b shows that the I_{MI} indexed to 2001/02 rises consistently throughout the time series, i.e. flows are becoming less uniform across the UK. A second indicator, the coefficient of variation (*CV*), is a measure of spatial concentration favoured by Rogers and Raymer (1998), who compare a set of indices in a study measuring US inter-state migration flows. Bell *et al.* (2002, p. 457) define the *CV* as the square root of "*the standard deviation divided by the mean of a given set of interzonal migration flows"* and specify it as:

$$CV = \sqrt{\left\{ \sum_{i} \sum_{j \neq i} (M_{ij} - \bar{M})^2 / n(n-1) \right\}} / \bar{M} \quad (4)$$

where $\bar{M}$ is the mean migration flow and n is the number of districts. Figure 2b shows that the trend in the indexed value of the *CV* follows that of the index of inequality – inter-district migration has become more spatially 'focused' and unequal during the decade.

When considering trends at the national level, the link between internal migration propensities and economic conditions is well established in the literature, with periods of economic growth correlating with relatively high migration intensities and periods of austerity being accompanied by lower migration propensities (Stillwell et al. 1992; Ogilvy 1982; Owen and Green 1992). Champion (1987, p. 399) emphasises how the variability seen in UK internal migration is influenced by *"short term political considerations, as well as business cycles and longer term socio-economic developments"* which cover a host of variables such as interest rates, mortgage rates and regional employment rates. The impact of recession on migration propensity is revisited in a more recent study by Campos *et al.* (2011) who report that inter-regional and inter-country migration decreased by 6% in 2008/09 compared with the previous two years, with the largest change taking place in Greater

London which experienced a drop of 36,000 people leaving the region in net terms. They attribute this to the unique economic conditions in London, which saw fewer job losses and lower unemployment rates than many other regions as the recession deepened. Van Der Gaag and van Wissen (2008) address the relationship between internal migration, business cycle indicators, financial variables and labour market developments across Europe at the NUTS2 scale, finding that for all countries, there is a relationship between gross domestic product (GDP) per capita and internal migration which is stable over time and across all countries. Unemployment was also found to be significant on its own but not in a pooled model due to multicollinearity with GDP per capita.

The effect of these two macroeconomic variables can be tested using our 2001/02 to 2010/11 migration time series for the UK. Figure 2c shows the national economic indicators of GDP per capita and unemployment rate for the working age population (specified as those aged 16-64) alongside the UK internal migration rate. For all variables, time series indices are presented with 2001/02 representing the base year. The role of unemployment as a catalyst for internal migration is apparently confirmed with a strong negative correlation between the internal migration rate and the unemployment rate in the same year ($r = -0.826$, $p<0.01$, where 10 years of data are compared) which suggests that while national unemployment is low, internal migration is high and *vice versa.* There is, however, no significant correlation between the internal migration rate and inflation-adjusted GDP per capita, either in the same year or with GDP in the previous year. When trying to interpret these correlations, it is important to remember that unemployment is a variable that affects people directly and immediately, whereas GDP is a combination of economic variables which do not necessarily measure the behaviour or wellbeing of individuals.

Finally, it is important to understand the impact that internal migration has on the pattern of population settlement. Two measures that provide insight are the migration efficiency index (MEI) and the aggregate net migration rate (ANMR). *"The MEI essentially indicates the degree of (a)symmetry or (dis)equilibrium in the network of interregional migration flows whereas the ANMR summarizes the extent of population redistribution arising from the net migration balance"* (Bell *et al.* 2002, p.459). A system-wide migration efficiency index can be defined as:

$$MEI \quad = 100\left(\sum_i |D_i - O_i| / \sum_i (D_i + O_i)\right) \tag{5}$$

The specification of ANMR is similar to the MEI, but the denominator becomes the population at risk:

$$ANMR = 100 \times 0.5 \sum_i |D_i - O_i| / \sum_i P_i \tag{6}$$

where P_i is the population at risk in region i. The *ANMR* is determined as the product of *CMI* and the *MEI* for a spatial system. Figure 2d shows that the general pattern for both *MEI* and *ANMR* is a decline in efficiency across the decade, with a slight recovery in 2006/07 before the trend continues to 2010/11.

The pattern of decline in MEI between 2001/02 and 2010/11 continues the trend found by Stillwell et al. (2000) for the time period 1976 to 1996, where, they conclude, a combination of demographic, economic and technological factors were responsible for the fall. They suggest that the introduction of stringent planning controls (along with a declining rate of population growth and household formation) had the effect of restricting residential development, while long distance commuting and teleworking reduced the need for job related migrations. These planning related restrictions on residential development (although not a decline in population growth) alongside a failure for housing supply to keep pace with demand are a feature of the early 2000s (Barker 2008; Chamberlin 2009), while extended commuting as a substitute for migration are valid explanations for patterns seen in the 2001/02 to 2010/11 data. This is particularly acute in central London, where the job market has remained buoyant, relative to the rest of the UK even during the recession (Campos et al. 2011) but the relative cost of housing has increased. Cameron et al. (2005) find that housing market comparisons with contiguous regions are an important indicator of migration, given that commuting may be possible from a region with lower house prices to one with higher house prices. Relative to 2001/02, the sharper decline in ANMR can be interpreted in the context of rising population: the UK population has increased steadily from 59 million in 2001/02 to 63 million in 2010/11 so the denominator of population at risk is larger at the end of the decade than at the beginning.

