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affecting European regions and cities

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Demifer Case Studies

London

Prepared by
Phil Rees, John Stillwell, Peter Boden and Adam Dennett
School of Geography
University of Leeds
Leeds, UK



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1 Introduction

The DEMIFER project aims to examine the historical and future impact of demographic change upon the 27 members of the European Union (EU) plus the four additional European states that have a close relationship with the EU (EEA plus Switzerland). To achieve this aim, a comprehensive database of demographic statistics has been constructed, capturing information about trends and patterns of fertility, mortality, internal migration and international migration for each NUTS2 region in the 31 'ESPON' countries.

These data have been used to examine how the components of demographic change combine to exert different impacts upon population change, the size of the labour force and the ageing of the population in each of the NUTS2 regions. Historical analysis, coupled with multi-regional forecasting methods, has been used to assess how future developments in fertility, mortality and migration might affect population growth or decline and drive changes in the age structure in different types of regions. The impact of migration, both internal and international, has been a particular focus of the study, in order to establish its influence upon the labour force, to establish how migration between European countries and migration to Europe compensate or reinforce each other, and to consider how climate change may drive migration flows within, between and into countries and regions.

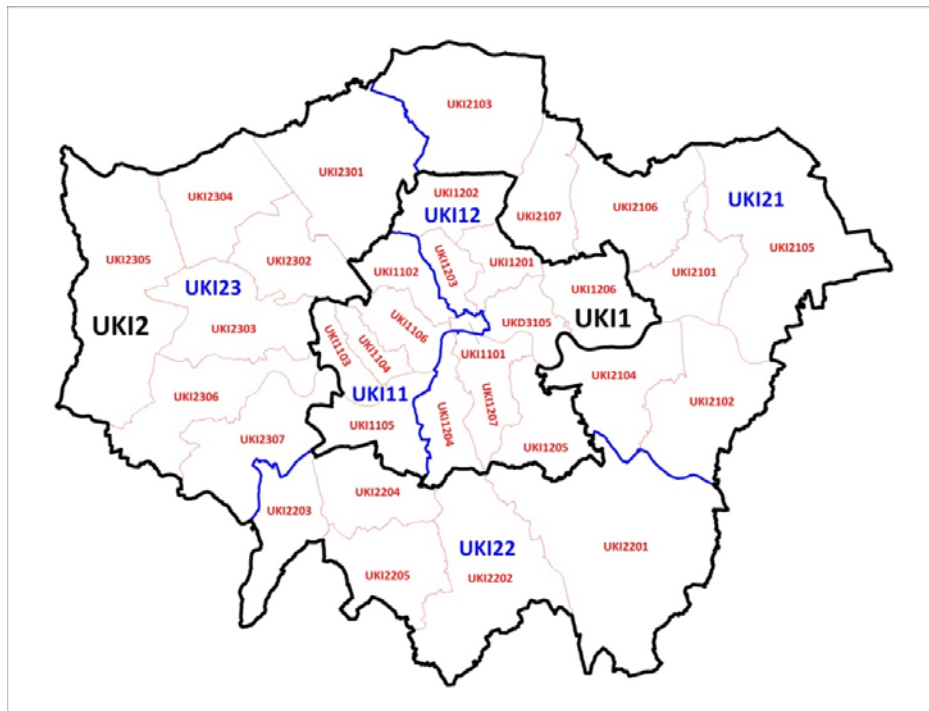
A key part of the project has been a more detailed examination of the complexity of the demographic process within a series of 'Case Studies' that draw together the various strands of analysis undertaken in the DEMIFER project; from connecting the historical analysis, developing the regional typology, building scenarios and formulating policy implication, to illustrating the results and impacts at a more disaggregate, NUTS3 regional geography. Case Study areas have been selected from DEMIFER's regional typology, with at least one region from each cluster selected. Two Case Studies have been prepared for the UK: West Yorkshire and Greater London. This paper reports on the London Case Study.

London is split into two NUTS2 regions, Inner London and Outer London. Each is classified as 'Family Potentials' in the DEMIFER typology (see Appendix 1) but each is identified as an 'outlier' because of its unique position as a global city. Areas with the 'Family Potentials' classification typically have a labour force population in the younger adult ages (aged 20-39) of average size, lower than average population beyond retirement (65+) and higher than average growth due to both natural increase and net migration. This study examines how well this profile fits London and its immense variety of geographical areas. Two other 'Family Potentials' regions have been selected for more detailed Case Studies: Alsace (FR42) and Stockholm (SE4).

Section 2 of this report provides the geographical context for the London study and briefly summarises the nature of the demographic data available for study in the UK. Section 3 reviews some of the more recent studies of demographic change in London, drawing in particular on the excellent and substantial analyses produced by the Data Management and Analysis Group (DMAG) at the Greater London Authority (GLA). Section 4 summarises the historical picture of population change and its key components, with Sections 5 and 6 taking a more detailed look at the importance of migration in this process. Section 7 examines how demographic change is likely to impact upon the profile of the population: its age-structure, the labour force, the elderly and its ethnic composition. Section 8 indicates how the DEMIFER scenarios would impact upon London and a concluding section draws together the analysis and policy-relevant findings of the Case Study.

2 Study area definition and data availability

London is a large and diverse area. This study uses data at a number of different spatial scales to produce a picture of demographic change across the city (Map 1).



Map 1 NUTS regions within London

The NUTS2 geography splits London into 'Inner'(UKI1) and 'Outer' (UKI2), with a population in the base period (2005) of approximately 3 million and 4.6 million respectively. At NUTS3 level, Inner London is split into east (UKI12) and west (UKI11) portions, with Outer London disaggregated into 'west and north-west'(UKI23), 'east and north-east'(UKI21) and 'south' (UKI22). At the lowest spatial level London consists of a total of 32 individual boroughs and the City of London, which are the key administrative geographical units within the capital.

To facilitate this study, data have been collated from a variety of sources. The UK does not operate a population register and so relies on the decennial census plus a range of surveys and administrative sources to provide its key demographic statistics. Mid-Ear Estimates (MYEs) of the population are produced for each local authority area on an annual basis by the Office for National Statistics (ONS), updating the 2001 Census statistics using the most recent information on births, deaths and migration. The most accurate data are available on births and deaths, with an all-inclusive process of births and deaths registration providing very accurate and timely statistics at all geographical scales. Sources of migration data are less definitive or reliable (see Stillwell *et al.*, 2010, for a recent review). Internal migration for inter-censal years is

derived primarily from patient registration statistics, captured as individuals move and re-register with their local doctor (Scott and Kilbey, 1999; Chappell *et al.*, 2000). These data are collected on a rolling basis and provide disaggregation by age and local authority area; they do, however, suffer from issues of under-registration, particularly for young adult males who are least likely to register with a doctor when they move.

International migration statistics are the least robust. The UK relies upon the International Passenger Survey (IPS) as the primary source of its data on immigration and emigration, combining it with a number of other sources to produce estimates for local areas (ONS, 2008). These estimation methods have been subject to considerable scrutiny and comment (House of Commons, 2008; Rees *et al.*, 2009) at a time when net immigration has been a dominant driver of population change in the UK. Alternative estimates of immigration have been produced using a variety of administrative sources (Boden and Rees, 2009; 2010) and the ONS has recently completed a consultation process on its own methodological revisions (using administrative data) which will see local authority population estimates revised for 2001-2008. In the absence of definitive statistics on international migration, local authorities have been encouraged to use alternative sources to gather information (Audit Commission, 2007; Green *et al.*, 2008) with administrative sources such as the Department of Works and Pensions' (DWP) National Insurance Number (NINo) statistics, Workers Registration Scheme (WRS) data from the UK Borders Agency and the registration of foreign nationals with the UK health service, providing useful, if incomplete, evidence on this key element of local population change.

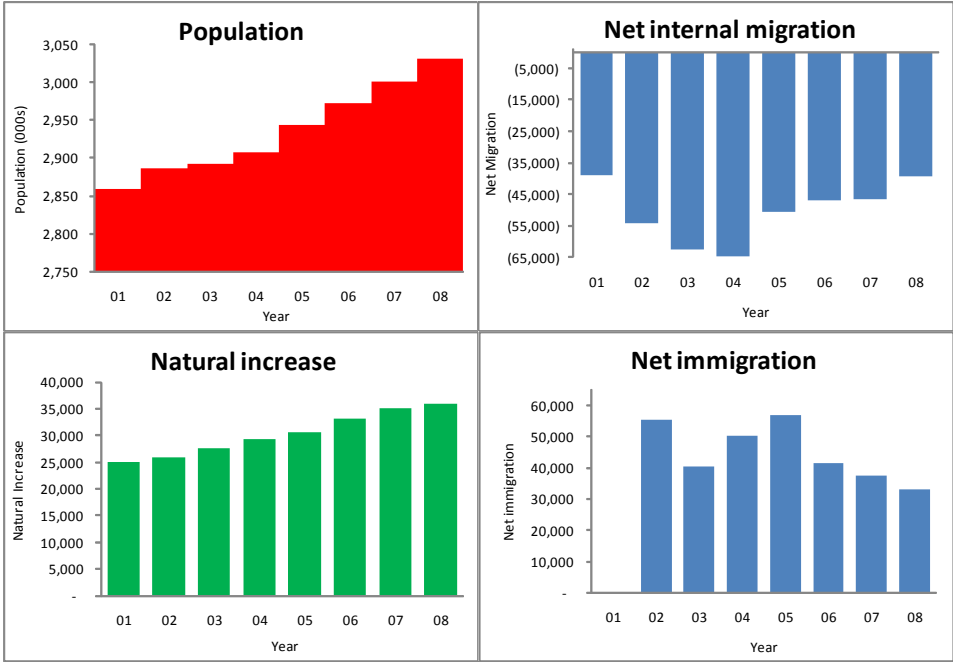
In completing this Case Study the analysis has drawn on the excellent 'Focus on London' publication produced by the Greater London Authority (GLA, 2009), an essential reference for those attempting to understand the socio-demographic patterns and trends in one of the world's most diverse cities.

3 A summary of population change

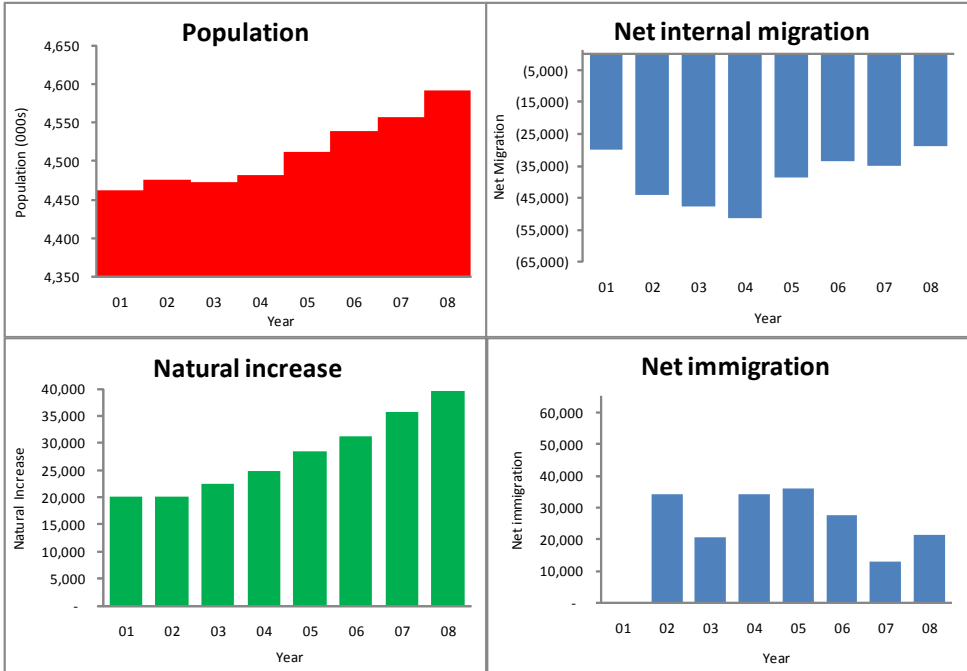
Since 2001, the populations of both Inner and Outer London have increased considerably. In Inner London the population rose from just over 2.8 million to

over 3 million people. In Outer London the population has risen from around 4.4 million to almost 4.6 million people over the same period – an increase of around 400,000 people in London overall. The components of demographic change are exerting different influences on this growth and there remains particular uncertainty regarding the true impact of international migration (Figure 1).

