

Compendium

Subnational population projections, supplementary analysis: 2014-based projections

Supplementary analysis to the subnational population projections to help understand local area projections. Subnational population projections provide an indication of the future size and age structure of the population in the regions, local authorities and Clinical Commissioning Groups of England.

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How the population of England is projected to age

The population of England is projected to grow by 4.1 million (7.5%) by mid-2024. The projected growth varies considerably by different age groups. The fastest-growing age group (people aged 65 and over) is projected to grow by 20.4% over 10 years and by nearly 60% over 25 years in England. This age group is projected to increase both in absolute and proportionate terms. This means that not only is this population group projected to continue to grow, but also the share of this age group of the total population is projected to get larger.

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1 . The proportion of people aged 65 and over: projected to rise to 20% or above of the total population in all but one region by 2024

Not all geographic areas will be equally affected by an increase in the number of people aged 65 and over. The region with the largest percentage of this age group is projected to be the South West where the proportion is projected to grow from 21.1% to 23.8% (Table 1.1). The South West is projected to account for nearly a third of all local authorities where more than a quarter of residents are aged 65 and over.

Table 1.1: Change in the proportion of people aged 65 and over in English regions between 2014 and 2024

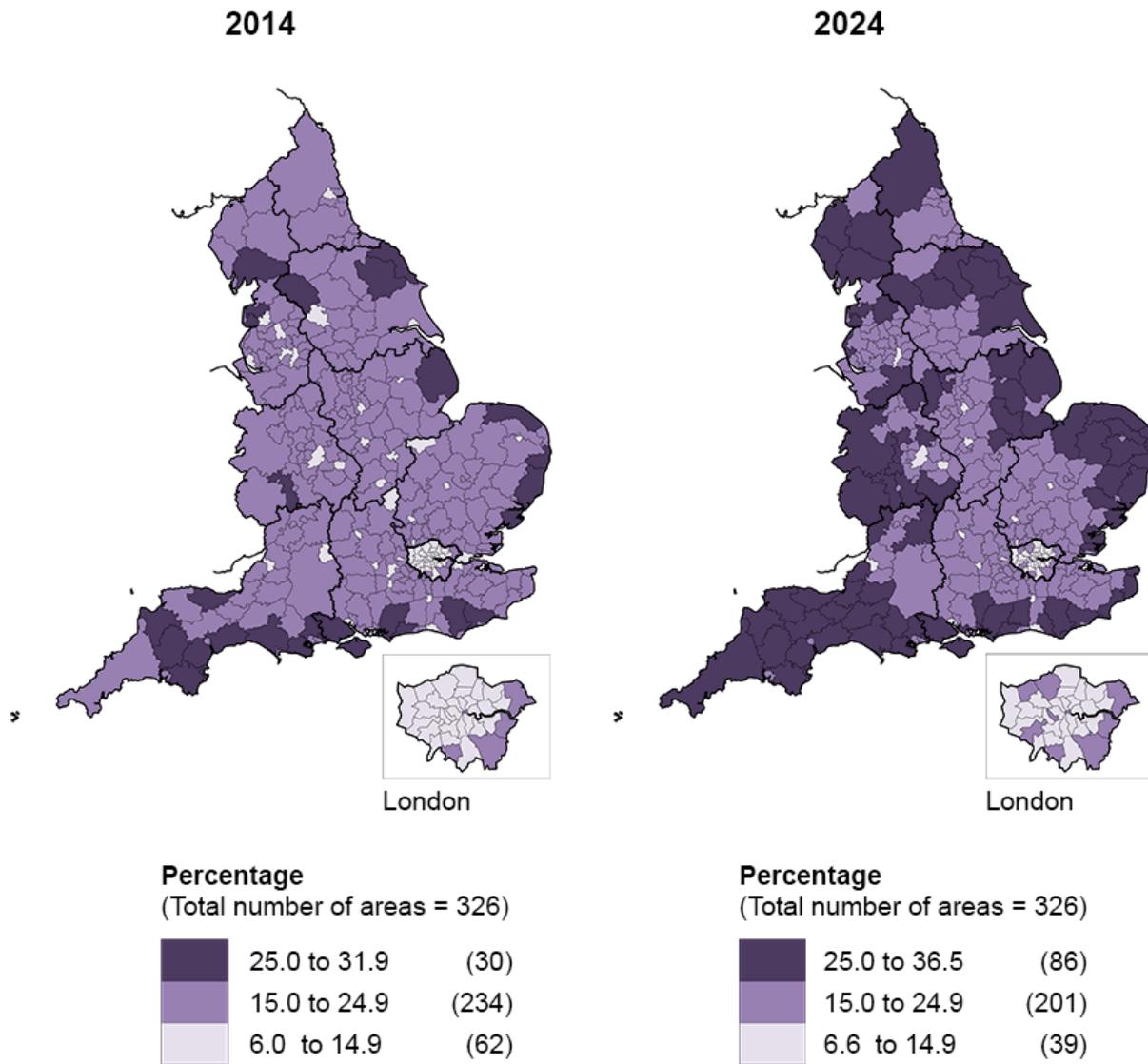
	Proportion of age 65+ in 2014 (%)	Proportion of age 65+ in 2024 (%)
England	17.6	19.7
South West	21.1	23.8
North East	18.8	21.7
East Midlands	18.5	21.2
East	19	21.2
South East	18.6	21
North West	18	20.3
Yorkshire and The Humber	17.9	20.2
West Midlands	18	20
London	11.5	12.5

Source: Office for National Statistics

The only region with a significantly lower proportion of those 65 and over, London, is projected to grow by 1 percentage point, from 11.5 % to 12.5% by mid-2024. In relative terms, however, London is projected to be the fastest-growing region for this age group – 23.6% growth is projected over the 10-year period to mid-2024 (see Figure 1.1).

Map 1.1 shows the projected change in the percentage of population aged 65 and over in local authorities between 2014 and 2024. Coastal local authorities are projected to be most affected by an increase in the proportion of the oldest population group over the 10-year period. [An interactive version of these maps](#) shows both the proportion of the older population and rates of change projected for 10 years between 2014 and 2024.

