GLAINTELLIGENCE

Update 2017-09

2016-based Trend Projection Results

July 2017

Key Findings

- The GLA has released three sets of trend-based projections based on different assumptions about future migration patterns. These are:
  - A central 10-year migration scenario
  - A short 5-year migration scenario
  - A long 15-year migration scenario

- Based on the central variant the total population of London is projected to rise by 1.98 million between 2016 and 2041 to reach 10.78 million.

- London's population is projected to reach 10 million in 2030 under the central scenario, 2029 under the short-term scenario and 2032 under the long-term scenario.

- All boroughs are projected to see a rise in population over the projection period. Barking & Dagenham is projected to have the highest proportional growth (33 per cent) over the period 2016 to 2041 while Kensington & Chelsea has the lowest proportional growth (9 per cent).

- Note: These projections do not attempt to account for the impact on London's population of the United Kingdom's exit from the European Union.

Introduction

This Intelligence Unit Update outlines the results of the GLA's 2016-based borough level population projections. These were released in July 2017 and incorporate ONS population estimates and internal migration estimates up to and including mid-year 2016[1]. As there is uncertainty about future migration, caused in part by the influence of the financial crisis on recent patterns, three variant projections based on different assumptions about future migration patterns have been released. These are:

- **A central projection:** This projection uses ten years of past data to project migration trends. The GLA considers this to be the best available projection for strategic planning purposes.
- **A short-term projection:** This projection uses five years of past data to project migration trends. This projection produces higher populations for London boroughs and is closest to the ONS SNPP in methodology.
- **A long-term projection:** This projection uses 15 years of past data to project migration trends. This projection produces lower populations for London boroughs.

The projections based on the three migration scenarios are referred to as the central, short-term and long-term variants. In each case, mortality and fertility methodologies are the same but the assumptions regarding migration differ.

The full set of GLA projections are available on the London Datastore as well as information on how the variant projections relate to one another (https://data.london.gov.uk/demographic-projections/).

Projections beyond London

This release of GLA projections includes, for the first time, data for English local authorities outside London as well as national-level data for Wales, Scotland and Northern Ireland. This report presents the outputs for London only. An *Intelligence Update* (2017-07) describing the rationale for the expansion of the GLA model beyond the London boundary and an overview of results for the Wider South East region is available to download form the London Datastore[2].

Methodology

A detailed methodology paper on the GLA cohort component model is available to download from the London Datastore[3] (Update 2016-02). An annex to this document detailing minor changes implemented since the release of the methodology paper is also available[4] (Update 2017-05).

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[1] These official estimates cover the period to June 2016 and therefore do not include data for the period following the UK referendum on EU membership
[2] https://data.london.gov.uk/dataset/2016-based-projections-documentation
[3] https://data.london.gov.uk/dataset/2015-round-population-projections/resource/8cb45509-626e-4845-acb0-f36383fc5704
[4] https://data.london.gov.uk/dataset/interim-2015-based-projections-documentation/resource/98a82931-cd30-4826-9e2b-80294bb91983

Results

This *Update* primarily provides detail on the central variant, only including data from the short and long term variants where necessary for comparison. The projections released by the GLA extend to 2050. This *Update* is primarily concerned with the period to 2041 as this corresponds with the period which will be covered by the next London Plan.