(a) Inner London



(b) Outer London



Source:

Figure 1 Components of population change, Inner and Outer London 2001-2008

Since 2001, the number of deaths recorded in both Inner and Outer London has reduced slightly, falling in both NUTS2 regions by around 3,000 people between 2001 and 2008, leaving deaths in Inner London in 2008 at around 16,000 people, and in Outer London at around 33,300 people. In contrast, the number of births has increased quite considerably year-on-year, from around 45,000 in 2001 to around 52,000 in 2008 for Inner London, and from around 57,000 in 2001 to around 75,000 in 2008 in Outer London. All this means that for both Inner and Outer London, the natural increase in population has increased year-on-year to a figure of around 36,000 people in Inner London and 41,600 people in Outer London in 2008.

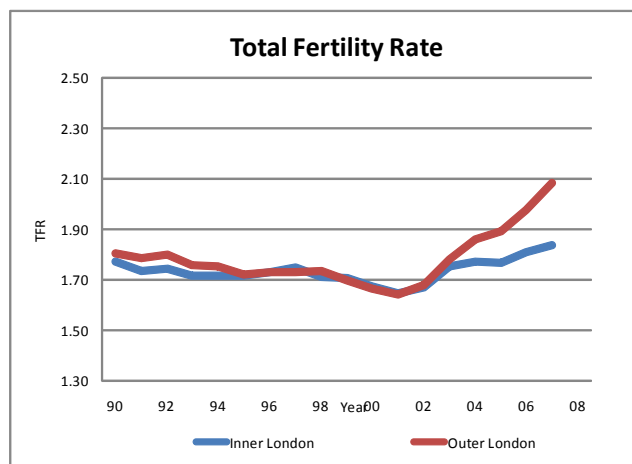
Net internal migration for both Inner and Outer London remains negative up to 2008. In 2008, Inner London lost around 40,000 people in net terms, with Outer London losing around 30,000. In aggregate terms, the internal net migration losses from Greater London as a whole doubled from 50,000 in 1999 to 100,000 in 2003 and peaked in 2004 before reducing in more recent years (Duke-Williams and Stillwell, 2010). This pattern of loss is in direct contrast to the net gains made from international migration flows. Data in Figure 2 show that the net immigration gains reduce between 2002 and 2008 for both Inner and Outer London. However in 2008, the net immigration gain is still quite large at around 33,000 migrants for Inner London and 22,000 migrants for Outer London. Despite the high rates of net immigration, the gains are still not of sufficient magnitude to offset the losses from internal out-migration. In 2008, combining the net international and internal migration figures shows that Inner London still makes a net loss of around 7,000 people, and Outer London a loss of around 8,000. This means that the real driver of population growth within London is natural increase.

Whilst there is considerable certainty regarding the number of births and deaths recorded in London since 2001 and there are reasonably good statistics on internal migration (albeit with some likely biases in the younger age-groups) there remains substantial uncertainty with regard to the robustness of the international migration estimates, and so the potential issues with these data should be borne in mind when interpreting these results.

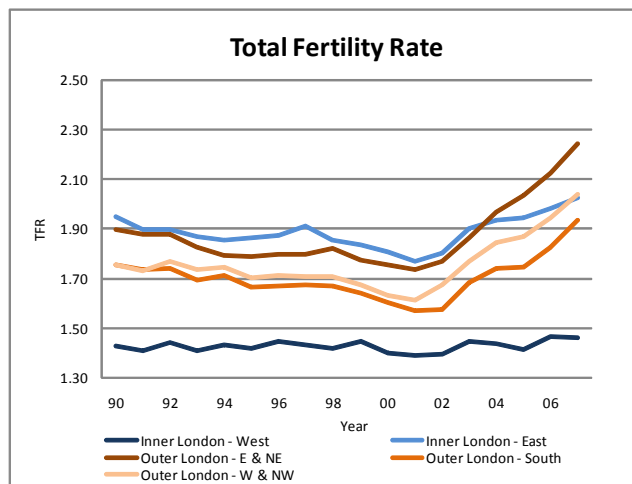
4 Fertility and mortality

The increasing contribution of natural increase to population growth in London since 2001 has been driven by a reversal in the downward trend in fertility rates that were experienced throughout the UK to the end of the last century. All of the NUTS3 regions except Inner London West have experienced a rise in total fertility rates (TFR) since 2001 but it is interesting to examine the differences that exist between the levels of the curves (Figure 2).

(a) London NUTS2 regions



(b) London NUTS3 regions



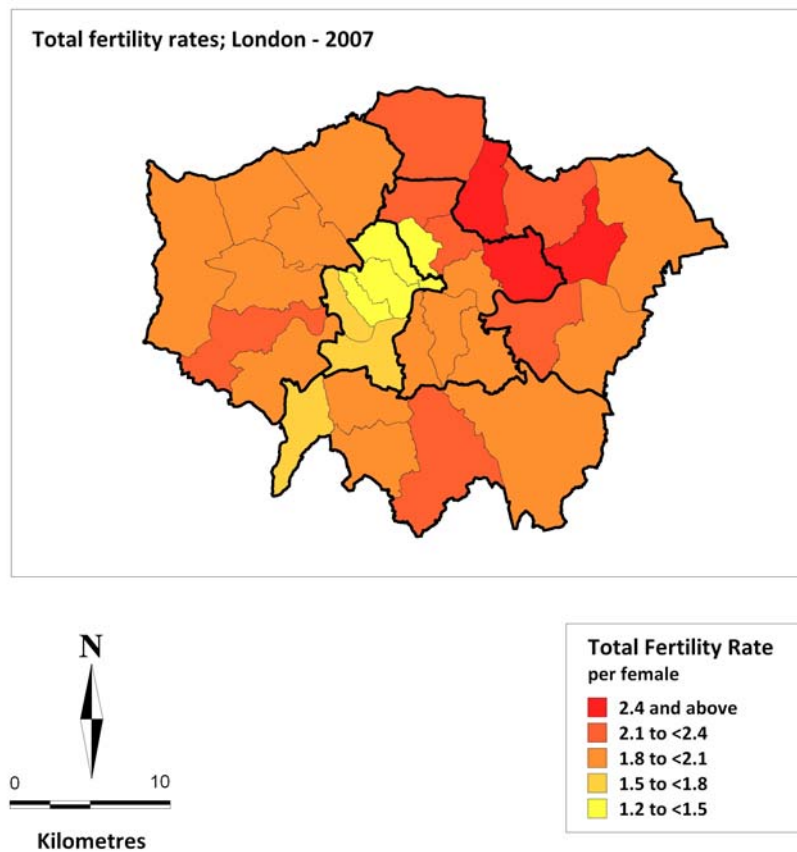
Source:

Figure 2 Total fertility rate (TFR), London's NUTS2 and NUTS3 sub-regions, 1990-2008

With 'replacement' fertility rates now standing at slightly below 2.1, all regions except Outer London-East and North East have maintained a well below-

replacement TFR since the 1990s. It is only in 2005 that Outer London-East and North East creeps above replacement level. Inner London-West has had a consistently low TFR (around 1.4) since the 1990s. This is undoubtedly a function of the region being one of the primary internal in-migration locations for young migrants attracted to the city by job prospects – not an area where these career driven migrants would generally consider beginning a family. All other NUTS3 regions in the capital display a marked decrease in the TFRs between 1990 and 2001. Lower rates are consistently displayed in Outer London-South and Outer London-West and North West; slightly higher rates in Outer London-East and North East and Inner London-East.

Since the turnaround in 2001, however, there has been a continual rise in TFRs in all NUTS3 regions except Inner London-West. This rise has been somewhat sharper in Outer London than in Inner London. London has a higher proportion of women of childbearing age in the population compared with the UK in total. Across the UK, the rise in the number of births since 2001 has been underpinned by the trend towards late childbearing that has led to an increase in fertility for females in older age-groups and by the increasing percentage of births to mothers born outside the UK. The increase in births in London since 2001 has been entirely due to mothers born outside the UK; births to mothers born in the UK has fallen since 2001 (GLA, 2009). Births to women born outside the UK now account for approximately 54% of the London total.



Map 2 Total fertility rate (TFR), London boroughs, 2007

In 2006, the mortality rate for males in Inner London was around the UK average, with it being slightly lower for Outer London. The young age structure of the population contributes to the relatively low mortality rates. The rates for females in both Inner and Outer London were around 5% lower than the rest of the UK. Of particular interest, is the trajectory of the Standardised Mortality Ratio (SMR) for males in Inner London. In 1990, males in Inner London had an SMR of around 112 – i.e. around 12% higher than the average for the whole country. This declined steadily to 2006 where it is on a par with the national average. In contrast, the male SMR for Outer London has been consistently around 5% below the national average. Females in Inner London have also seen a decline in their SMR over the same time period, however, in 1990 the SMR was only just over the national average, and the rate of decline has been much less steep than for males, leading to a 2006 SMR of around 95. In a similar fashion to the males in

Outer London, the SMR has remained relatively consistent SMR at around 95 from 1990 to 2006.

(a) London NUTS2 regions



(b) London NUTS3 regions



Note: SMR for England & Wales = 100
Source:

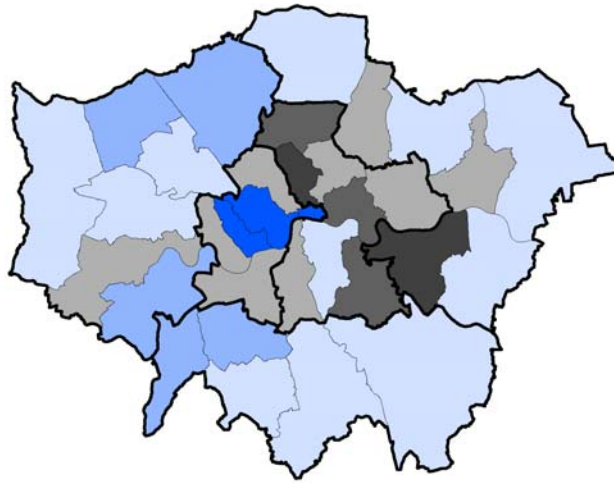
Figure 3 Standardised mortality ratios, London NUTS2 and NUTS3 regions, 1990-2006

Disaggregating SMRs by NUTS3 regions reveals some very interesting variations within Inner and Outer London. Inner London-East, in fact, has continuously and consistently high SMRs for both males (15% higher than average) and females (5% higher than average) between 1991 and 2007. The drop in both female and male SMRs seen at the NUTS2 level is driven entirely by the marked reduction in SMRs in Inner London-West to between 20-25% lower than average in 2007. Of

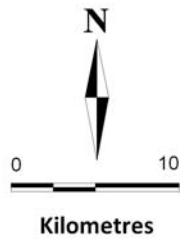
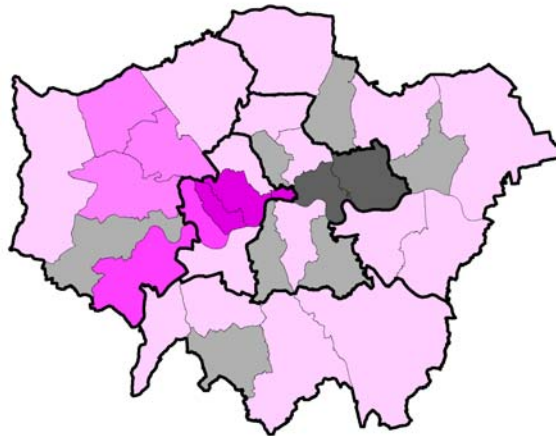
the Outer London NUTS3 regions, Outer London-East and North East displays a worsening SMR for both males and females between 1991 and 2007. Below the NUTS3 level is the the or borough level (LAU 1). Figure 6 displays clearly the considerable variation in SMRs across London in 2007, with deprived Inner London boroughs such as Tower Hamlets displaying high SMRs for both males and females and affluent boroughs such as Westminster and Kensington and Chelsea exhibiting very low SMRs.

Statistics on life expectancy at birth reflect these SMR differences across the city with males in Inner London-East living on average two years less than the England and Wales mean, and males in Inner London-West living two years more than the national mean (Figure 4). The population in Outer London for both males and females lives around a year longer than the average for England and Wales, but Outer London-East and North East does have a slightly lower life expectancy than other areas in Outer London and England and Wales as a whole. Figure 8 shows how the variations in life expectancy at birth for both males and females plays out across the boroughs of London in 2008, with females born in the west end of the city enjoying a slightly higher life expectancy than those in the east. The pattern for males is less dichotomous, but for both males and females, the highest life expectancy at birth is found in Westminster – interestingly one of the boroughs with the lowest fertility rates in the city, but unsurprisingly one of the wealthiest.