The spatial pattern of net migration at the district scale

In this section, we consider the spatial patterns of internal net migration at the district scale disaggregated into two types of flow: intra-national flows between districts and cross-border flows between districts. The distinction between these two types of flow can be seen in Figure 3, where the diagonal cells (shaded dark grey) represent intra-national migrations between districts within each country, while the off-diagonal cells (shaded light grey) represent the cross-border migrations between districts in each country. The white diagonal line within each intra-national cell represents migrations that occur within a district, which are not considered here.

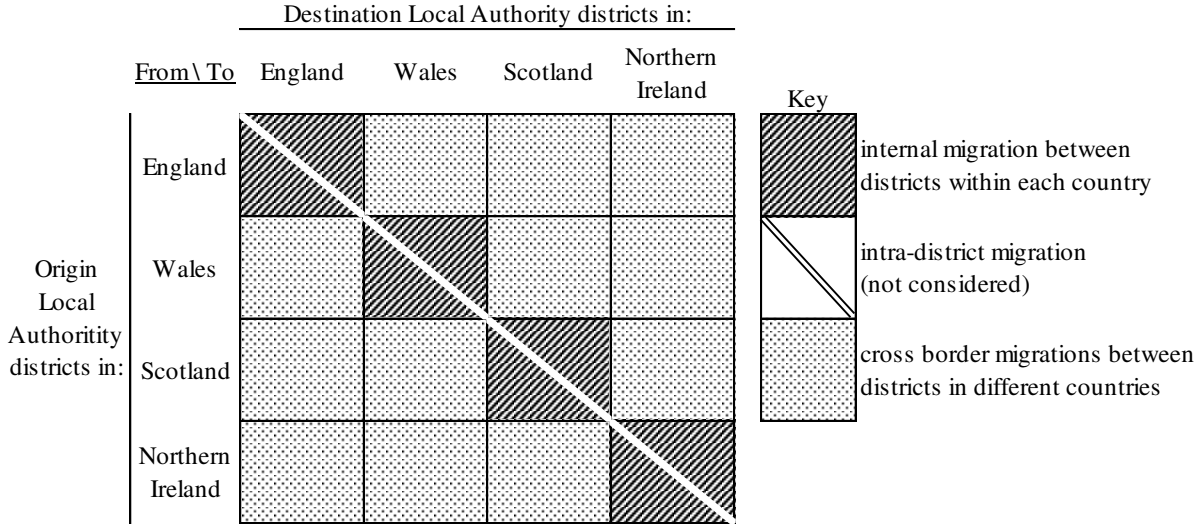
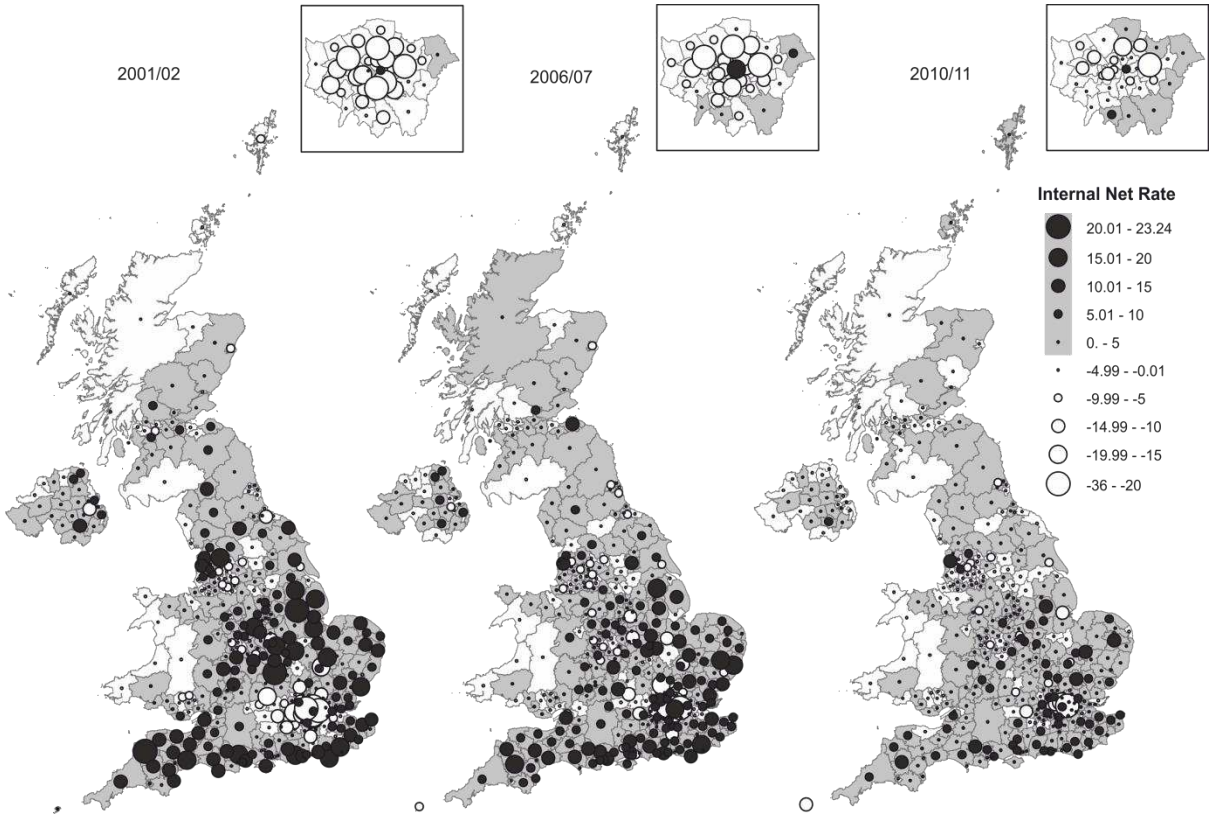