Figure 1: Total Population, Greater London 2011-2050
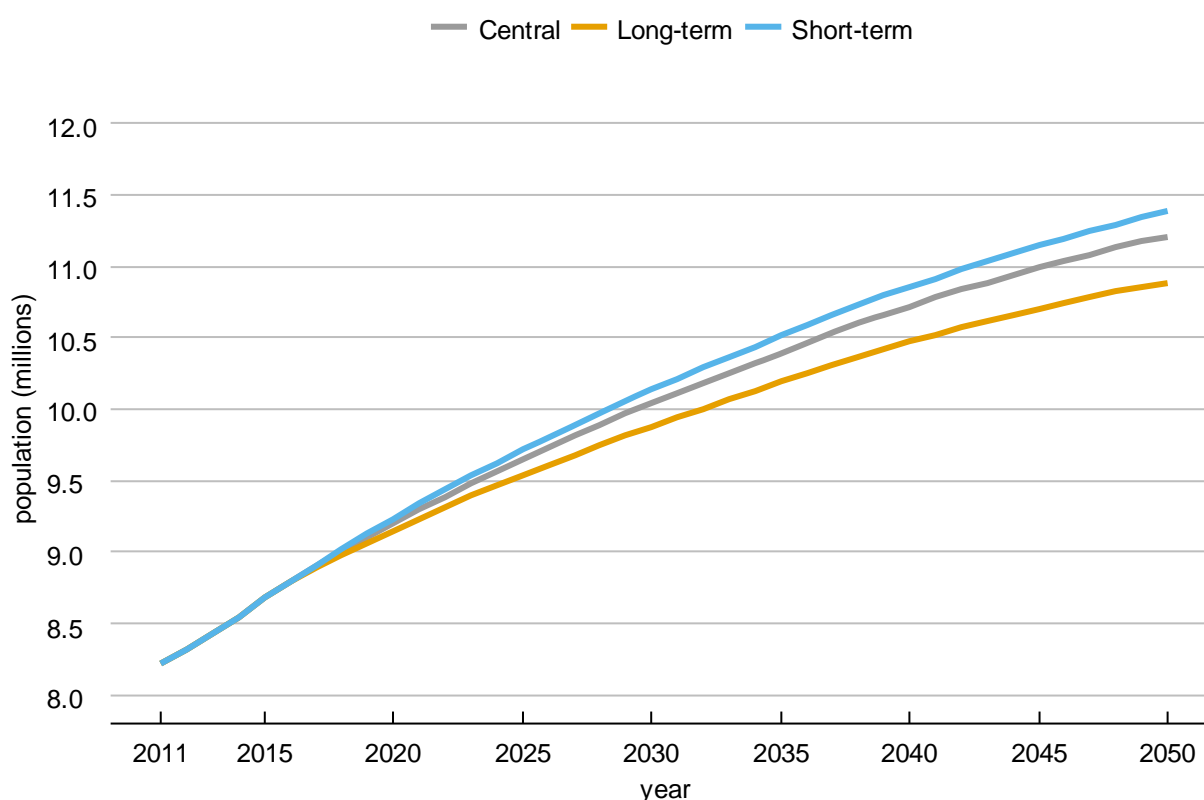
GLA, 2016-based population projections

The 2016 Mid-Year Estimate (MYE) puts London's total resident population at 8.80 million. The GLA central variant projects that the population will reach 10 million in 2030 and that by 2041 there will be 10.78 million Londoners (an increase of 1.98 million or 22.5 per cent). This compares to 10.92 million under the short-term variant and 10.52 under the long-term variant.

Table 1: Total population (millions)

Year	Central	Long-term	Short-term
2011	8.22	8.22	8.22
2016	8.80	8.80	8.80
2021	9.30	9.23	9.34
2026	9.73	9.61	9.81
2031	10.11	9.94	10.21
2036	10.46	10.25	10.58
2041	10.78	10.52	10.92

GLA 2016-based population projections

Comparison with 2015-based projection results

The most recent set of GLA projections, released in February 2017, and based on the 2015 Mid-Year Estimates were the 2015-based projections. Figure 2 compares the 2015-based central projection to the 2016-based central projection (both use ten years of past migration data).