Male standardised mortality ratios; London - 2007

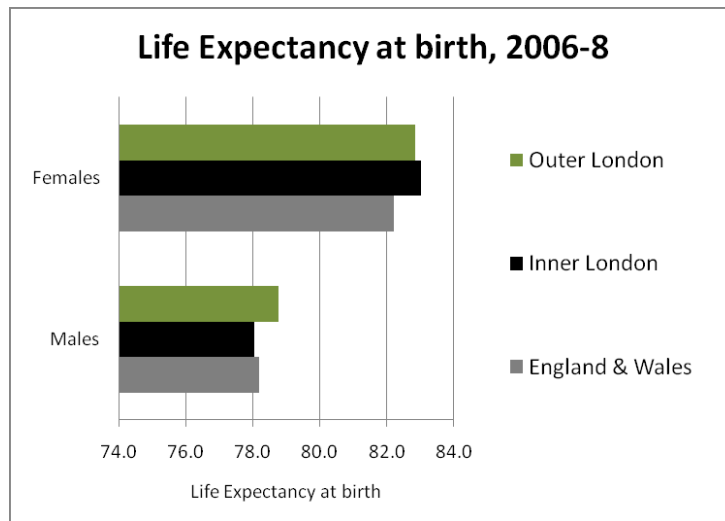


Female standardised mortality ratios; London - 2007

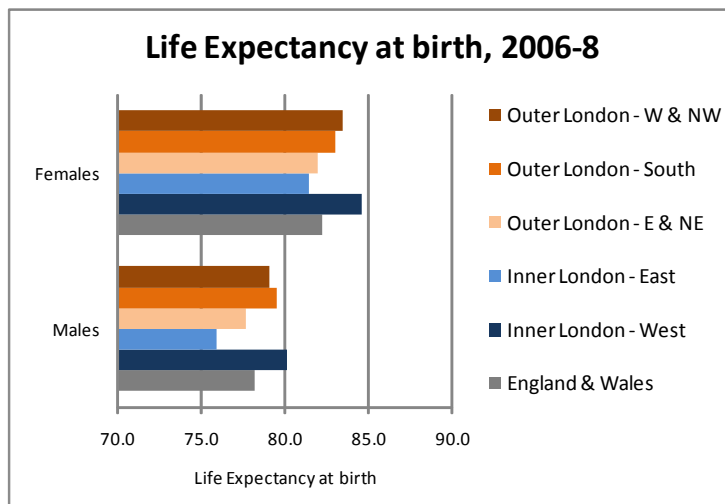


Map 3 Standardised mortality ratios, , London boroughs, 2007

(a) London NUTS2 regions



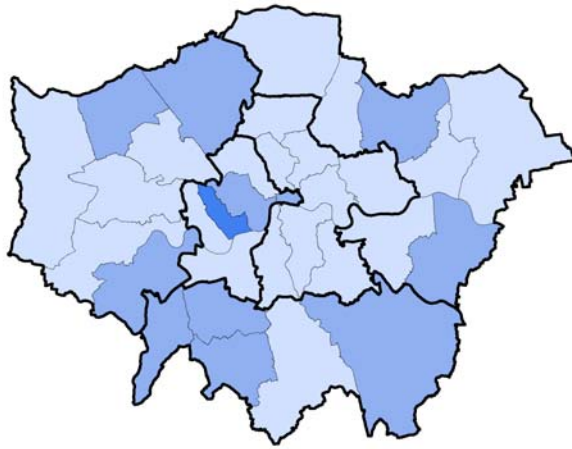
(b) London NUTS3 regions



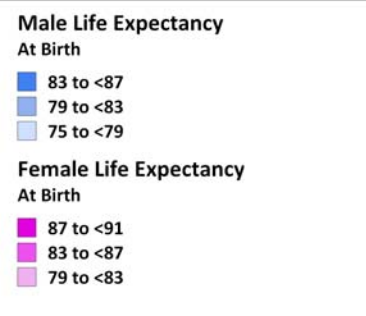
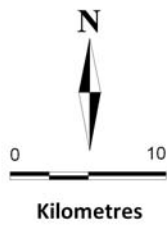
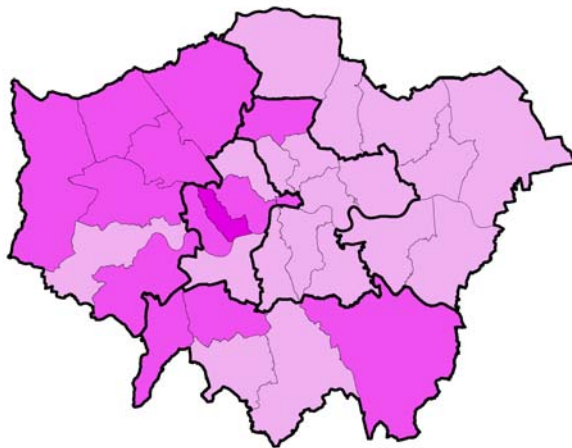
Source:

Figure 4 Life Expectancy at birth, London's NUTS 2 and 3 regions, 2006-08,

Male life expectancy at birth; London - 2008



Female life expectancy at birth; London - 2008



Map 4 Life Expectancy at birth, London boroughs, 2006-08

5 Internal migration

In the decade leading up to 2008, London has been a consistent net loser of internal migrants to the rest of the UK. Figure 5 shows the extent of this loss with a peak in 2004 when Inner and Outer London combined making a net loss of some 116,000 migrants. Whilst the rate of internal migrant loss to the rest of the country has reduced somewhat since the 2004 zenith, the nation's capital still lost almost 70,000 migrants in net terms in 2008. Of course, there is variation in this pattern within London, with data at the NUTS3 level showing that Inner-London East is the biggest net-loser of migrants, followed then by Outer-London West and North West. Inner London West, whilst a relatively low volume net-loser of migrants actually exhibits a rate of net loss similar to that of Outer London West and North West over the ten year period.

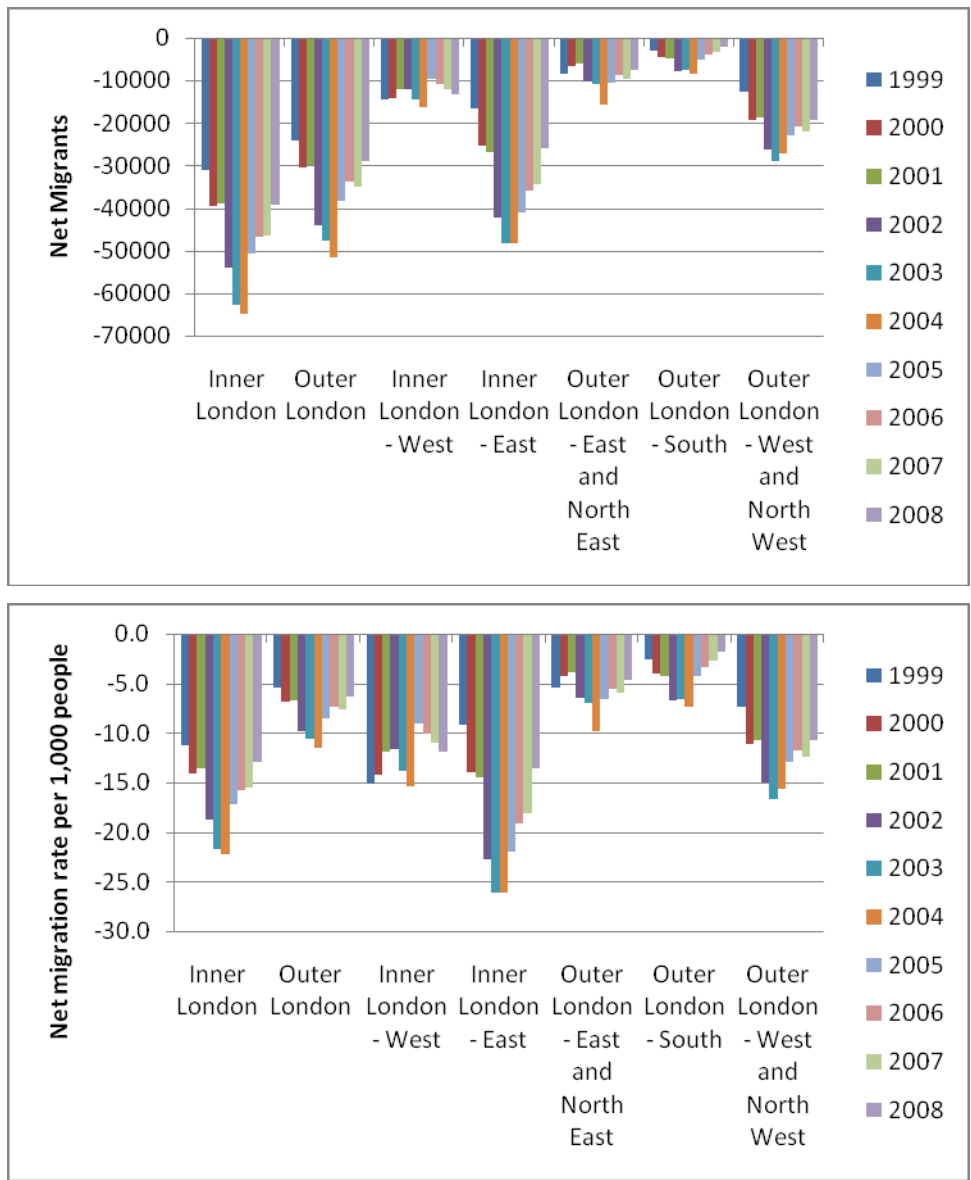
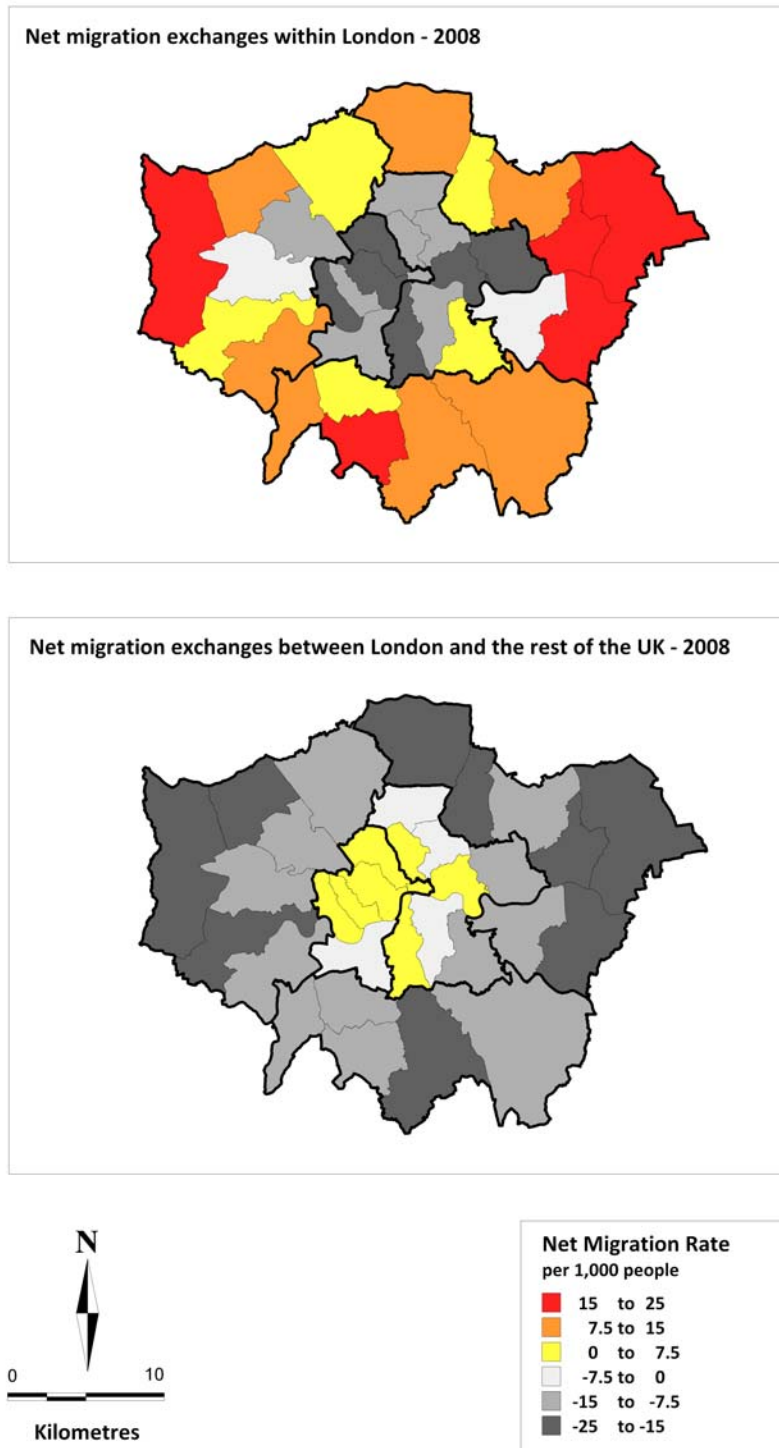