Map 1.1: Proportion of the population aged 65 and over in 2014 and 2024, England

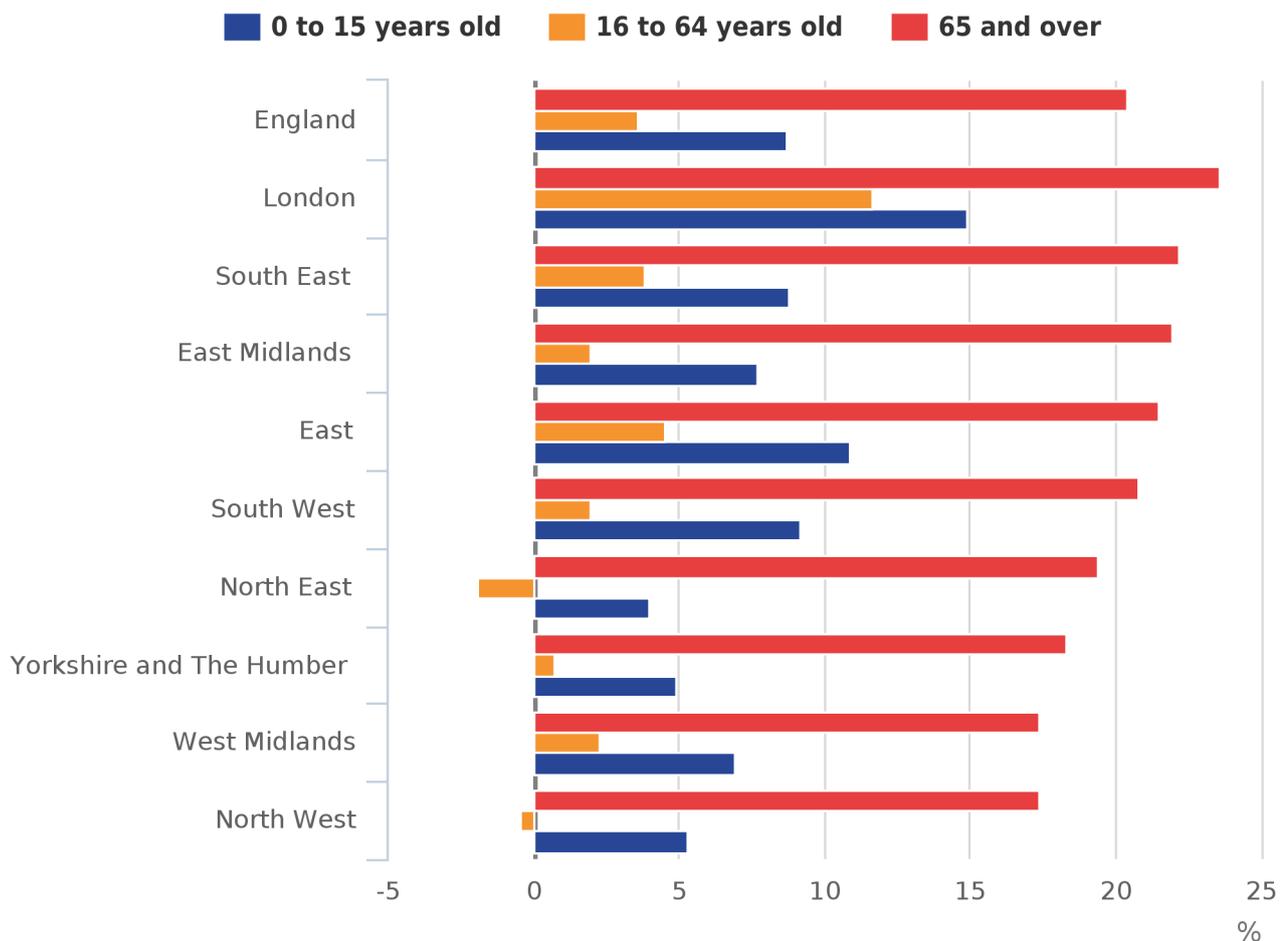


Source: Office for National Statistics
Contains OS data © Crown copyright 2016

2 . The changing balance between age groups: the 65 and over age group is projected to grow more than 5 times as fast as the working age population

On average the working age population group is projected to grow by 3.6% in England over the 10-year period to mid-2024. The 65 and over age group is projected to grow by 20.4% over the same period. A regional growth breakdown by age groups is available in Figure 1.1.

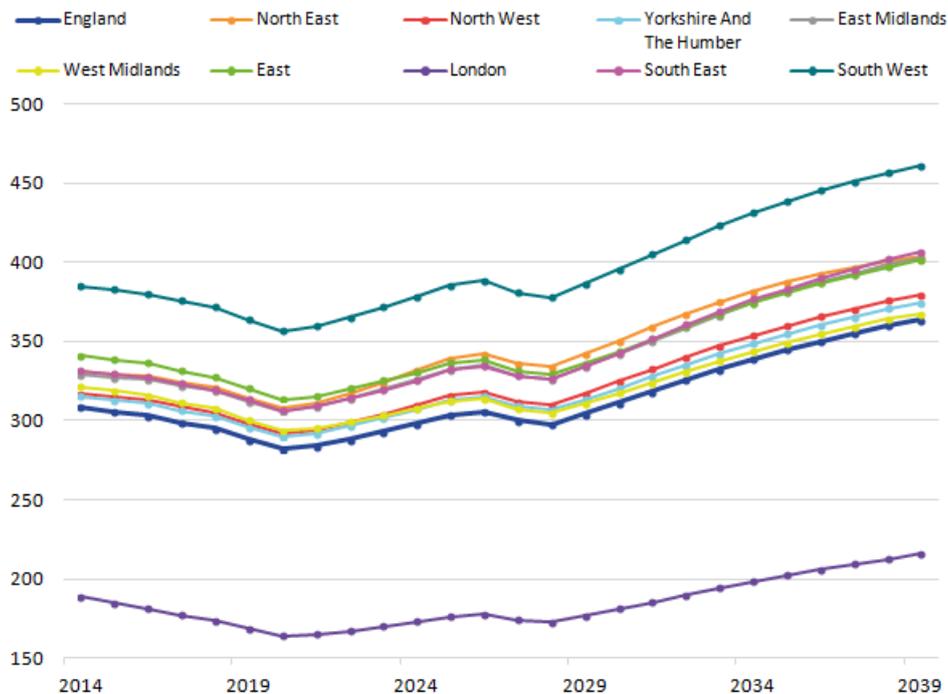
Figure 1.1: Percentage population change by age groups in English regions between 2014 and 2024



Source: Office for National Statistics

A growth in the proportion of those aged 65 and over normally leads to an increase in the old-age dependency ratio¹ (OADR) in the absence of mitigating policy factors. Under the Pensions Act 2014 the retirement age will gradually rise both for men and women². This measure is projected to stabilise and even reverse the OADR from around 309 to 298 between 2014 and 2024. However, due to a rapid continuing growth of the population of pensionable age accompanied by a shrinking proportion of the working age population the old-age dependency ratio is projected to increase to 364 by 2039. Not all geographic regions will be affected to the same extent: the most affected is projected to be the South West, and the least affected London. The projected regional variation in the OADR is presented in Figure 1.2. A [dataset](#) detailing the projected OADR at the local authority level is available for download.

Figure 1.2: Projected change in old age dependency ratio by English regions, 2014 to 2039



Notes for The changing balance between age groups:

1. The old-age dependency ratio is a measure of the number of pension age individuals per 1000 working age individuals.
2. Under the Pension Act 2014 the state pension age (SPA) will change from 65 years for men and 61 years for women to 65 years for both sexes between 2012 and 2018. Then between December 2018 and October 2020 SPA will change from 65 years to 66 both for men and women. Between 2026 and 2046, the state pension age will increase in two stages from 66 to 68 years for both sexes. The OADR calculations are informed by the increase in the state pension age and utilise [Table of State Pension Age Factors Pensions Act 2014](#).

3 . The changing composition of the oldest population age group: an increase in the share of the very old

Table 1.2 and Figure 1.3 summarise changes projected to occur within the oldest age population group: the middle three age groups are projected to remain more or less stable. It is the 65 to 69 age group and the 85+ age group that are subject to the greatest change: the former is projected to shrink by 8.6 percentage points and the latter is projected to expand its share by 6.5 percentage points over the next 25 years.