Figure 2: Comparison of 2015-based and 2016-based central projection, London 2015-2050
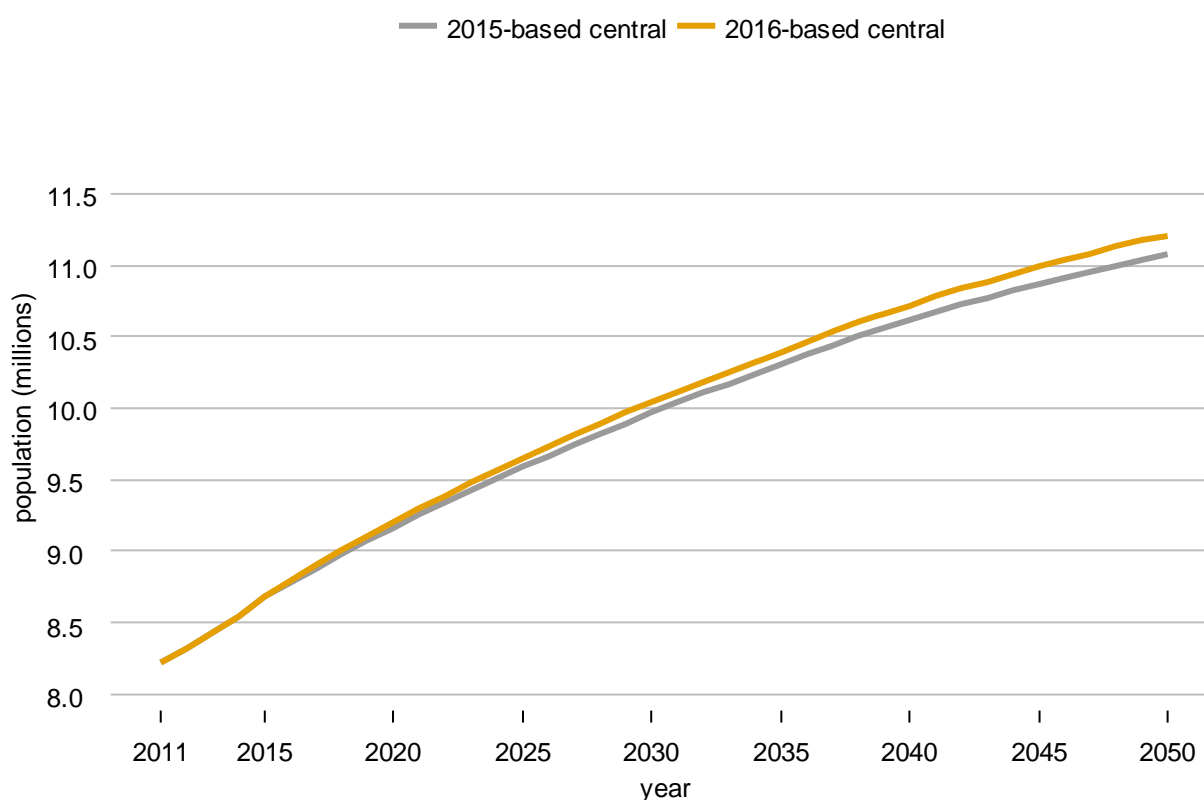
GLA, 2016-based & 2015-based population projections

The 2016-based projection has a higher trajectory than the 2015-based projection. This is due to a higher population in 2016 at the start of the projection and differences in projected migration. In the 2015-based projection London's population in 2016 was projected to be 8.79 million, this was 13,000 lower than the subsequent MYE. As a result, the central variant starts from a higher base.