Figure 5 Net migration and net migration rates, London's NUTS3 regions, 1999-2008



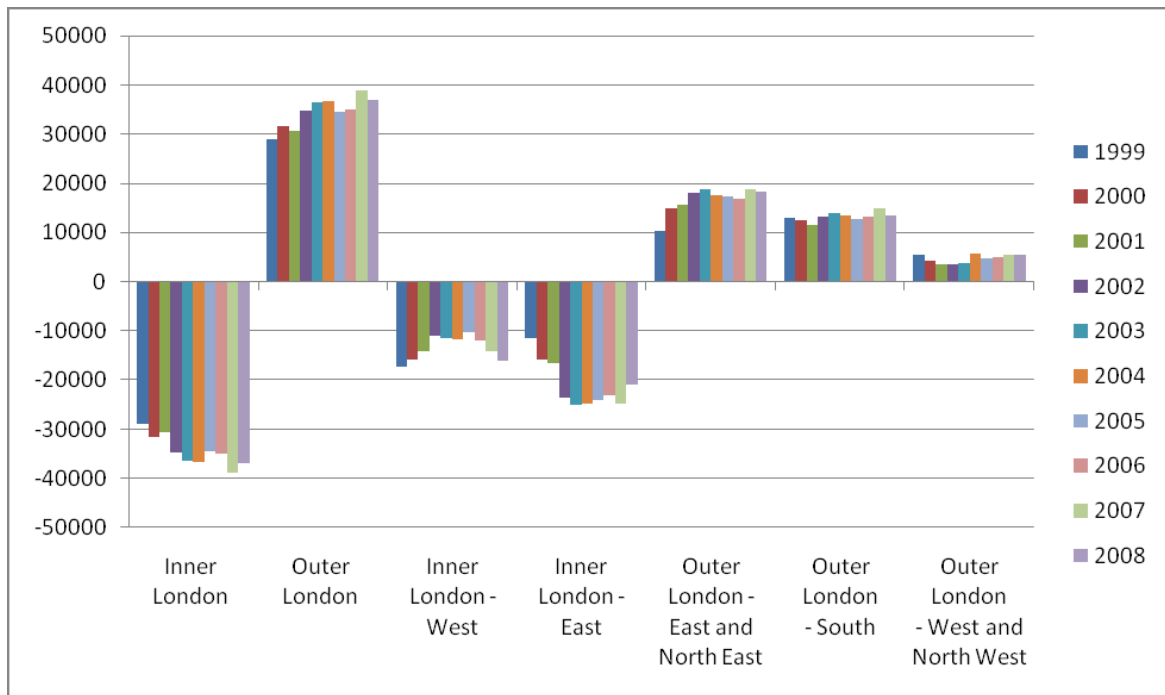
Map 5 Internal migration, London boroughs, 2008

Greater insight into the patterns of net migration is gained when the exchanges within London and between London and the rest of the country are examined separately. The maps in Map 5 depict the net migration exchanges (a) between boroughs within London and (b) between boroughs within the London and

elsewhere in the UK in 2008 (the most recent year for which data are available). The contrast between the two sets of net migration balances is stark. Where flows are between boroughs within London, all but one borough within the Inner London NUTS2 region is a net loser of internal migrants to boroughs in Outer London. In contrast, all but three boroughs in Outer London are net gainers of population from Inner London. This is evidence of a strong movement away from the centre of the city to the periphery of the city. On the other hand, where the flows are between boroughs in London and the rest of the country the pattern is almost reversed. The only boroughs that are net gainers of population are in Inner London. All boroughs in Outer London are net losers of population to the rest of the country.

This pattern is maintained over time, as is demonstrated at NUTS2 and NUTS3 scales in Figure 6. Within London, it is possible to see that over a ten year period, the net exchanges between Inner and Outer London remain more or less constant, with a slight increase in net moves into Outer London over the decade. When this is broken down into NUTS3 regions, it is apparent that Outer London-East and North East is largest net gainer, with Outer London-West and North West gaining least in net terms. Examining the net exchanges between London and the rest of the UK, it is very clear that Outer London is consistently over time losing far more migrants in net terms than Inner London. Inner London shows the most variation over the decade with only a very small net loss in 1999 and 2008. Drilling down through the hierarchy to the NUTS3 level, it is possible to see that part of the reason for this modest net loss at the beginning and end of the decade is because in Inner London-West, there is actually a net gain of migrants – the only region within Inner and Outer London where this is the case.

(a) Net migration exchanges within London



(b) Net migration exchanges between London and the rest of the UK

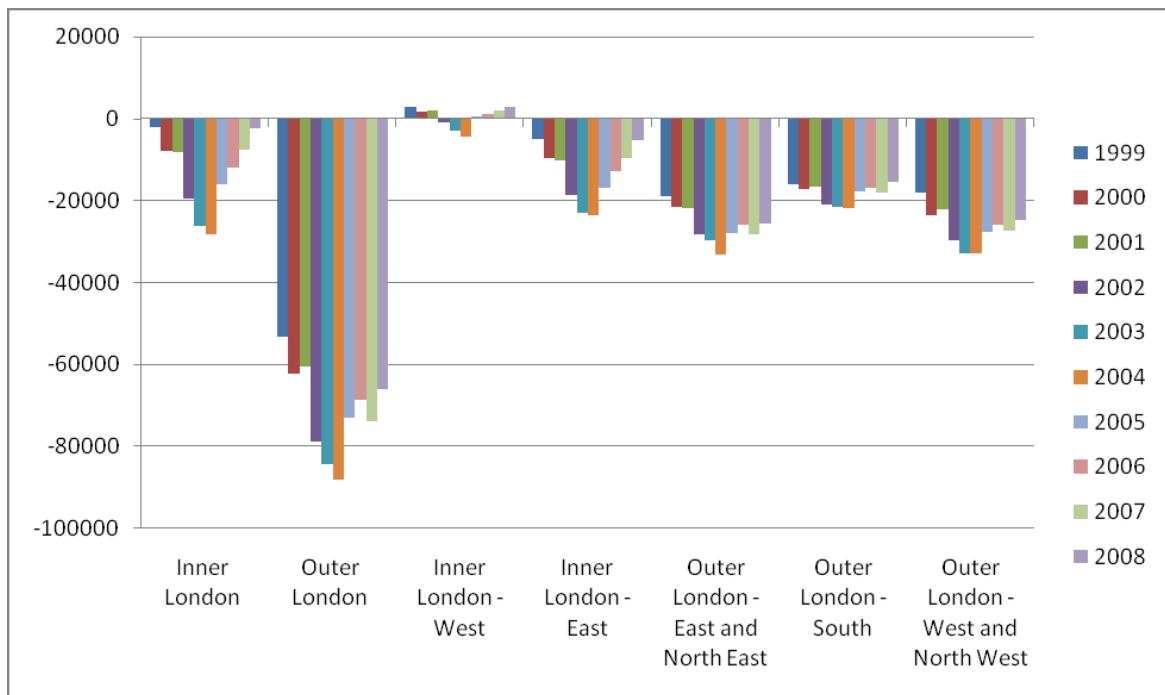


Figure 6 Net migration exchanges, within London and with rest of the UK, 1999-2008

Aggregate internal migration patterns only tell part of the story, however. Analysis of migration by age group reveals distinct variations in migration patterns between the different NUTS2 and NUTS3 zones within the city. Consider Figure 7. Here the net migration rates for each region by eight different age groups are displayed for the most recent year, 2008. Taking the NUTS2 regions first, it is clear that both Inner and Outer London experience net in-migration of those in the 20-24 and 25-29 age groups, the rates are much higher for Inner than Outer London, however. The main difference between the two regions is that Inner London experiences net in-migration of 16-19 year olds, whereas Outer London experiences net out-migration of those in their late teens. Whilst there are net out-migration rates exhibited by all other age groups, these are far more pronounced for Inner London than Outer London.

Dropping down to the NUTS3 level, it become apparent that the highest rates of net in-migration for the 16-19 group are in Inner London-West. In fact, this is the only region displaying net in-migration, all other NUTS3 regions in London display relatively high net-out migration rates. Both Inner London NUTS3 regions experience very similar rates of net out-migration for 0-15 and 30-44 year olds (those in the family age ranges) and net in-migration for 20-24 year olds (those in the first post-graduation job age group).

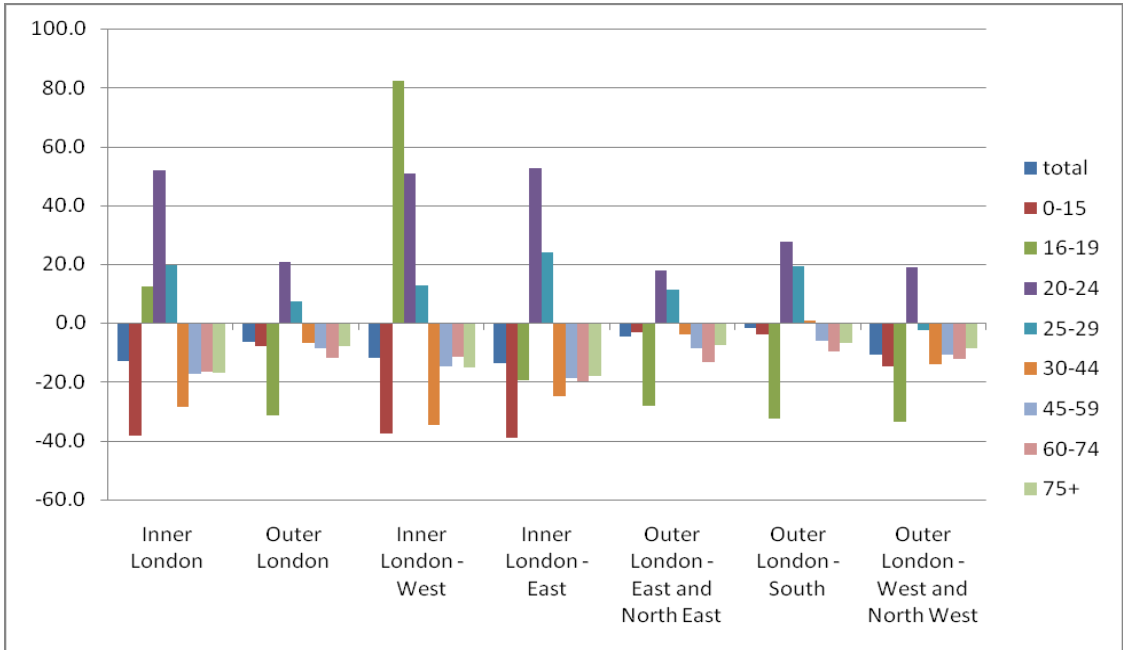


Figure 7 Net migration rates by age for London, 2008

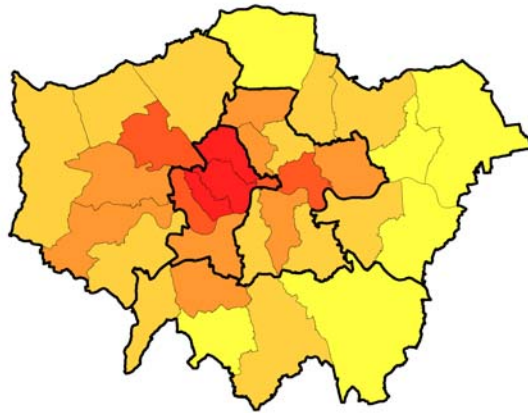
In all, the internal migration flows associated with London produce a distinct and very interesting pattern – one that varies in volume but very little in composition over the ten years between 1999 and 2008. The main story is one of the city losing large number of migrants to the rest of the UK, in net terms. The heaviest net-loses are from Outer London, with fewer from Inner London. When migration patterns are examined within the city though, there is a clear and consistent dispersal of migrants from Inner London to Outer London . Aggregate flows only tell part of the story – disaggregating the flows by age reveals that all areas of the city are gaining very large numbers of migrants in their early twenties. These flows are particularly concentrated in Inner London – the location of many of the jobs which are pulling these migrants in from elsewhere in the UK. Across the board, the city is losing migrants, in net terms, in the pre and post-twenties age groups – a city of young in-migrants and family out-migrants. There is, of course, very significant ethnic diversity in London's population and the migration flow patterns of different ethnic groups have been examined at borough level by Stillwell and Hussain (2010) and at ward level by Stillwell (2010a), demonstrating that the outward dispersal from inner to outer suburbs is behaviour not confined to the White population. Stillwell (2010b) shows that while migration is concentrating the White population in outer suburban areas, the migration of the major Black and Asian populations is a deconcentration movement, with migrants leaving wards with higher concentrations of their own ethnic group and moving to areas with low own-group representation.