Table 1.2: Projected distribution within the oldest age group (65 and over) between 2014 and 2039, England

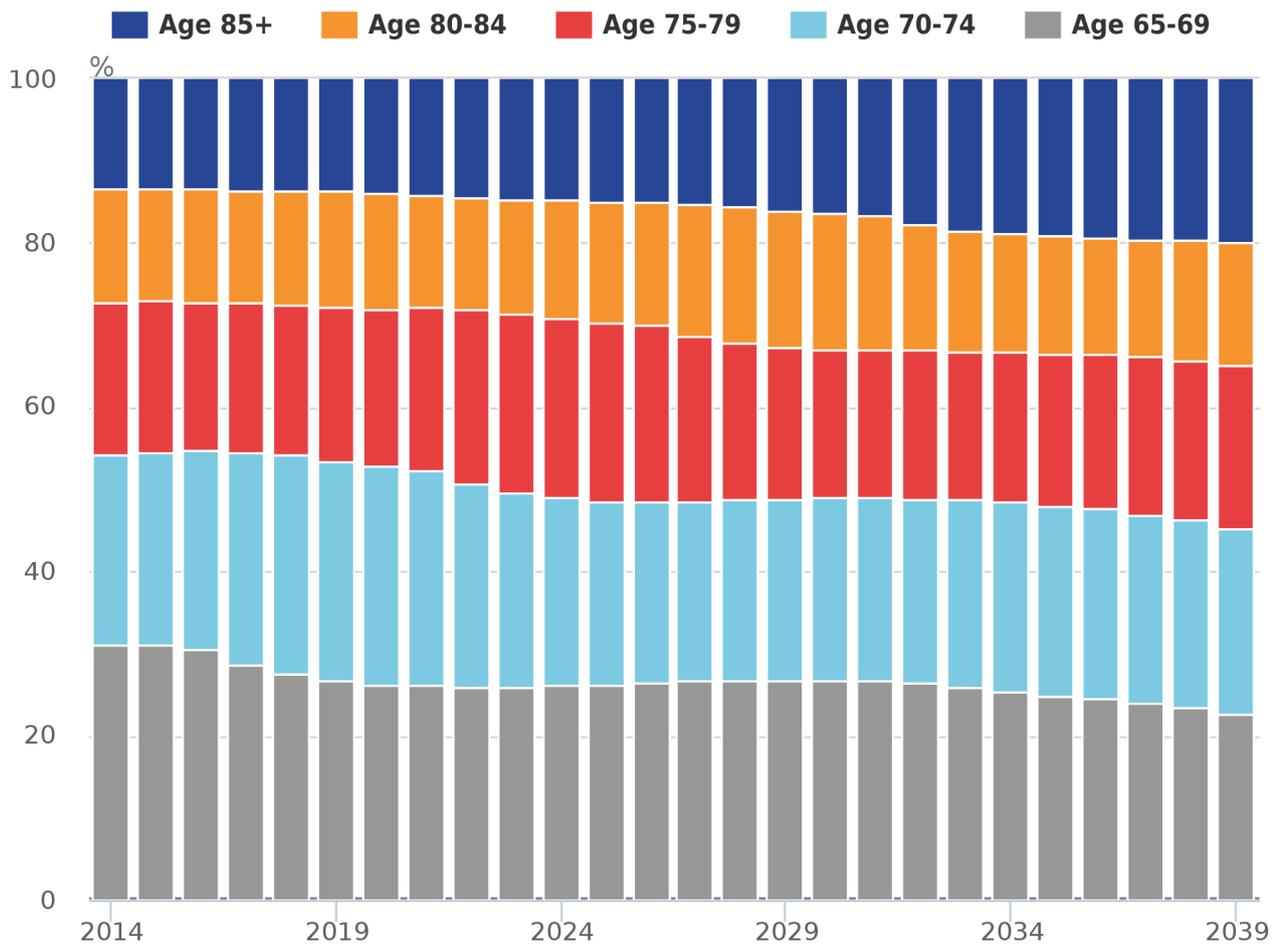
	2014 (%)	2024 (%)	2039 (%)
65 to 69	31.2	26.1	22.6
70 to 74	22.9	22.9	22.7
75 to 79	18.7	21.9	19.9
80 to 84	13.8	14.3	14.9
85 and over	13.4	14.8	19.9
Total	100	100	100

Source: Office for National Statistics

Notes:

1. Figures may not sum due to rounding.

Figure 1.3: Projected increase in the share of people aged 85 and over within the oldest age group in England between 2014 and 2039



Source: Office for National Statistics

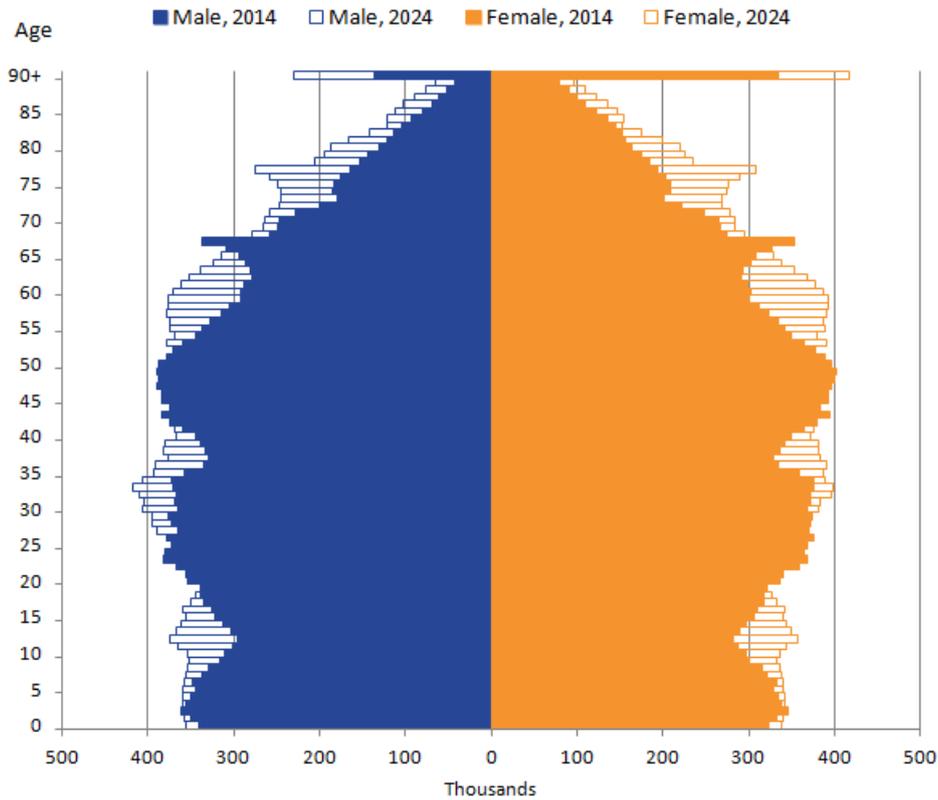
Notes:

1. Figures may not sum due to rounding.

4 . Life expectancy: higher for females, but grows faster for males

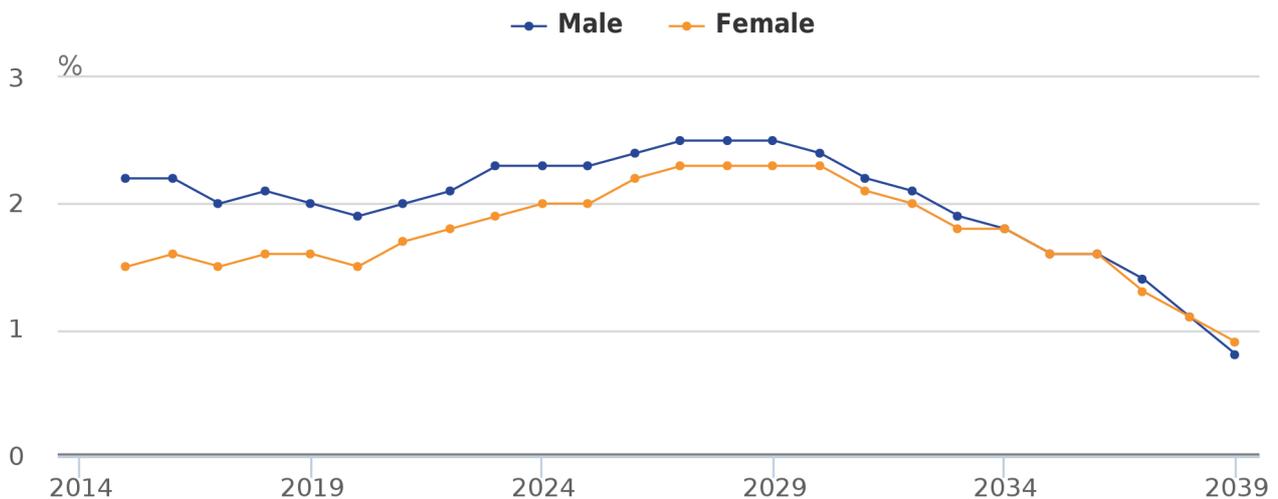
The sex distribution within the age group 65 and over is also projected to change over time. In this age group women tend to outnumber men due to a higher life expectancy. This is particularly visible for those 90 and over in Figure 1.4.

Figure 1.4: Projected change in population age and sex structure in England between 2014 and 2024



Although in absolute terms there will continue to be more women than men in the oldest age group over the projected period of 25 years, the older male population is projected to expand faster – by 64.4% to mid-2039, compared to 54.9% for females over the same period. This faster expansion is associated with increasing life expectancy of the older men. The annual growth rate is projected to be greater for the population of older males in the first years of projections with differences in growth rates narrowing down in subsequent years (Figure 1.5).

Figure 1.5: Annual growth rate between male and female population in the 65 and over age group in England between 2014 and 2039



Source: Office for National Statistics

Understanding projected population change at the local authority level

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1 . Introduction

The population of England is projected to grow by 7.5% over the 10-year period to mid-2024. At the local authority level the rate of change varies considerably, ranging from a projected decline in Barrow-in-Furness (North West) of 4.3% to a projected increase of 25.1% in Tower Hamlets (London). This article will demonstrate the tools and datasets available on the Office for National Statistics (ONS) website to help understand projected population change in an area. By looking at 3 different example areas: Southwark (an urban area), Wealden (a rural area) and Newcastle upon Tyne (a student area), it will show how the rate and main drivers of projected population change vary depending on the type of area and the age and sex structure of the population.

2 . Using interactive maps to look at projected trends

Figure 2.1 shows the interactive population maps available for viewing the results of the 2014-based population projections for local authorities. They can be used to illustrate how the 3 components (natural change (births minus deaths), within-UK migration and international migration) affect the projected population change over the 10 years to mid-2024. Local authorities with projected growth are displayed in green. Areas with a projected decline over the next 10 years are shown in orange. The darker the colour the more growth or decline is projected.

Figure 2.1: Interactive maps showing projected population change for local authorities in England, 2014 to 2024

Looking at the population change map, the London borough of Southwark is projected to increase by 14.3% over the next 10 years. This change is high relative to other areas across the country so is shown in dark green. Looking at the components of change maps, we can see that this increase is made up of an increase of 13.4% due to natural change, a rise of 13.5% due to net international migration and a reduction of 12.8% due to projected moves out of Southwark to other areas in England and to the rest of the UK.

The projected trends we see for Southwark are fairly common across London boroughs and in other business and education centres across the country. These areas tend to attract international migrants but have a net loss of people to other local authorities in England and to the rest of the UK.

3 . Looking at the age and sex structure of the population

The interactive population pyramids provide a good way of understanding projected trends. They provide a picture of the age and sex structure of the population in the base year and show how this changes over the course of the projection.

Figure 2.2 shows the population pyramid for Southwark. The population at mid-2014 is shown as an outline on the graph. The shaded area represents the projected population at mid-2024.

Figure 2.2: Interactive population pyramid for areas in England, 2014-based projections

From the population pyramid in Figure 2.2 we can see that Southwark has a young age structure with a high number of people in their mid 20s to mid 30s. With a higher number of women of childbearing age more births are projected. Due to a relatively low number of people at the older ages, there are fewer deaths projected. The combination of high births and low deaths leads to the positive natural change trend identified in the interactive population maps.

If we compare the mid-2014 and mid-2024 population we can see the largest projected growth for Southwark appears to be for those in their 30s to mid 40s and in their mid 50s to late 60s. Some of this growth will be due to the ageing of the population and relatively larger cohorts moving into older age groups. However, some of this change is due to the impact of migration.

4 . Using published datasets for further analysis

For the 2014-based subnational projections, very detailed datasets which contain projections data by local authority, single year of age and sex for each year of the projection are available for downloading from our website. The purpose of these datasets is to allow further analysis to be undertaken and for data to be aggregated for age groups and geographical areas of specific interest. The following datasets are available:

- [Population projections](#)
- [Projected births by age of mother](#)
- [Projected deaths](#)
- [Projected internal migration](#) (movement between local authorities in England)
- [Projected cross-border migration](#) (movement between England and the rest of the UK)
- [Projected international migration](#) (movement between England and countries outside of the UK)

These datasets can be used to explore trends identified in the interactive tools further. For example, in the case of Southwark it might be interesting to compare the age and sex structure of migrants coming into the borough with the age and sex structure of those moving out of Southwark or to compare the age profile of international and internal migrants.

5 . Comparing different areas

The drivers of population change for more rural areas tend to be different to the patterns seen in areas such as Southwark. For example, Wealden is classified as a predominantly rural local authority in the South East of England. Similar to Southwark, Wealden's population is projected to grow over the 10-year period to mid-2024 with a projected increase of 10.1%. However, the factors driving this change are quite different to those seen in Southwark.

For Wealden the projected increase in population is made up of a decrease of 1.9% due to natural change, a rise of 1.2% due to net international migration and a net increase of 10.9% from people moving into Wealden from other areas of England and the rest of the UK.

Tools are available to [compare the population pyramids for 2 areas](#). It might be useful to compare the pyramid for a local authority with the pyramid for its region or for England as a whole. We also might want to compare 2 local authorities. There is also the option of displaying the figures as numbers or percentages. When looking at the population pyramid for one area, initially it is useful to look at pyramids based on the number of people of each age. It might also be useful to look at the percentage each age contributes to the total population. However, when comparing 2 areas of different population size, it is better to view the pyramids as percentages so that trends can be directly compared.

Figure 2.3 shows the population pyramid for Southwark (our example urban local authority) against the pyramid for Wealden (our example rural area). By viewing the data in this way the different age structures of the 2 populations can be compared. It is also possible to overlap the pyramids to more clearly see the differences for particular ages.