Fig. 3 Types of internal migration in the UK

Net migration rates are used to illustrate the changing pattern of migration interchange within the system for both types of migration since they provide a standardised measure of exchange and enable consistent comparison between districts. Net rates also clearly demonstrate impact of this exchange; areas with a positive net indicator show that migration contributes to population growth, while a negative indicator shows that migration contributes to population loss. In this section, data for years at the start (2001/02), middle (2006/07) and end (2010/11) of the time series are mapped in Figures 4 and 5 for the respective flow types. For the mid-decade analysis, 2006/07 is chosen in preference over 2005/06 as it represents a year in which migration activity was relatively high and the last year of the post 1993 boom before the onset in 2007/08 of the global financial crisis.

The spatial patterns of internal migration between districts within each country in 2001/02 (Figure 4a) and 2006/07 (Figure 4b) are similar, with the same areas either experiencing net losses or gains. Amongst the primary losers are most of the London boroughs, the urban conurbation of the West Midlands, metropolitan districts in the North West, plus Glasgow, Edinburgh and Belfast. The primary areas of net gain are districts in the South West (especially Cornwall), those along the south coast and in the East of England. A general distinction between metropolitan net losses and rural net gains can be made for all three 12 month periods, but is more defined in the two earlier years. The similarity of the patterns in 2001/02 and 2006/07 is confirmed by a strong positive correlation between the net rates for all districts in the two time periods ($r = 0.81$, $p<0.01$).



a. 2001/02 b. 2006-07 c. 2010/11

Note: Net rates are indicated in two ways. A proportional circle indicates the value of the net rate. The area is also shaded so that the direction of net migration is indicated, for areas where the level is close to zero.

Fig. 4 Net internal migration rates by district, 2001/02, 2006/07 and 2010/11

These familiar patterns are indicative of a longstanding process of counterurbanisation in the UK, the sub-national movement of people in aggregate from large metropolitan areas to

smaller towns and rural locations, a process was first recognised in the USA (Berry, 1980). Champion (1989b, p.121) charts the trend through the 1960s to the 1980s, describing the *"exodus from cities"* as the *"single most impressive finding of the 1981 Census"*. Champion and Townsend (1994, p.59) describe the previous decade (the 1970s) as a decade characterised by counterurbanisation, attributing much of the shift to *"suburban movements that have been forced to become 'extraurban' and inter-urban because of pressure on space",* with Owen and Green (1992) reporting similar findings. Champion (1989c) states that the period 1971-78 saw the most rapid deconcentration of population, in which migration was the most dominant process, with a slowdown in the late 1970s and early 1980s. Using 1991 Census data, Rees *et al.* (1996, p.78) provide a detailed account of population dynamics in the UK, concluding that the dominant pattern was one of *"deconcentration from the cores of city regions to hinterlands*" and that the strong preference of migrants was for locations with low population densities. The trend of counterurbanisation throughout the 1970s and 1980s is detailed by Cross (1990), Kennett (1980) and T Champion (1989a), whilst the phenomenon in the 1990s is explored by Kalogirou (2005). Similar counterubanisation trends are detected from the results of the 2001 Census by Champion (2005), Stillwell and Duke-Williams (2007) and Stillwell (2013).