6 International migration

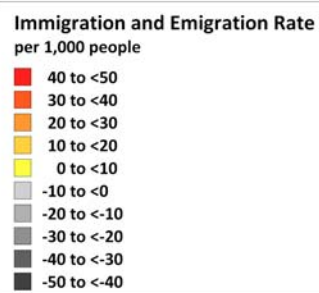
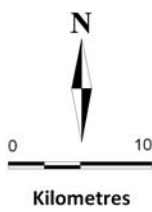
Since 2001 international migration has been a dominant driver of population change yet it remains the most difficult component to estimate accurately. In the absence of a population register, the UK relies upon a combination of census and survey data to estimate immigration and emigration flows at a local level. But in the face of much public scrutiny of its data and methods, ONS has continued to evaluate alternative approaches to the measurement and estimation of international migration, with administrative data sources now an important component of the process.

Existing approaches to estimation have been shown to be less than robust (Boden and Rees, 2009) but these methods still underpin the population estimates produced for local authority areas in the UK. Notwithstanding these estimation issues, international migration flows into London, whether short-term or longer-term, and the development of its ethnic communities, sets London apart as one of the most diverse city communities in the world. The growth in this diversity continues apace as net outflows of 'internal' migrants is balanced by a large net inflow due to 'international' migration. Despite their limitations, the ONS estimates of international migration by London borough provide a picture of the importance of these flows to population growth in the city. The pattern of balances between immigration and emigration rates (based upon resident population) for individual London boroughs is illustrated in Map 6, with the resulting net picture in Map 7. Particularly high churn is experienced in the Inner London-West with a diverse profile of economic migrants coming to the global city for varying lengths of stay. Westminster and Kensington and Chelsea have the highest immigration rates, balanced by the highest emigration rates. Camden also shows evidence of very high immigration rates although its estimates are subject to significant downward adjustment in the revised estimates to be produced in 2010.

Immigration rates into London - 2007



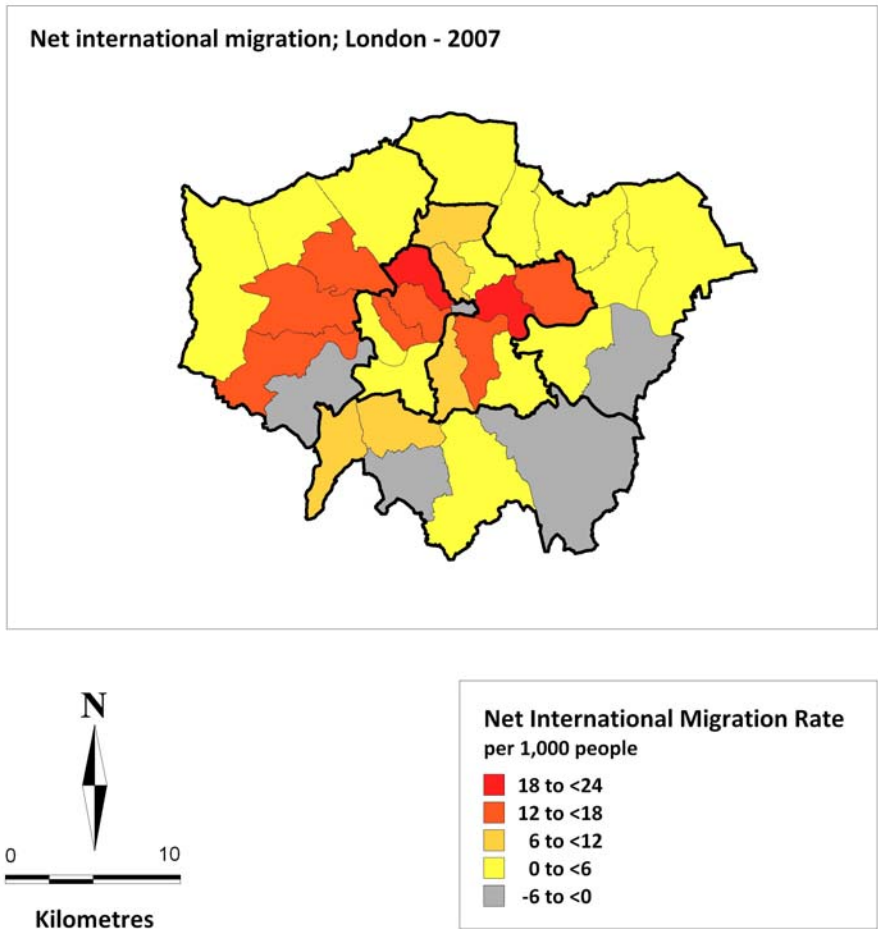
Emigration rates out of London - 2007



Map 6 Immigration and emigration rates, London boroughs, 2007

Newham and Southwark experienced very high rates of net immigration as did Brent, Tower Hamlets, Wandsworth and Lewisham. These are all areas of significant ethnic diversity, whose populations continue to evolve through the dynamics of internal net out-migration, net immigration and relatively high levels of fertility that drive natural change.

These 'official' statistics on international migration hide the additional influence of 'short-term' migration, the inflow of workers, students and dependents for durations of stay that are typically less than 12 months in duration. Short-term flows have been particularly influenced by the enlargement of the EU in 2004 that has seen the unprecedented inflow of migrants from newly integrated states of Central and Eastern Europe. Measuring and monitoring the inflow, outflow and duration of stay of the 'Accession' migrants has been extremely problematic; made increasingly difficult by the economic downturn, with little hard evidence on the impact of the recession upon resident migrants, although a downturn in new 'national insurance number' (NINo) registrations has been evident since late 2009, following a peak inflow in 2007. Accession migrants have added to the existing diversity of London's ethnic communities. In 2008, there were a total of 88,000 NINo registrations across London, with a further 183,000 to non-Accession migrants.

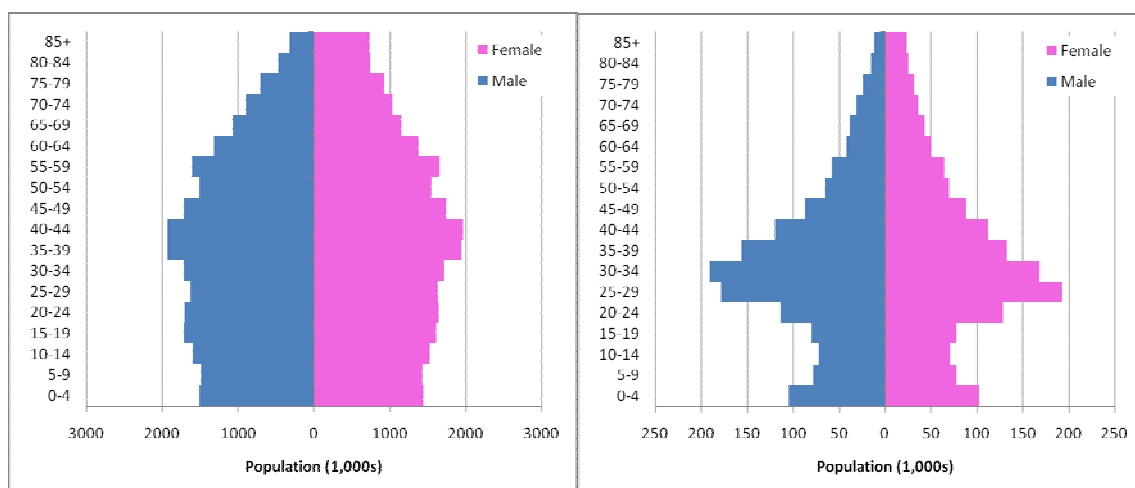


Map 7 Net international migration, London boroughs, 2007

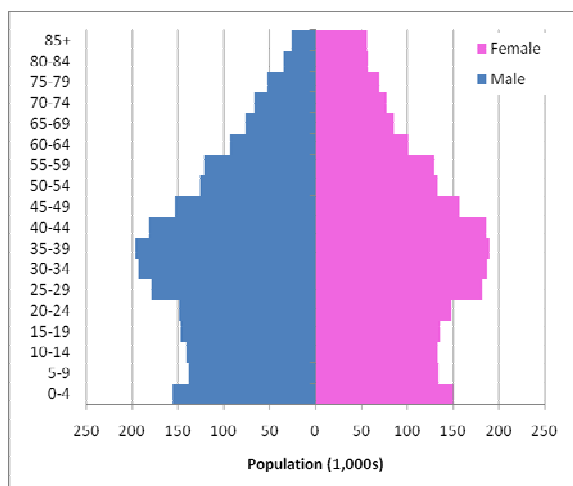
London boroughs are the most ethnically diverse in the UK. In 2008, one third of all London residents were estimated to have been born outside the UK, compared to just 11% across the rest of the country (GLA, 2009). In 2008, over 50% of the residents of Brent and Westminster were born outside the UK (DMAG, 2009). The effect of these demographic drivers upon the age profile and the ethnic mix of London is explored further in the next section.

7 Changing age profile of London's population

The age profile of London is distinct and somewhat different to that of the rest of England. Figure 8a displays a population pyramid for England in 2006, using data from the ONS. The pyramid shows the age groups containing the most people are the 35-39 and 40-44 groups, with successively fewer people contained in each age group above and below these ages, leading to the characteristic 'bulge' seen in many post-demographic transition countries. Contrast this profile with that of Inner London (Figure 8b). This population pyramid is dramatically different in shape, and indeed more akin to the age profile shown when examining migrants. This is perhaps not a surprise when one considers that a very large proportion of the population of Inner London are recent migrants – either internal migrants from the rest of the UK, or international migrants from elsewhere in the world. The population of both males and females declines from 0-4 until the mid teens, from which point it grows steeply to a peak at 25-29 for Females and 30-34 for Males. From this peak at these young adult ages, the population declines quite rapidly in each subsequent age group until the 50s when the decline slows.



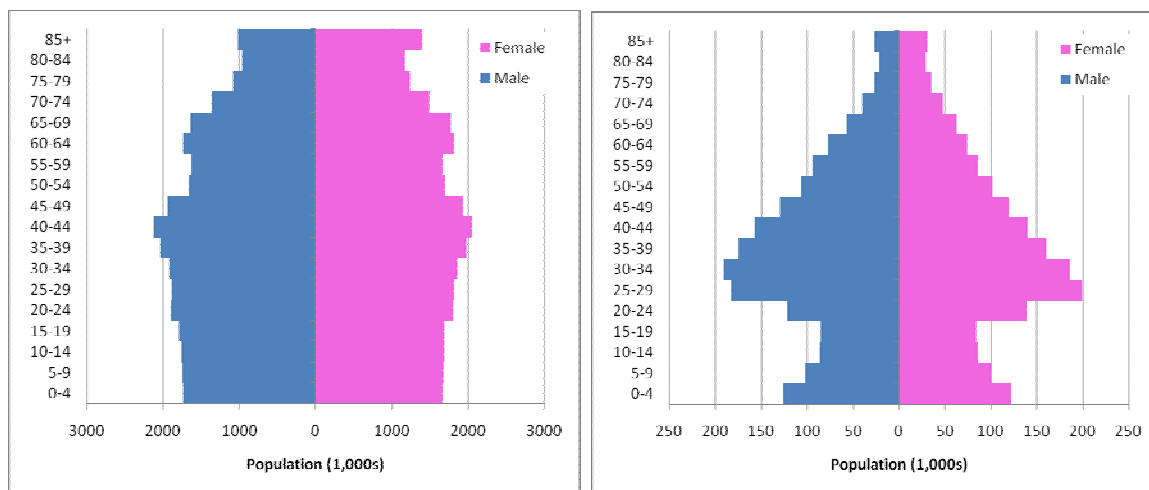
(a) England (b) Inner London



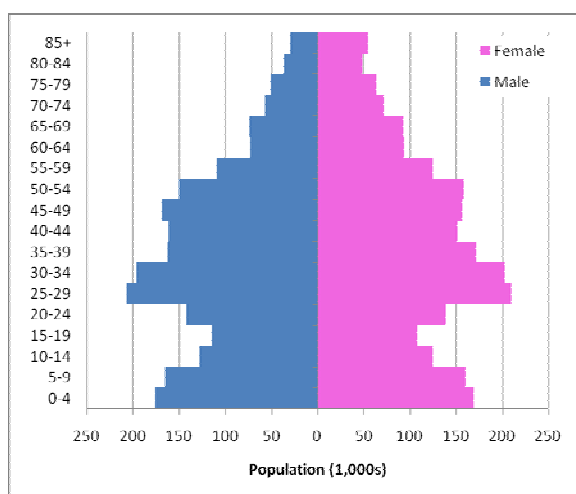
(c) Outer London Source: ONS Sub-national population projections

Figure 8 Population profiles, England and London’s NUTS2 regions, 2006

The distinct population profile of Inner London is somewhat softened when we look at Outer London in the same year. The age group containing the most individuals is a little older than Inner London at 35-39; however, like Inner London, this below 40 peak is still far more pronounced than that of England as a whole. Similarly, the increased 0-4 year old population in Outer London is similar to that of Inner London, but completely unlike the rest of England, suggesting an out-migration of young children with parents to outside of the city.