Figure 2.3: Comparison of the population pyramids for Southwark and Wealden

(for illustration only, not interactive)

2014-based Sub-National Population Projections, 2014 - 2039



Source: 2014-based Subnational Population Projections, ONS

Wealden has an older population structure than Southwark. With a lower number of women of childbearing age relative to the population of older ages, fewer births but more deaths are projected for this area. This results in the negative natural change trend identified in the interactive population maps.

When looking at the population pyramid for Wealden we can see what appears to be a projected decline in the population aged in their 40s. Care needs to be taken interpreting some of these trends. Undertaking further analysis using the detailed migration datasets available we can see that although Wealden is projected to see a very small net outwards movement of people at particular ages in their 40s to other countries of the UK and to the rest of the world, this is far outweighed by a projected net gain of people from within England. The dip in the population aged in their 40s is a result of a smaller cohort (who were in their 30s in mid-2014) replacing a larger cohort (who were in their 40s in mid-2014) 10 years later and does not reflect net outward migration at these ages.

6 . Population turnover

Up until this point we have focused on looking at population change over a 10 year period to understand projected trends within an area. Although this is useful to get a high level view it can hide trends occurring within a particular year. The detailed datasets available on our website can be used to explore trends further.

Figure 2.4 shows the population pyramid for Newcastle upon Tyne, a local authority in the North East of England.

Figure 2.4: Interactive population pyramid for areas within England, 2014-based projections

Newcastle upon Tyne's pyramid is typical of a university city. The peak at ages 18 to 21 reflects the student population.

For areas with a high number of students, there are many young people who migrate into the area for study but then leave after they have completed their course(s). The population for this age group therefore remains fairly static over time.

Figure 2.5 shows the average annual projected population turnover for local authorities from mid-2014 to mid-2024, created using the detailed datasets above. Population turnover is a measure of population stability and provides an indication of the intensity of migration into and out of a local authority. In this context, average annual population turnover for an area has been calculated as the sum of in-migrants and out-migrants for the 10 years to mid-2024 as a proportion of the sum of the population over the period mid-2014 to mid-2023. Migration in- and out-flows include the movement between local authorities within England, to or from Wales, Scotland and Northern Ireland and to or from the rest of the world.

Figure 2.5: Average annual projected population turnover for local authorities in England, 2014 to 2024

When we select Newcastle upon Tyne from the drop down list in Figure 2.5 we can see that this local authority has high population turnover for those in their late teens and 20s. Population turnover peaks at ages 19 and 22 reflecting the ages at which students tend to start and finish their studies.

It is useful to compare the graph for Newcastle upon Tyne with graphs for other areas. Southwark shows a more complex picture with higher projected population turnover than Newcastle upon Tyne at most ages. Like Newcastle upon Tyne, Southwark shows a peak in population turnover for those aged 19. Some of this peak will reflect the movement of students attending the university and colleges offering higher education courses within the borough. However, Southwark's population turnover figures are also influenced by international migration, non-student internal in-migration and high internal out-migration, with high projected population turnover particularly for those in their 20s and 30s.

The population turnover graph for Wealden also shows a peak at age 19 which reflects the population moving out of the area to attend university. Wealden generally shows more population stability than Southwark. It has a slightly higher annual average percentage of population turnover for those aged 35 and over than we see for Newcastle upon Tyne. Population turnover at these ages is predominantly due to internal migration into and out of Wealden from and to other parts of England.

Compendium

Comparing Subnational Population Projections to Mid-Year Estimates for 2015

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1 . Executive summary

This report compares the subnational population projections (SNPPs) that are produced by the Office for National Statistics (ONS) for local authorities (LAs) in England for 2015 from the 2014-based and 2012-based SNPPs with the mid-year population estimates (MYEs) for 2015.

In this report the difference between the population estimates and the population projections is termed “error”. The report shows that:

- the level of error is greater for lower level geographical areas and when the period between the projection and the estimate (base) year increases (this has been amended after publication)
- “international migration in” was overprojected for all regions
- the 0 to 15 age groups for both males and females were underprojected in all regions, as was the female 65+ age group

2 . Overview of methods

This report provides a snapshot of the short term accuracy of recent projections. For a more detailed accuracy assessment of projections, please see the [accuracy report on the subnational population projections \(SNPPs\)](#) which was published in August 2015. The methodology used to produce the population projections and the mid-year population estimates (MYEs) are supplied in [Annex A](#). Projections are produced using past changes and trends to the population components which are then extrapolated into the future. In contrast, MYEs use changes to the population components observed in the previous year. For more detail please refer to [the difference between population estimates and population projections](#).

Approach to analysis

In this report, the projected population for mid-2015 from the 2012-based and 2014-based subnational population projections (SNPPs) have been compared to the published mid-year population estimates (MYEs) for 2015. The differences between these are used as an indicator of accuracy and these are expressed as the MYE minus the projections. An “overprojection” is where the projection is higher than the equivalent population estimate and an “underprojection” is where the projection is lower than the equivalent population estimate.

Projection values for internal migration and cross border migration have been summed to create one set of internal migration values (in and out) that are comparable to the MYE values for internal migration (in and out).

Local authorities (LAs) “City of London” and “Isles of Scilly” have been excluded from the analysis due to the small population size of these areas. As the [methodology used to produce the 2014-based subnational population projections for England](#) explains, small population size contributes to highly volatile birth and mortality rates in these LAs.

3 . Data analysis

Assessment of accuracy by level of geography

The 2012-based and 2014-based subnational population projections (SNPPs) for 2015 have been compared with the 2015 mid-year population estimates (MYEs) for the national, regional, county and local authority (LA) level in England. Table 3.1 provides the mean absolute differences for these geographical areas.

Table 3.1: Mean absolute error between population projections and mid-year population estimates by region, county and local authority in England for 2015

Level of Geography	2014-based Mean Absolute Percentage Error	2012-based Mean Absolute Percentage Error
National (England)	0.01%	0.32%
Region	0.11%	0.32%
County	0.13%	0.48%
Local Authority	0.28%	0.81%

Source: Office for National Statistics

Notes:

1. Absolute error is the absolute difference between the population estimates and the population projections (all values are expressed as positive).

The mean absolute error for regions is less than half that for local authorities. Based on the two sets of SNPPs, the closer the projections are to the base year the more accurate they are. Some of the error occurs at the national level (0.01% for the 2014-based projections).

It is harder to estimate the population in areas that have larger flows of international migrants or internal migrants (for example, persons and students moving to an area to work or study). This may explain the larger error at LA level where internal moves (across LA boundaries) may fall within larger counties and regions.

Table 3.2 presents error by region. The greatest 2014-based percentage error is observed for London while the greatest 2012-based percentage error is observed for the East Midlands.

Table 3.2: Error and percentage error between subnational population projections and mid-year population estimates for 2015 by region in England*

Region	2014-based Error	2012-based Error	2014-based % Error	2012-based % Error
North West	12,200	19,740	0.17%	0.28%
South West	7,660	25,990	0.14%	0.47%
East Midlands	6,350	24,960	0.14%	0.53%
East	4,320	25,410	0.07%	0.42%
Yorkshire and The Humber	2,730	-4,990	0.05%	-0.09%
West Midlands	1,400	19,790	0.02%	0.34%
South East	-1,810	28,290	-0.02%	0.32%
North East	-2,740	1,420	-0.10%	0.05%
London	-23,650	32,300	-0.27%	0.37%

Source: Office for National Statistics

Notes:

1. *Positive values signify an underprojection and negative values signify an overprojection

The regional errors are explored further in the assessment of accuracy by component of change section.