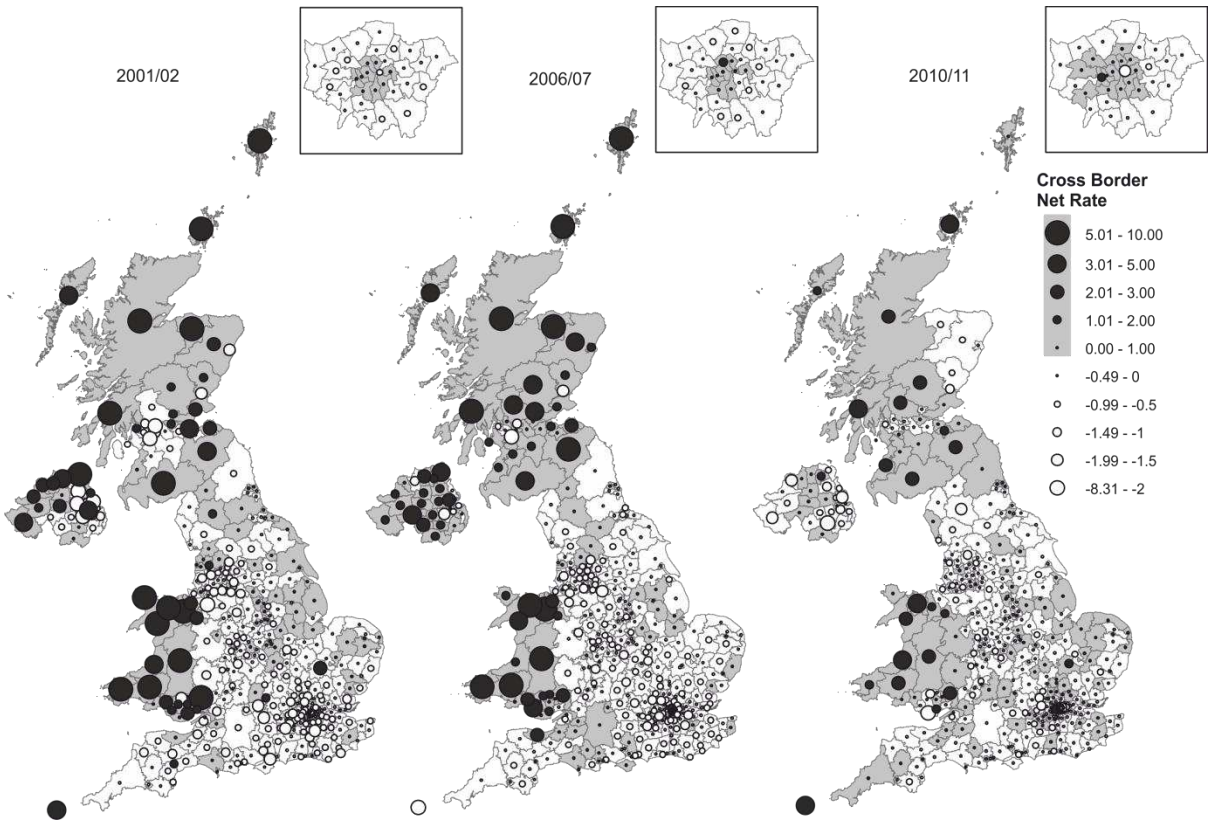
Figure 4c illustrates the pattern of net migration rates by district at the end of the 2000s and suggests that a shift in the magnitude of counterurbanisation had taken place by 2010/11. This is confirmed by a weaker correlation between net rates at the beginning and end of the decade ($r = 0.63$, $p<0.01$). The familiar pattern of urban losses and rural gains is still apparent, but with a much smaller net rate for most districts. This shift is particularly evident in London (where the net migration rate for boroughs in the east has moved from negative to positive) and Glasgow, Edinburgh and Belfast where net loss to the rest of Scotland and Northern Ireland respectively has declined by the end of the decade. In Wales, Cardiff moves from a substantial net gain in 2001/02 to experiencing very little net migration activity in 2010/11. The pattern of net gain in Wales is similar in 2010/11 to previous years but the net inflow of migrants reduced substantially.

Figure 5 maps the patterns of net migration for flows that cross a country border. Note that these flows are much smaller than the internal (within country) flows mapped in Figure 4 and hence the net migration rates are necessarily smaller. Cross-border migration patterns appear to change substantially between the start and end of the time series. The pattern evident in 2001/02 (Figure 5a) is one of net gain in rural Wales and Scotland, as well as substantial net

gains for Belfast in Northern Ireland. Glasgow in Scotland and its surrounding districts lose migrants across the border, as do districts around Belfast. Thus the most substantial impact of cross-border migration can be seen in Scotland, Wales and Northern Ireland. Figure 5a-b highlights the impact of cross-border migration on Glasgow and Aberdeen, which both exhibit a higher rate of net loss for cross-border migrants than internal migrants in 2001/02 and 2006/07. In contrast, net rates in England (both positive and negative) are uniformly low when compared to the other countries. Overwhelmingly, the pattern of exchanges between districts in England and the other UK countries is one of net loss from English districts with certain exceptions such as Oxford and Cambridge, where the student inflow is likely to explain the positive rate.

Similar to internal migration, a significant decline occurred in net migration rates for cross-border exchanges by 2010/11, confirmed by the correlation between 2006/07 and 2010/11 ($r = 0.5$, $p<0.01$) which is lower than the correlation between 2001/02 and 2006/07 ($r = 0.74$, $p<0.01$). The map for 2010/11 (Figure 5c) shows a decline in the size of the rates of net loss in English districts and it is evident that the net gain restricted to central London in the earlier time periods spreads to a number of outer London boroughs. The gain of migrants in the north east of Scotland in 2006/07 has been replaced by a net loss in 2010/11.

Cross-border flows are, by their nature, long distance migrations. The net migrations into Wales, Scotland and Northern Ireland are mainly counter-urban, leaving England for the rural idyll or alternative life style in the less densely populated Celtic fringe. Figure 5c shows the process to have been substantially diminished by the severe recession from 2007/08. The gains into London boroughs in 2010/11 highlight that the London economy was recovering earlier than those of Wales, Scotland or Northern Ireland.