(a) England (b) Inner London



(c) Outer London Source: ONS Sub-national population projections

Figure 9 Population profiles, England and London’s NUTS2 regions, 2031

In the 25 years between 2006 and 2031, the age structure of the population of both England and London is set to change. An aging population means that in 2031 in England, a higher proportion of the population will occupy the older age groups (Figure 9). This ageing has some effect on Inner London, with the sharp decline in the number people in each age group after 30-34 in 2006 becoming less sharp in 2031. In Outer London, there is a shift in the age structure of the population with considerably fewer people in the 15-19 age range in 2031, with the largest proportion of the population in the 25-29 and 30-34 age groups – a profile far more akin to that of Inner London than that of England.

Whilst the age profile of the London population can be seen as a special case when compared to England as a whole, so too can the ethnic makeup of the city.

London is one of the most ethnically diverse cities in the world and contains higher proportions of non-white British groups than other city in the UK. Figure 10 details the percentage of the total population all non-white British groups comprise in 2006. In Inner London, the largest group is the White Other group, comprising over 14% of the population, this is then followed by the Black African (8%), Black Caribbean (6%) and Bangladeshi (4.5%) groups. In Outer London, the largest non-White British group is the Indian group comprising over 8.5% of the population, this is closely followed by the White Other (8%), then the Black African (4%) and Black Caribbean (3.5%) groups. Other groups which exhibit relatively low overall percentages, but comparatively high percentages when compared with the rest of the UK, are the mixed ethnicity groups. In Inner London all mixed groups have at least double (sometime three-times) the proportion of the population when compared to the rest of the UK. In Outer London, only the White and Black Caribbean groups have slightly less than double the rate found in the rest of the UK. There is a similar pattern story for the Chinese and Other ethnic groups.

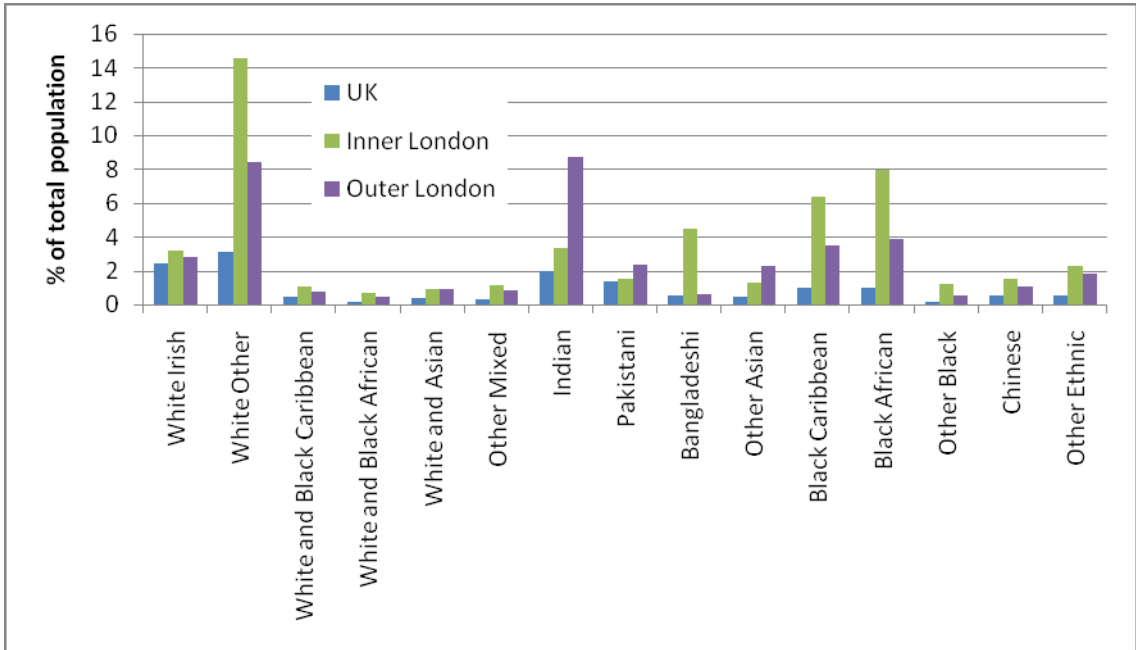


Figure 10 Non-White ethnic groups as a percentage of total population, UK and London’s NUTS2 regions, 2006

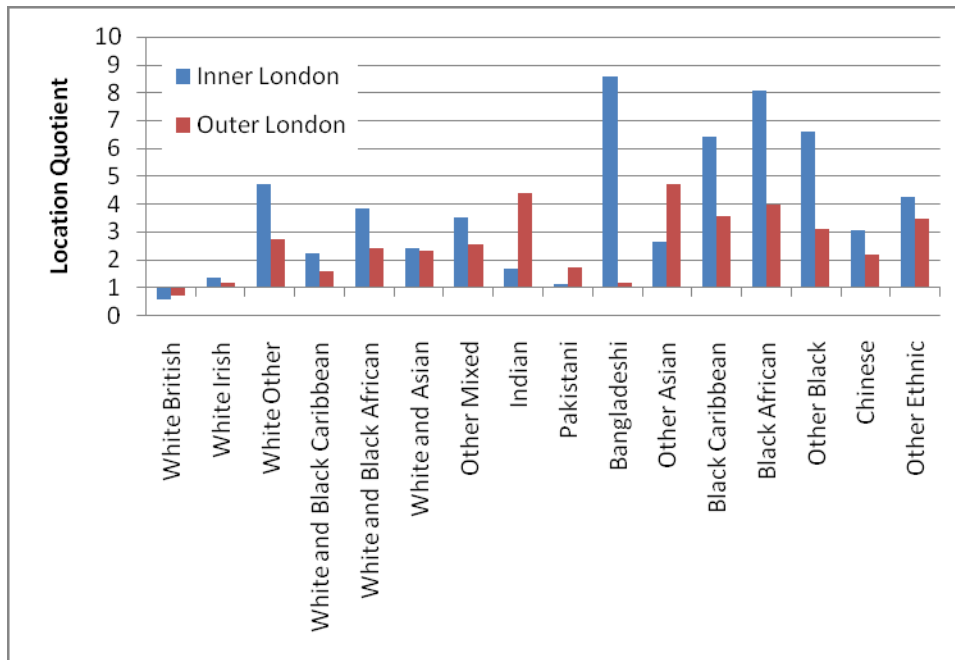
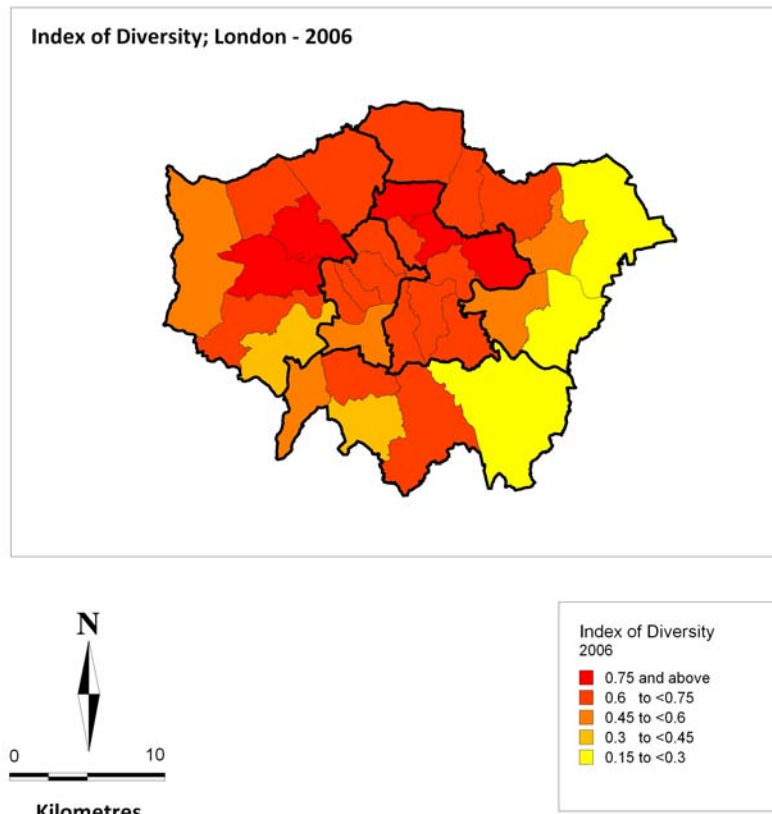


Figure 11 Location quotients of ethnic groups, London’s NUTS2 regions, 2006

Examining the proportion of the population in each ethnic group is interesting, but it does not allow us to compare the relative concentrations of these ethnic groups with all other areas in the UK. Location quotients allow us to do this, with a ratio of 1 representing the average concentration across all areas in the UK; a value above 1 indicating over-representation, and a value below 1 indicating under-representation. Figure 11 shows the location quotients for each ethnic group in Inner and Outer London in 2006. The only group with an under-representation is the White British group; all other groups have an over-representation to a greater or lesser degree. The group with the highest location quotient and therefore highest concentrations is the Bangladeshi group in Inner London, with a location quotient of around 8.5. Examination of data at the borough level reveals that this figure is entirely down to an exceedingly high location quotient of 62.8 for Bangladeshis in the borough of Tower Hamlets. No other ethnic group comes close to this level of concentration, with the next highest location quotient, also for the Bangladeshi group at 16.6 in the borough of Newham. Of the other ethnic groups, concentrations of all Black groups are high in Inner London, with location quotients of between 6 and 8. In Outer London, location quotients are slightly lower, on average, than those in Inner London. Other Asian and Indian groups have the highest location quotients in

Outer London, with particularly high concentrations of these groups (LQ of around 12) in the borough of Harrow.

Another metric which is useful in the study of ethnic group populations is the index of diversity. Rather than measuring the concentration of the ethnic group, the index of diversity measures how mixed an area is – i.e. the likelihood that two people who bumped into each other in the street in an area would differ by ethnicity. An index of 1 would mean diversity is complete, i.e. it is 100% likely that they would differ; a value of 0 means that it is 100% likely they will not differ. Of course, with large areas, the indices close to 1 or 0 will not occur. In 2006, the index of diversity for the whole of the UK was 0.27 – in Inner London the figure was 0.72, and in Outer London, it was 0.60. Figure 19 shows the indices of diversity calculated for each London borough in 2006. The increased diversity in Inner London is clear to see, with Newham the most diverse borough with an index of 0.86. However, of note is the area of low diversity on the eastern edge of London, with the boroughs of Havering and Bexley actually less diverse than the national average with indices of 19 and 26 respectively.