The accuracy of the projections has also been considered by population size. We would expect absolute error in general to be larger for local authorities with a large population size and this is illustrated by the positive trend shown in Figure 3.1 where the absolute error has been plotted by the size of LA. When the SNPPs are plotted against the MYEs for the LAs (Figure 3.2) the relationship between them is linear.

Figure 3.1: Absolute differences between the 2014-based population projection and the mid-year population estimate for 2015 by area size for local authorities (LA) in England

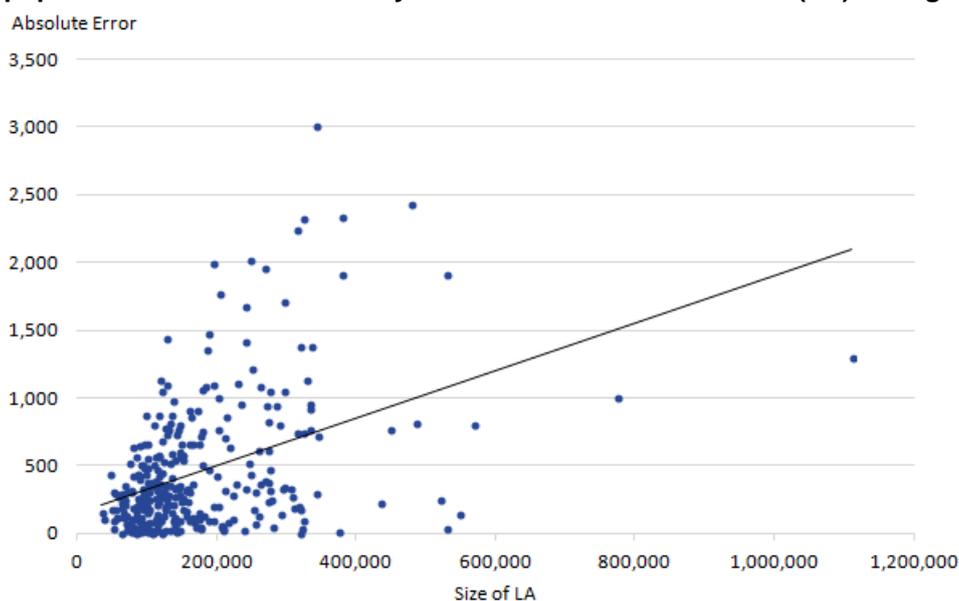
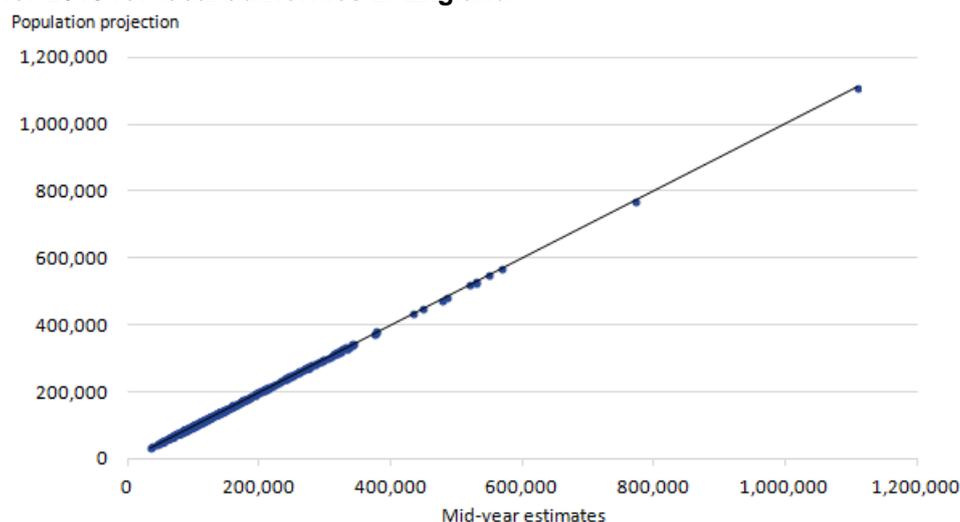


Figure 3.2: Comparison of the 2014-based population projections to the mid-year population estimates for 2015 for local authorities in England



The LAs with the greatest total 2014-based underprojection errors and percentage errors are shown in Table 3.3 and Table 3.4 respectively. The error of the projections for 2015 increases with distance from the base year of the projections.

Table 3.3: Top local authorities in England by greatest total underprojection error for 2015

LA	2014-based Error	2012-based Error	2014-based % Error	2012-based % Error
Liverpool	2,430	7,600	0.51%	1.59%
Manchester	1,920	8,140	0.36%	1.54%
Aylesbury Vale	1,470	5,110	0.78%	2.71%
Exeter	1,440	6,230	1.13%	4.89%
Westminster	1,410	9,670	0.58%	3.99%

Source: Office for National Statistics

Table 3.4: Top local authorities in England by greatest percentage underprojection error for 2015

LA	2014-based Error	2012-based Error	2014-based % Error	2012-based % Error
Exeter	1,440	6,230	1.13%	4.89%
Purbeck	440	630	0.96%	1.36%
Welwyn Hatfield	1,140	2,950	0.95%	2.48%
North West Leicestershire	880	2,050	0.91%	2.11%
Wychavon	1,050	2,770	0.86%	2.28%

Source: Office for National Statistics

Table 3.5 and Table 3.6 display the LAs with the greatest total 2014-based overprojection errors and percentage errors respectively. The areas of greatest overprojection, with the exception of Eastleigh, are London boroughs which have not grown at as fast a rate as was projected.

Table 3.5: Top local authorities in England by greatest total overprojection error for 2015

LA	2014-based Error	2012-based Error	2014-based % Error	2012-based % Error
Ealing	-3,020	-8,080	-0.88%	-2.36%
Barnet	-2,340	-2,090	-0.62%	-0.55%
Brent	-2,330	1,590	-0.72%	0.49%
Wandsworth	-2,250	-2,460	-0.71%	-0.78%
Harrow	-2,020	-3,660	-0.82%	-1.48%

Source: Office for National Statistics

Table 3.6: Top local authorities in England by greatest percentage overprojection error for 2015

LA	2014-based Error	2012-based Error	2014-based % Error	2012-based % Error
Richmond upon Thames	-2,000	-1,780	-1.03%	-0.91%
Ealing	-3,020	-8,080	-0.88%	-2.36%
Merton	-1,770	-5,760	-0.86%	-2.81%
Eastleigh	-1,100	-1,250	-0.85%	-0.97%
Harrow	-2,020	-3,660	-0.82%	-1.48%

Source: Office for National Statistics

Assessment of accuracy by component of change

This section will investigate the accuracy by individual components of change.

The 2014-based projections for components of change (births, deaths and migration) in 2015 have been compared with those in the 2015 MYEs. Table 3.7 displays the proportions of underprojection and overprojection across the LAs for each component. More than half of the errors for “international migration in” and “international migration out” were overprojections, while more than half of the errors for “internal migration in” and “internal migration out” were underprojections. This means that greater levels of movement between LAs are estimated to have occurred than were assumed in the projections.