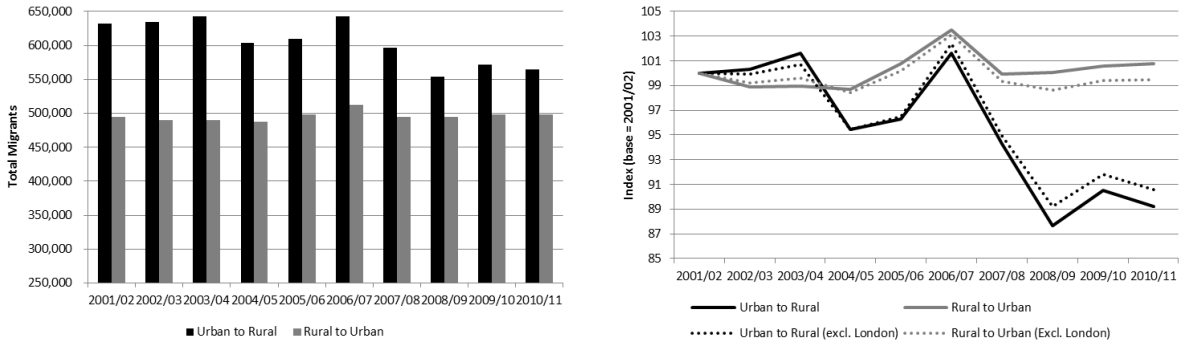
a. 2001/02 b. 2006-07 c. 2010/11

Fig. 5 Net cross-border migration rates by district, 2001/02, 2006/07 and 2010/11

An urban-rural, north-south framework for summarising internal migration

In this section, the spatial characteristics of internal migration are summarised by an analysis of flows between two geographical divides: migration between urban and rural areas and migration between the north and the south of the UK. Taking the first of these, Figure 6a shows that the general pattern in 2001/02 and 2010/11 is one of net loss from urban areas and net gain in rural areas (as the urban to rural flow is larger than the rural to urban flow). London accounts for a large proportion of UK migration, especially flows between districts within the Greater London area, and to take this into account, Figure 6b shows the flows in both directions expressed as an index of the 2001/02 flows, both including and excluding London. The decline in urban to rural migration still holds when London is excluded from the data (the dotted lines in Figure 6b), except that the fall from urban to rural is not so accentuated in 2008/09 and the urban to rural migration is a little more stable. This suggests that the changes taking place are being driven by migration from more densely populated districts outside of London. Between 2001/02 and 2008/09, the net gain in rural areas is declining, accounted for predominantly by a fall in the urban to rural flow (while the rural to urban flow remains more consistent). There is a brief (and small) resurgence of moves from

urban to rural areas in 2009/10, but the trend seen through the rest of the decade resumes to 2010/11. These findings from our estimates are supported by Rae (2013, p.97) who, in a study comparing small area populations (Lower Super Output Areas) in the 2001 and 2011 Censuses, concludes that the inter-censal period *"represents a turnaround from decades of previous population decline"* from metropolitan areas, which is being driven by repopulation of the inner city in particular. Thus, the pattern of counterurbanisation that has been so characteristic of UK internal migration over the last half century appears to have been waning over the last decade, driven primarily by a fall in the number of migrants moving from high density to low density districts. The timing of this shift (which is most apparent between 2006/07 and 2008/09) coincides with the global financial crisis which resulted in lower GDP, higher unemployment and a slowdown in the UK housing market. This is an important relationship, identified by Rees *et al.* (1996, p.5) who find that in contrast to the economic boom seen in the mid 1970s and late 1980s when rising house prices and employment give households the confidence to move out of the main cities, "*recession periods cause house prices to stagnate or fall, remove job opportunities, reduce the gains to be made from migration and increase risk".*



a. Total migration b. Migration change

Fig. 6 (a) Total migration between urban and rural areas and (b) the difference with 2001/02 as the base year

A divide between the north and the south of the UK (but primarily addressed as a phenomenon in England and Wales) is a theme running through the literature when migration patterns in the 1960s, 1970s and 1980s are assessed, with London and the South East providing the driving force for migration patterns. The division between north and south is interpreted differently by geographers and the concept is well summarised by Dorling (2007, p.1) stating *"that such an exact line can be drawn is, of course, a fiction but it is also fair to say that moving from north to south is not that gradual an experience."* Champion (1989)

describes the north-south divide as an economic issue, highlighting that the recession of the late 1970s and early 1980s had a more severe impact on the north due to the types of economic sector that predominate, i.e. principally manufacturing industries. Between 1971 and 1986, the overall growth rate of the regions in the south was in excess of the rest of Britain. Champion and Townsend (1994, p.50) identify that the trend for migration from north to south slowed during the 1960s and 1970s, but re-emerged as one of the key features of population change in the 1980s, driven largely by the 'major revival' of the South East since the mid-1970s and the other southern regions in the mid-1980s. Champion and Townsend also comment that, since the 1920s, it appears to be younger, better qualified people who make the transition from north to south. The concept of London as an 'escalator region' proposed by Fielding (1992) was established in this context. Whilst Owen and Green (1992) emphasise that a broad trend in migration in the 1980s was movement from the north to the south, Stillwell *et al.* (1992, p.35) report a slowing of the pattern of net gain in the south between 1975/76 and 1986/87, with moves in the opposite direction quickening from 1986/87 onwards, creating net gain in the north. They attributed this reversal to *"shortages of housing, house-price levels, pressures of congestion and increased commuting distances"* and the *"effects of the downturn in the economy being felt earlier in the south than the north".*