Map 8 Index of diversity, London boroughs, 2006

Examining the projected change in ethnic group location quotients and diversity by 2031, a number of points can be noted. Firstly, the average non-White location quotient across all boroughs and all ethnic groups will reduce from 3.18 to 2.74, indicating that the ethnic groups within London will become less concentrated in relation to the rest of the country. Certainly the concentration of Bangladeshis in Tower Hamlets, whilst still projected to remain high, will reduce by almost a third. With the individual ethnic groups, all are projected to reduce their location quotients by 2031, although all are projected to remain positive except for the Pakistani group in Inner London, which is projected to exhibit a negative location quotient by this time.

In terms of diversity, Both Inner and Outer London are projected to increase their levels slightly by 2031, Inner London from 0.72 to 0.73 and Outer London from 0.60 to 0.68. Analysis at the borough level shows that diversity is projected to increase more-or-less uniformly across the city.

8 The impact of the DEMIFER scenarios on London

8.1 Scenario definition

Five scenarios have been defined as a generic framework to evaluate alternative projections of demographic change between 2005 and 2050. These scenarios are driven by alternative assumptions on fertility, mortality, internal migration, international migration within Europe and international migration to/from outside Europe.

STQ	Status Quo
GSE	Growing Social Europe
LSE	Limited Social Europe
EME	Expanding Market Europe
CME	Challenged Market Europe

The Status Quo scenario retains the components of demographic change for the base period throughout the projection horizon and acts as a benchmark against which the four alternative growth scenarios are compared.

8.2 Scenario summary

A summary of the key outcomes of the five alternative scenarios in Inner London and Outer London is presented in Figures 12 and 13 with more detail in the charts contained in Figure 22 and 23. Maintaining the Status Quo (STQ) would result in a projected 25% increase in population in Inner London to 2050 and a 19% increase in Outer London. There are significant differences in the positive and negative contributions that each of the components of change provide to the overall growth figures. Net out-migration to other regions of the UK would increase substantially under the STQ assumptions in both Inner and Outer London, particularly from Inner London. Natural increase would reduce as deaths rose relative to births. The balance of international migration would remain inward but the inflow from within Europe reduces over the projection period, whilst net in-flows from outside Europe are maintained as the dominant driver of population growth.

The 'Social Europe' scenarios imply greater cohesiveness across the European regions with more convergence on fertility and mortality inequalities and a more balanced attractiveness of individual regions as migrant destination. The Growing Social Europe (GSE) scenario achieves 82% population growth in Inner London 2005-2050 and 61% in Outer London. High fertility results in an increasing number of births and a significant contribution to growth through natural increase. With greater convergence between the relative attractiveness of UK destinations the balance of internal migration in both Inner and Outer London is significantly more negative. Migration to and from Europe reduces in importance throughout the projection period with the net impact is gradually reduced. Net immigration from outside Europe remains the dominant driver of growth throughout.

With a smaller increase in fertility, the Limited Social Europe (LSE) scenario results in less significant growth to 2050 (32% in Inner London, 28% in Outer London) compared to GSE, and a reduced influence of natural increase as a component of this growth. With less convergence between regions in the attractiveness of migrant destinations, net out-migration increases as London retains its 'special' status as the magnet for young economic migrants. Net immigration both from within Europe and from outside Europe remain as key drivers of growth but at a reduced level from the 2005/10 position.

		STQ	GSE	LSE	EME	CME
Population change 2005-2050		25%	82%	32%	103%	55%
Components of change	2005/10	2045/50				
Natural Increase	154,600	87,420	304,322	115,807	377,281	137,160
Net Internal	-237,336	-264,829	-516,191	-315,379	-577,057	-342,903
Net Europe	101,005	10,219	56,322	44,128	48,078	38,024
Net External	264,293	180,984	364,052	179,858	435,650	279,727
All components	282,562	13,794	208,505	24,414	283,952	112,008

Figure 12 Scenario summary, Inner London, 2005-2050

		STQ	GSE	LSE	EME	CME
Population change 2005-2050		19%	61%	28%	82%	37%
Components of change	2005/10	2045/50				
Natural Increase	137,382	69,802	327,247	124,430	443,947	141,952
Net Internal	-159,023	-173,227	-276,168	-191,135	-244,679	-204,371
Net Europe	56,080	-945	5,053	11,267	-18,453	3,163
Net External	176,514	130,052	237,453	120,491	267,402	190,100
All components	210,953	25,682	293,585	65,053	448,217	130,844

Figure 13 Scenario summary, Outer London, 2005-2050

The 'Market Europe' scenarios imply greater competitiveness between European regions, with London as a major node in the economic network. The Expanding Market Europe (EME) scenario achieves very substantial population growth (103% in Inner London, 82% in Outer London) over the projection period but results in a substantial and increasing net loss through internal migration, driven by the increasing size of the resident population. Population growth is driven by high net immigration from outside Europe, which in turn fuels a large increase in the number of births to the more youthful migrant population. Net immigration from Europe is projected to remain positive for Inner London but to reduce to a net outflow in Outer London by 2050. The EME scenario presents a version of the Status Quo scenario with an increasingly diverse population resulting from the high net migration from abroad and continued net loss through internal migration.

The Challenged Market Europe (CME) scenario achieves less significant growth to 2050 (55% in Inner London and 37% in Outer London) than the EME scenario. The retention of mortality and fertility inequalities significantly reduces the impact of natural change. Net losses through internal migration are significant although the level of inflow and outflow to London remains high. The balance of net inflow of young migrants and net outflow of family and older-age migrants continues. Net immigration is the dominant driver of growth, primarily from outside Europe.

Scenario profile:

Inner London

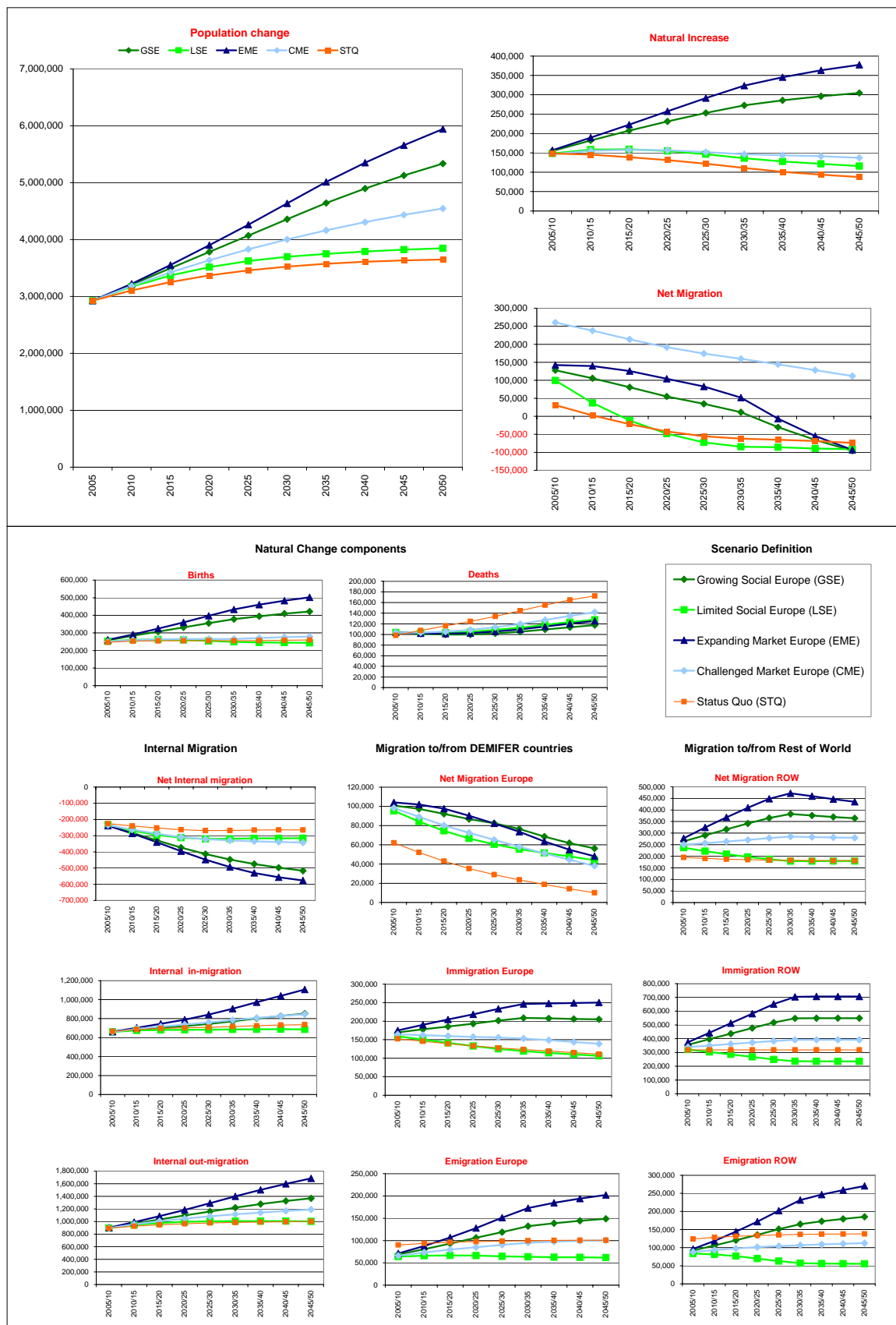


Figure 14 – Demifer scenarios – Inner London

Scenario profile:

Outer London



Figure 15 DEMIFER scenarios, Outer London, 2005-2050

The effect of the various scenarios upon the age profile of Inner and Outer London's population are illustrated in Figures 16 and Figure 18, with a complementary illustration of these temporal shifts provided by the change over time in the key dependency ratios (Figures 17 and 19). The old-age dependency ratio (ODR) is defined as the ratio of population aged 65+ to population aged 15-64 years. This is a demographic indicator of ageing which provides the number of individuals above retirement age relative to the number of people in the economically active age-groups. An increase in the ODR suggests that more elderly people will need to be supported by the same number of people in the labour age. The very-old-age dependency ratio (VODR) provides an additional measure of how the increase of the most elderly will impact upon the population. It is the ratio between those aged 85+ and those aged 15-64 years, so, with the same denominator but a smaller numerator, will always be lower than the ODR.

Demographic change is the key driver of the dynamics of labour markets; however, it does not take into account variations in labour force participation. The economic old-age dependency ratio (EODR) is the ratio of the economically inactive population above retirement age (65+) to the active population aged 15 +or more. The EODR measures the burden of the inactive population of pensionable age on the working population and is an indicator that could be used to assess the sustainability of state pension systems.

Finally, the labour market dependency ratio (LMDR) is defined as the ratio of the total economically inactive population to the total active population. This indicator measures the overall economic burden of the inactive population on the labour market. The LMDR value depends not only on the size of the retired population, but also on the labour market participation of young people who may be in higher education rather than actively employed in the labour force.