Table 3.7: Percentage of local authorities in England that were underprojected or overprojected by components of change in 2015

% of LAs	Births	Deaths	Internal migration in	Internal migration out	International migration in	International migration out
Overprojected	42.0	54.9	29.0	30.2	68.8	58.3
Underprojected	58.0	45.1	71.0	69.8	31.2	41.7

Source: Office for National Statistics

Table 3.8 presents the percentage error for each component of change for the regions (and the national level), these are displayed for the regions in Figure 3.3. “International migration in” was overprojected for all regions while the greatest percentage errors were observed for “international migration out”.

Table 3.8: Components of change (percentage error) by region and at national level in England for 2015*

Region	Births	Deaths	Internal migration in	Internal migration out	International migration in	International migration out
North West	1.24	-0.93	3.61	-5.42	-1.78	-0.64
South West	-1.05	0.33	2.23	-4.28	-2.81	3.80
East Midlands	0.59	-0.46	1.06	-3.69	-0.22	-4.74
East	0.94	0.48	1.43	2.18	-4.47	-29.34
Yorkshire and The Humber	0.88	-0.59	-1.07	-4.06	-3.27	1.60
West Midlands	-0.40	1.02	1.28	-1.36	-2.12	1.56
South East	0.33	-0.24	-1.17	0.58	-4.11	-8.25
North East	-1.60	2.47	-0.92	-4.47	-12.25	13.70
London	-1.64	-2.14	-2.44	8.46	-2.11	-13.34
England	-0.06	0.00	-1.48	0.70	-2.82	-7.12

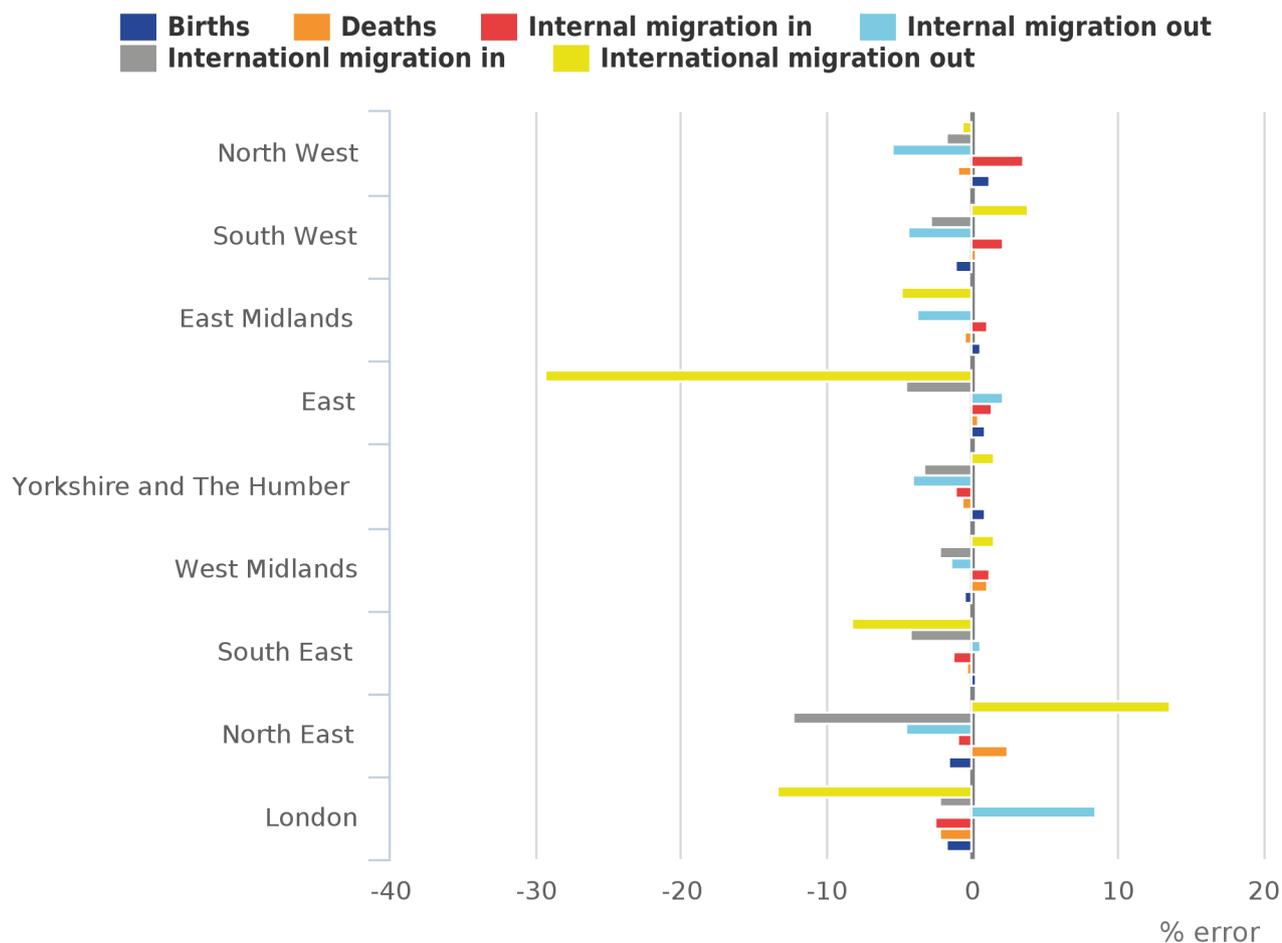
Source: Office for National Statistics

Notes:

1. *Positive values signify an underprojection and negative values signify an overprojection

The errors associated with births and deaths are comparatively low when compared to the size of some of the errors for internal and international migration. The [methodology guide for mid-2015 UK population estimates \(England and Wales\)](#) explains that “migration is the most difficult part of the estimate process to measure precisely because the UK has no population register”. The migration estimates are produced by using the best available proxy data in a nationally consistent manner. The numbers of births and deaths are obtained from the Civil Registration System and should therefore more closely reflect the true values. Similarly the migration assumptions for the SNPPs are generally more volatile.

Figure 3.3: Components of change for the regions across England in 2015 (percentage error)



Source: Office for National Statistics

Notes:

1. Positive values signify an underprojection and negative values signify an overprojection.

Assessment of accuracy by age and sex

The 2014-based projections for 2015 have been compared with the 2015 MYEs with the data grouped by age and sex. Table 3.9 presents the percentage error for each age and sex group for the regions which are displayed in Figure 3.4. The 0 to 15 age group for both males and females were underprojected in all regions, as was the female 65+ age group.

There were overprojections for both males and females aged 16 to 64 for London and the North East.