Figure 7 shows the north-south divide present in our estimates between 2001/02 and 2010/11. The north-south divide is not a fixed line of demarcation. Green (1988, p.181) defines it as *"running roughly between the Severn estuary and Lincolnshire",* much of the literature excludes Scotland and Northern Ireland, whilst the East Midlands is classified as part of the south by T Champion (1989b) but is split between north and south by Dorling (2007), where districts in the counties of Derbyshire and Nottinghamshire are in the north. In our data, the East Midlands is classified as part of the south. Moves represented by the dotted lines in Figure 6 exclude Scotland and Northern Ireland, whilst a more comprehensive, UK wide comparison including Scotland and Northern Ireland is represented by the solid lines. Either way, the clear pattern observed is a switch from net gain in the north at the beginning of the time series to net gain in the south at the end of the time series. The second of these definitions, which includes Scotland and Northern Ireland, will be used in the following analysis.

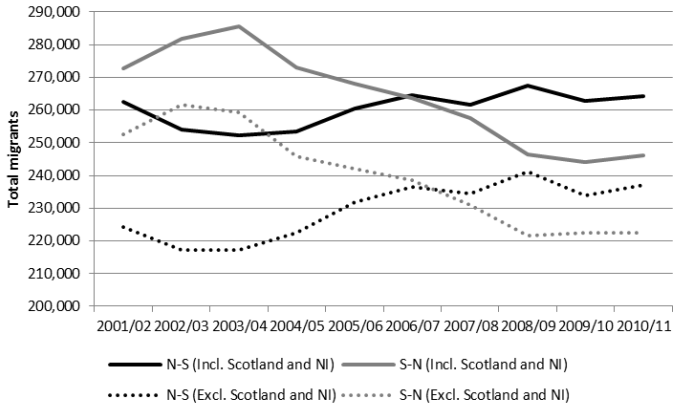


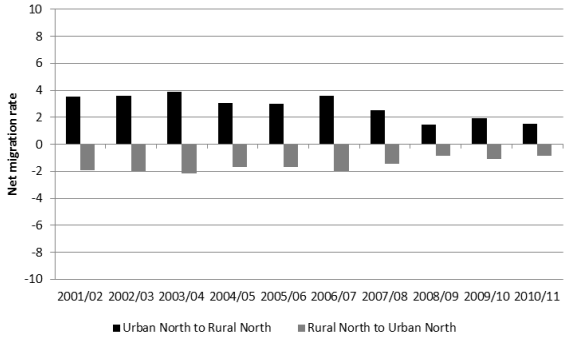
Fig. 7 Total flows from north to south and south to north, 2001/02 to 2010/11

The pattern here is largely consistent with the trends in economic indicators seen in Figure 2c. The economic shock of 2008/09 is coincident with a halting of the steady increase of migration from north to south and a flattening out of the migration in the other direction. This is consistent with literature pertaining to economic conditions and the north-south divide. Champion (1989b) suggests that the pattern of north-south divide was cast in the post-recession recovery period of 1983 to 1986, where the south gained 449,000 extra jobs, while the north gained only 83,000.

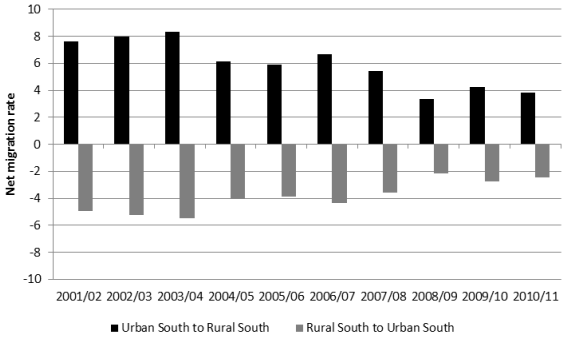
With evidence for a reversal in the direction of north-south migration flows mid-decade and the fall in the rate of net urban-rural migration, the two classifications can be combined to give a fuller picture of the changing impact of these established phenomena on migration rates between 2001/02 and 2010/11. Stillwell et al. (1992) discuss the counterurbanisation pattern of the 1971-81 period using density as a proxy for urbanisation, and find that low density areas in the south of England experienced an increase in net in-migration between 1980/81 and 1988/89, which mirrored the magnitude of the rate of net out-migration for London. This pattern was found to be less apparent in the north, where low density areas showed relatively small gains. This leads the authors to conclude that *"counterurbanisation in the north appears to have been less important than the movement of people from the north to the south"* (p.40).