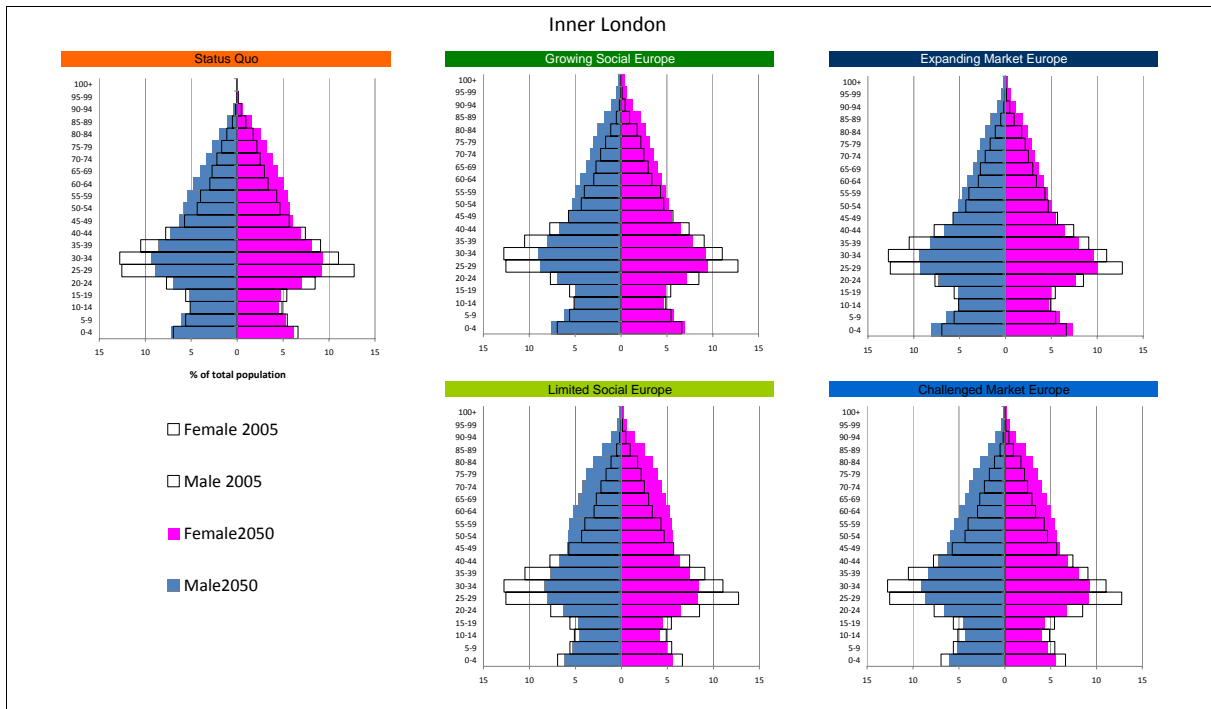


Figure 16 Age-profiles under alternative scenarios, Inner London, 2005-2050



Figure 17 Dependency ratios under alternative scenarios, Inner London, 2005-2050

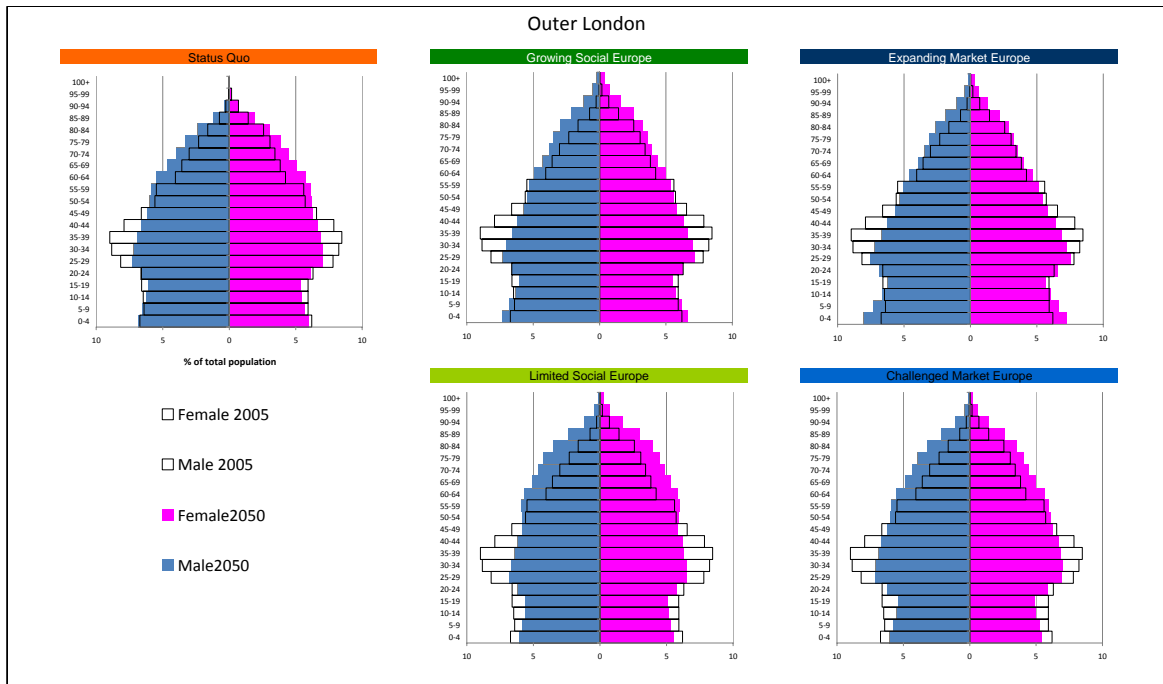


Figure 18 Age-profiles under alternative scenarios, Outer London, 2005-2050



Figure 19 Dependency ratios under alternative scenarios, Outer London, 2005-2050

Each of the four growth scenarios results in ageing of London's population, as the birth cohorts of the 1940-70 period reach retirement and beyond, but the youthful profile that is retained through the net inflow of migrants maintains key dependency ratios at a relatively low level compared to other parts of the UK and Europe. The ODR is highest in Outer London in the base period, given the

concentration of young adults in Inner London. Across all scenarios, the ODR in Inner London increases from 13% in 2005/10 to reach 23-32% by 2050. In Outer London, the increase is from 20% to 28-38% in 2050. The LSE and CME scenarios present the most extreme impacts of demographic ageing in both areas. The effect of increased longevity is emphasised by the VODR statistics which increases threefold in the LSE scenario, from 12% to 30% in Inner London and 9-29% in Outer London. Less extreme increases are evident in the EME, owing to the higher levels of net immigration that result from this scenario throughout the projection period, maintaining a more youthful age profile.

The LMDR provides a more effective illustration of the impact of demographic ageing through the application of participation rates that might result from alternative scenarios of competitiveness or cohesion. In a Limited Social Europe (LSE) and a Challenged Market Europe (CME) with lower rates of labour force participation the level of dependency rises most sharply, exceeding 100% in the LSE scenario for Inner London and over 90% in Outer London, from a base of 70% and 60% respectively in 2005. This means that the size of the active labour force would be equal in size to the dependent population, taking into account inactivity in the labour force ages, including students, in addition to the inactivity of the elderly. With higher levels of participation in the GSE and EME scenarios, LMDR are maintained below 80%, lowest for the more competitive Expanding Market Europe scenario.

9 Concluding comments

London is a global economic hub and a magnet for international tourism, business and migration. Within its borders it has some of the most ethnically diverse communities in the UK, probably within the world. Internal migration continues to redistribute its population with a net inflow to Inner London, primarily of young mobile individuals seeking employment in the capital. Out-migration is typically of family age-groups, aged 30+, with movement from Inner to Outer London and from Outer London to the rest of the UK. International migration is acting as a replacement for net losses due to internal migration with areas of Inner London gaining significantly through net immigration, driving greater ethnic diversity and the growth of minority ethnic populations. Fertility and mortality inequalities exist across the city. Fertility rates are highest in areas with a large ethnic population and recent statistics suggests that approximately 54% of births in London were to mothers whose country of birth was outside the UK. The rise in London's fertility since 2001 has been solely due to this factor. Mortality rates differ sharply between boroughs with levels of relative affluence driving the differences that are experience in life expectancy.

London represents approximately 21% of the country's GVA and remains the engine of economic development for the UK. The alternative demographic scenarios have presented a challenging picture of growth for the capital, regardless of the degree of competitiveness or cohesiveness of market economies. London will remain a magnet for economic and demographic growth. The Expanding Market Europe (EME) and Growing Social Europe (GSE) scenarios suggest that London could be a city of 14 million inhabitants by 2050, a significant growth in an already over-crowded metropolis. This growth would need to be achieved through increasing diversity, fuelled by continued net immigration, a net outflow to other parts of the UK and high natural change. Growth on this scale presents enormous challenges to London and to the rest of the UK as population disperses outwards, seeking housing whilst maintaining an economic link to the capital through employment.

Tighter controls on immigration are likely to be a feature of UK policy with the new Conservative-Liberal Coalition Government Caps on immigration were

propoes in the Conservative party manifesto which would limit immigration to 'tens of thousands' rather than 'hundreds of thousands'. Achieving this level control when a large proportion of migrants have freedom of movement within the EU is unlikely to be possible. The Labour Party have stressed the need to 'tighten' immigration controls without the use of a cap which could constrain economic growth. The UK is slowly moving itself out of recession. In the last two years the level of migration, both internal and international has reduced. The speed and scale of recovery of these migrations flows will determine the scale of London's growth over the next 25 years and the increasingly diverse nature of its population. London will remain a 'competitive' hub in the UK, European and wider international economy. It will continue to attract migrants and its diverse communities will continue to evolve but the scale of growth will be very much dependent upon the level of 'control' that is placed upon future immigration from outside the countries of the EU.

9.1 Abbreviations

ASFR	Age Specific Fertility Rate
CLG	Communities and Local Government
DEMIFER	Demographic and Migratory Flows affecting European Regions and Cities
DMAG	Data Management and Analysis Group
DWP	Department for Works and Pensions
EODR	Economic Old Age Dependency Ratio
EU	European Union
GAD	Government Actuary Department
GLA	Greater London Authority
GOR	Government Office Regions
LLTI	Limiting Long-Term Illness
LMDR	Labour Market Dependency Ratio
LSOA	Lower Super Output Area
NPP	National Population Projections
NUTS2	Nomenclature of Territorial Units for Statistics, level 2
ODR	Old Age Dependency Ratio
ONS	Office for National Statistics
PBS	Points Based System
SMR	Standardised Mortality Ratios
SNPP	Sub-national Population Projections
SPA	State Pension Age
TFR	Total Fertility Rate
VODR	Very Old Age Dependency Ratio

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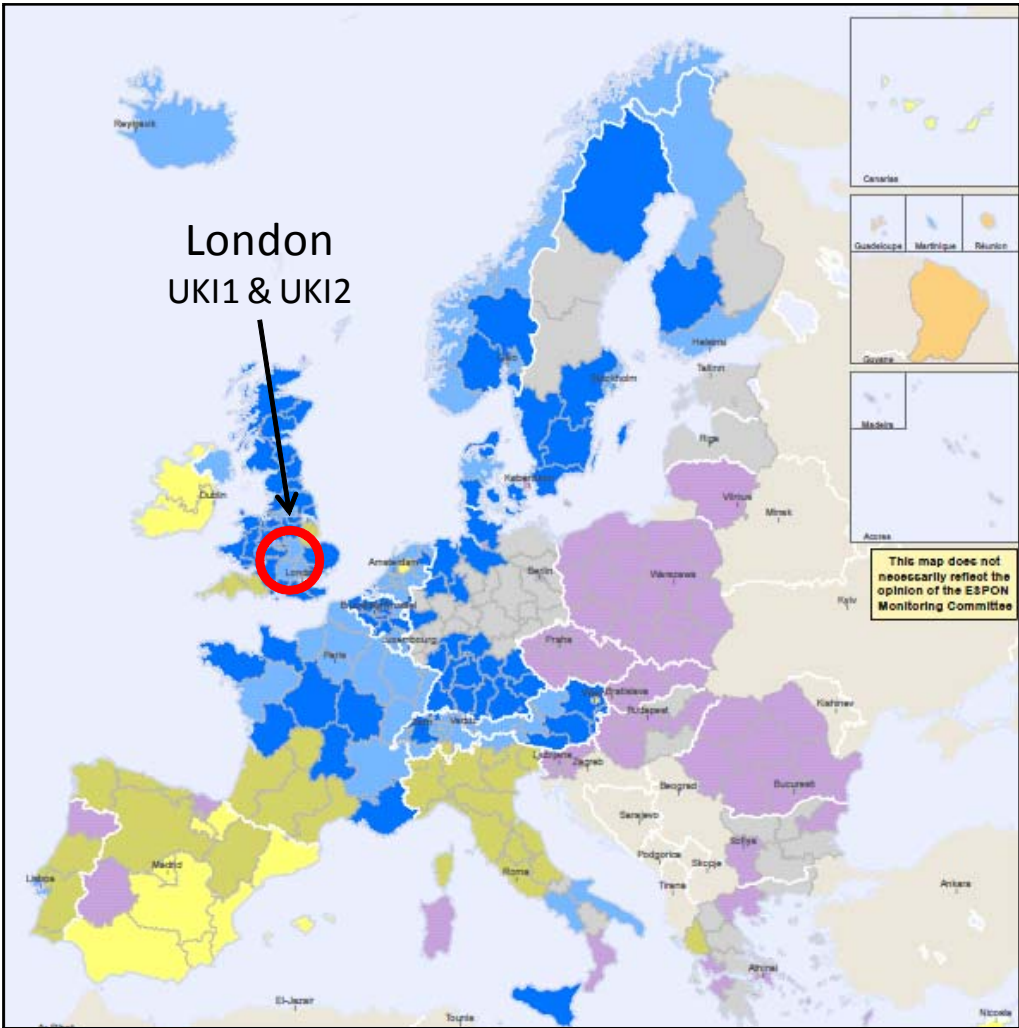
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9.3 Appendix

A1. London – location and typology



Type	Classification	Cases
1	Euro Standard	79
2	Challenge of Transition	61
3	Family Potentials	55
4	Challenge of Ageing	33
5	Challenge of Decline	38
6	Young Potentials	15
7	Overseas	5
EU 27+4	ESPON Space	286