Table 3.9: Percentage error of age and sex groups by region across England in 2015*

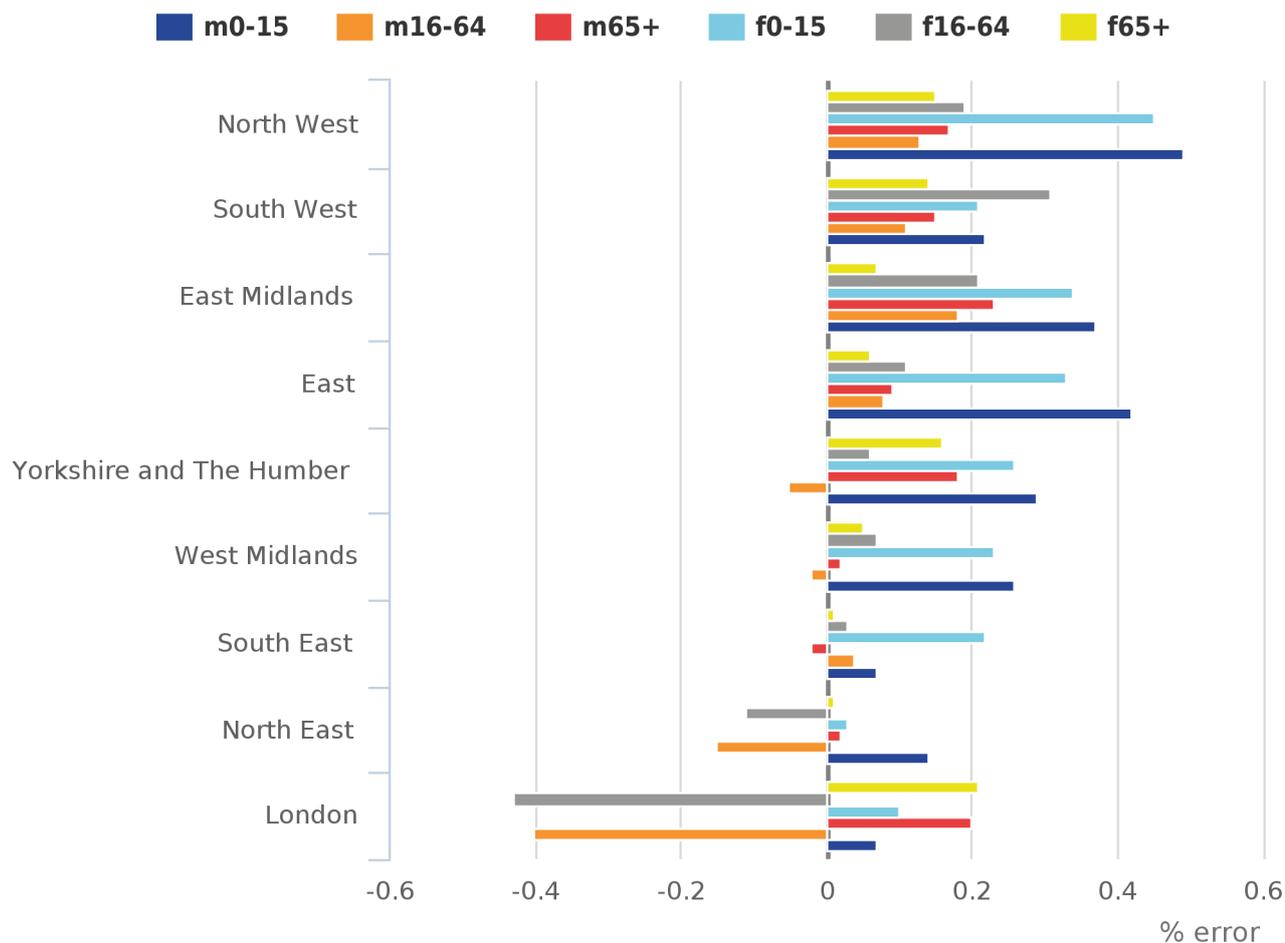
Region	m0-15 (%)	m16-64 (%)	m65+ (%)	f0-15 (%)	f16-64 (%)	f65+ (%)
North West	0.49	0.13	0.17	0.45	0.19	0.15
South West	0.22	0.11	0.15	0.21	0.31	0.14
East Midlands	0.37	0.18	0.23	0.34	0.21	0.07
East	0.42	0.08	0.09	0.33	0.11	0.06
Yorkshire and The Humber	0.29	-0.05	0.18	0.26	0.06	0.16
West Midlands	0.26	-0.02	0.02	0.23	0.07	0.05
South East	0.07	0.04	-0.02	0.22	0.03	0.01
North East	0.14	-0.15	0.02	0.03	-0.11	0.01
London	0.07	-0.40	0.20	0.10	-0.43	0.21

Source: Office for National Statistics

Notes:

1. *Positive values signify an underprojection and negative values signify an overprojection

Figure 3.4: Age and sex groups for the regions across England in 2015 (percentage error)



Source: Office for National Statistics

Notes:

1. Positive values signify an underprojection and negative values signify an overprojection.

4 . Conclusions

This report has compared the population projections for 2015 from two sets of projections with population estimates for 2015.

The main findings are that there are greater errors with the projections for lower level geographical areas and when the period between the projection and the estimate year (2015) increases.

It was found that at regional level, there was an overprojection for London, the North East and the South East but the projections were closer to the mid-year population estimate (MYE) from the 2014-based projections than the 2012-based projections. Across the local authorities, London boroughs had the highest overprojection error where they had not grown as fast as expected.

5 . Annex A

1 – Subnational population projections (SNPPs) methodology

Population projections are produced every 2 years and project the population 25 years ahead. The subnational population projections (SNPPs) are produced for geographies below the national level (for example, region and local authority). We produce SNPPs for areas in England only. These provide an indication of the possible size and structure of the future population based on the continuation of recent demographic trends (births, deaths and migration).

It is also important to emphasise that these projections are not forecasts and do not attempt to predict the impact that future government or local policies, changing economic circumstances or other factors might have on demographic behaviours.

The SNPPs are produced for each local authority and Clinical Commissioning Group (CCG) in England by age and sex. They are produced using the cohort component method, which is a standard demographic method and use high quality data sources to inform the components of population change. The SNPPs take the local authority population estimates as their starting point and then apply assumptions about future fertility, mortality and migration levels based on trends in recent estimates over the previous five to six years.

The population from the previous year is aged on by one year and local fertility and mortality rates are applied to calculate projected numbers of births and deaths, and then the population is adjusted for projected internal, cross-border and international migration. Prior to ageing on, the population of armed forces are removed as these are a “static population”, whose size and age-sex structure is assumed not to change over the projection period. Each of these components (except internal migration) is constrained to its respective total from the corresponding national population projections, and once the static population has been added back, the projected population is controlled to the national population projections total for England. This process is repeated for each year of the projection period. The population at the end of each cycle becomes the base population of the next cycle.

The latest set of projections are based on the 2014 mid year population estimates (MYEs) and are consistent with the principal 2014-based national population projections for England. Further detail on the [subnational population projections methodology](#) can be found on our website.

2 – Mid-year population estimates (MYEs) methodology

The mid-year population estimates (MYEs) are produced every year and provide an estimate of the resident population of England and Wales as at 30 June each year. The population estimates are also produced using the cohort component method. Firstly, the population is aged on by one year. Then births are added on and deaths are removed, by age and sex, and usual area of residence. Movement of people in and out of the UK (international migration) and movements between different areas in the UK (internal migration) are then accounted for. Internal migration includes both cross-border moves between countries of the UK and moves between local authorities within England and Wales. Adjustments are made for prisoners and armed forces as they are not captured by the usual internal or international migration estimates. They are referred to as “static populations” because they have specific age structures which remain fairly constant over time.

The method above is applied in years when there is no census. For every tenth year when there is a census, the population estimates are based on the most recent census estimates following an adjustment for population change between Census day and 30 June. The latest set of population estimates were published in 2016 and estimate the population as at 30 June 2015. Further detail on the [population estimates methodology](#) can be found on our website.