The top pair of graphs in Figure 8 show the net migration rate, based on the population of the destination district, when the districts are split into urban-north, rural-north, urban-south and rural-south. It is clear from these graphs that counterubanisation in the south does have a far larger impact on the population in rural areas than counterubanisation in the north, with the rate of migration from urban to rural in the south being twice that of the urban to rural flow in

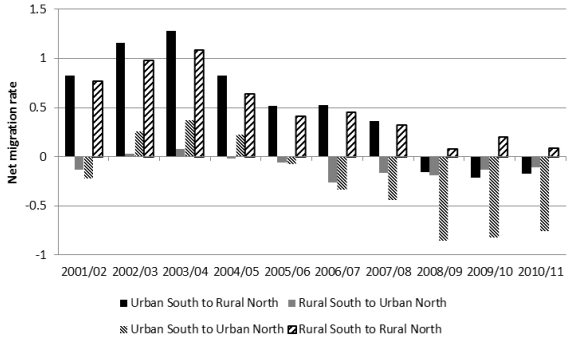
the north. In both the north and the south, the rate of gain for rural areas has declined over the decade; in the south it is 7.6 per 1,000 population in 2001/02 but falls to half this rate in 2010/11. In the north, the rate of gain in rural areas falls from 3.5 to 1.5 per 1,000 over the same period. The pattern seen here is the opposite found by Stillwell *et al.* (1992) for 1980/81 to 1988/89, when counterurbanisation was increasing.



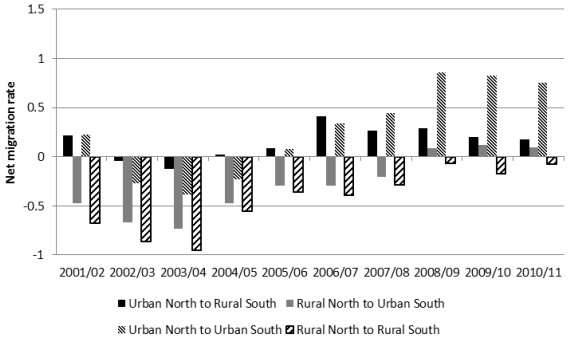
a. Net migration rate for receiving destinations for flows within the north



b. Net migration rate for receiving destinations for flows within the south



c. Net migration rate for destinations in the north



d. Net migration rate for destinations in the south

Fig. 8 Net migration rates (based on receiving population) for urban-north, rural-north, urban-south and rural-south, 2001/02 to 2010/11

The bottom pair of graphs in Figure 8 illustrate net migration rates between the north and south disaggregated by the density of the origin and destination areas. Figure 8c shows the migration rates for moves from the south to the north, and Figure 8d shows the rate for moves in the other direction, from north to south. The urban south to rural north net migration rate changes from being positive in the first half of the decade to negative in 2008/09, 2009/10 and 2010/11. Rates of net movement from urban south to urban north show sizeable net losses in the second half of the decade, and particularly from 2008/09 onwards, having been positive in the period 2002/03 to 2005/06. The net gains in the rural north from the rural south diminished during the decade and rates of net loss from rural south to the rural north

became more evident. The trends in rates from a southern perspective are shown in Figure 8d. Net migration losses from the urban north to the urban and rural south in most of the early years had been reversed by 2005/06 with gains in urban south from urban north being in excess of 0.5 per 1,000 residents. Rates of net migration from rural north to urban south also changed from negative to positive during the decade and net losses from rural north to rural south became smaller.

In summary, whilst net urban to rural migration in both the north and the south is still a notable pattern of migration, the rate has declined substantially throughout the decade. The reversal of flows from a predominantly south-north to a north-south direction appears to be driven primarily by an increase in migration from the urban north to the urban south. All other flows appear to reduce throughout the decade.

Conclusions and policy implications

The measures used to assess trends in overall internal migration over the 2000s show a consistent pattern when taken together: migration intensity and distance travelled are declining; spatial connectivity is falling while migration inequality is rising; and the efficiency of migration as a force for redistributing the population around the system is dropping. Evidence from the time series of net migration rates and balances points towards a slowdown in the migration system across the first decade of the twenty-first century. At the aggregate (national level), internal migration over time was found to relate closely with unemployment.

A pattern of net migration from urban to rural regions was found across the time series consistent with the body of literature on counterurbanisation which characterised migration patterns in the 1970s, 80s and 90s, but the magnitude of districts net migration losses and gains was found to be in decline across the 2000s. The predominant factor in this decline is the fall in the intensity of migration from urban to rural districts, while moves from rural to urban districts remained fairly consistent.

Assessment of the existence of a north-south divide shows an interesting reversal in the second half of the decade, with the north experiencing declining net migration gain from the south until 2007/08, after which the south becomes a net gainer from the north. Combining the two measures of urban-rural and north-south migration reveals that an increase in moves from urban north to urban south has driven the reversal in the north-south migration pattern.

At the regional level, the time series data confirmed the importance of London as a key driver within the UK-wide migration system and London boroughs were shown to generate a large number of internal migrants to the rest of the UK. Over the 2000s, the general trend at the district level has been a reduction in the volume of internal and cross-border migration, and the changing magnitude of cross-border migration flows have resulted in new patterns of net migration.

There are a number of social and economic policy implications associated with a decline in urban to rural migration. Bosworth (2006, p.13) highlights the substantial contribution that in-migrant driven business makes to rural economies in the UK, suggesting that it is, *"significantly greater than agriculture, forestry and fishing"* (attributing 1.9 newly created jobs for each new in-migrant microbusiness in the North East of England). These in-migrant business owners are also actively involved in local networks, expressing a desire for local growth, bringing diversity to the local economy and, as Bosworth (2010, p.977) argues, *"are employing local people, trading with local firms, and providing important local services".* Kalantaridis (2010, p.426) echoes these findings, reporting that rural in-migrants contribute to entrepreneurship through their educational attainment, access to networks of contacts established prior to migration and an ability to, *"tap into non-local resource and markets",* with Kilpatrick et al. (2011, p.625) drawing similar conclusions. As a result, in-migration can have a substantial positive impact on economic development in rural areas.

Findlay et al. (2000, p.346), in a study of labour markets in rural Scotland, conclude that in-migrants make a *"substantial contribution to employment growth and restructuring of rural job markets".* This job creation brought about by rural in-migration is also found by Aileen Stockdale et al. (2000), and has the effect of raising local wages and investment in the rural housing stock. Aileen Stockdale et al. (2000, p.254) also find that rural in-migration has the effect of rejuvenating areas as migrant households are *"notably younger and contain a higher number of school age children".* A. Stockdale (1992), in a study of repopulation of rural areas in Northern Ireland, suggests that state intervention through planning policy and the availability of housing is influential in improving rural mobility.

Whilst it is less accentuated than the decline in urban to rural migration, there is evidence for an increase in moves to more urban areas during the 2000s (especially urban north to urban south). Rae (2013) identifies a 'return to the city' in the ten years between the 2001 and 2011 Censuses which is evidenced by increased in-migration for a number of English cities,

particularly prevalent in inner city areas. This trend is identified in the case of Birmingham, Bristol, Cardiff and Swansea by Bromley et al. (2007), in the case of Liverpool by Couch et al. (2009) and in Birmingham by Barber (2007), who finds that between 2003 and 2007, residential expansion occurred beyond the immediate city centre.

The increase in moves to urban centres often goes hand in hand with urban improvement and redevelopment: Newton (2009) cites the development of London's Kings Cross station, Birmingham's Bull Ring and the Salford Quays as schemes which deliver 'joined up' development which includes new homes, improved transport links and the creation of retail, leisure and business facilities. Newton (2009) argues that by providing these combined features, such development contributes to wider regeneration and increases employment opportunities. These employment opportunities are picked up in recent work by Tony Champion et al. (2013) who investigate England's 'second order' cities (those cities in England that are not London) and their emerging role as escalators for migrants, in the same context as London and the South East, where migrants advance their careers faster by moving rather than staying put. Using Longitudinal Study data for 1991 and 2001, they find that a migration to one of England's second order cities *"raise people's chances of transitioning from WCN to WCC by around ten percentage points on average compared with the longer-term residents of these places"* (p. N/A – early view version), where WCN are White Collar Non-core workers (employers and managers in small firms, ancillary workers) and WCC are White Collar Core workers (a step up in occupational class to employers and managers in large firms and professional workers). They find, however, that the transition from WCC to WCN for all second order cities combined fell short of that seen in London, but that of the second order cities, the rate seen in Manchester was far higher than for all others.

The pattern of increased migration to urban areas also poses problems, especially if the new migrants are displacing established inner city populations, as is reported in the context of gentrification. Buzar et al. (2007, p.671) in a European context argue that the rise of 'non-traditional' inner city households is driven by the consequences of the 'second demographic transition', namely *"the rise of living alone, delayed child-bearing and the destabilisation and dissolution of traditional family structures".* The problem of heterogeneity is further exacerbated by self-imposed segregation, as *"affluent (childless) families and individuals gravitate towards 'family absent' locations"* (Smith 2011). Specific examples of this process are given by Butler (2007, p.777) in the case of London Docklands where gentrification is a process that attracts young single people *"who do not wish to feel obligations to their*

neighbours and to socialize", and by Couch et al. (2009) who, using the example of Liverpool, highlight a problem caused by recent inner city housing development which leads to heterogeneous neighbourhoods, containing adult and student populations with very few young families and children.

The reversal in the pattern of counterurbanisation seen during the 1980s and 1990s, along with a rise in migration to urban areas, poses a number of challenges in maintaining rural economies and promoting social cohesion in urban areas. This may be exacerbated if the trend for internal migration becoming more spatially focused (less equal) continues, which will put (social/economic/service provision) pressure on particular areas that gain or lose migrants at a higher rate than the rest of the UK.

Changes over the 2000s observed in the aggregate rates presented in this paper reflect what is happening to various sub-sections of the population, and a future paper will analyse these patterns by age and sex. Further analysis of the previously under-reported cross-border migration will also be undertaken in due course. The release of 2011 Census migration data will allow us to validate our estimated time series and provide more detailed comparisons against the 2001 Census.

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