In addition, the period of past data used to calculate migration rates in the two projections is different. The 2015-based used the period 2006-2015 while the 2016-based uses 2007-2016. Figures 9 and 10 below show the impact of these varying periods on domestic and international net migration.
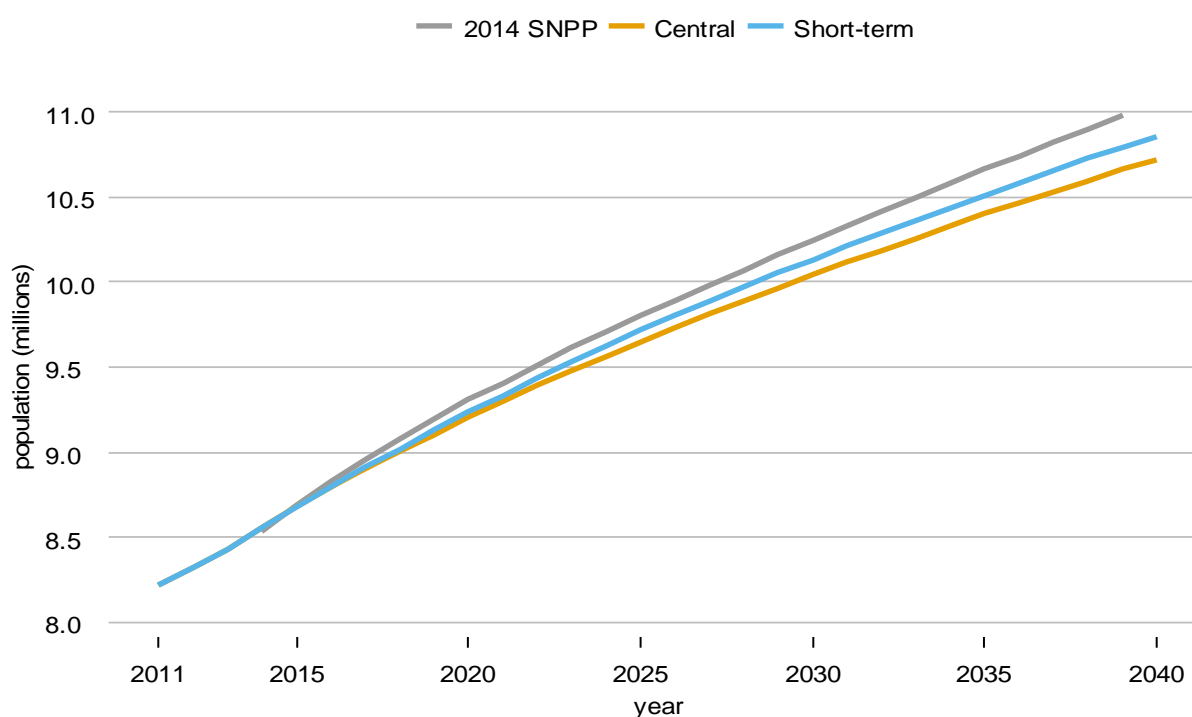
Comparison with ONS projections

The most recent ONS sub-national population projection (SNPP) is the 2014-based (released May 2016). The ONS projections are based on a broadly similar methodology to the GLA's. Both use a cohort component model and project forward according to recent trends in fertility, mortality and migration.

The ONS produce a single projection with no variants and this uses the assumption that recent patterns of migration (five years for domestic flows, six years for international) will persist for the duration of the projection period. The GLA short-term projection is the closest variant to the ONS SNPP as it uses five years of migration data for both domestic and international migration trends. However, the GLA believes that for strategic longer-term planning purposes a projection which uses migration rates based on an average of ten years' past data is more realistic and robust (the GLA central projection).

A further methodological difference is that the sum of ONS's sub-national projections for all authorities in England and Wales are constrained to be consistent with the results of the equivalent round of their National Population Projections (NPP).

In addition to methodological differences the GLA and SNPP differ in the years of past data which inform the projections. The 2014-based SNPP takes as its starting point the 2014 mid-year estimate and calculates historical rates using data up to and including 2014. The 2016-based GLA projections have the advantage of incorporating two additional years of back data and take as their starting point the 2016 mid-year estimate.

## Figure 3: The ONS SNPP and GLA projections, London 2011-2041

GLA, 2016-based population Projections, ONS 2014-based SNPP

At the end of the SNPP projection period in 2039 the ONS projects the population of London will be 10.98 million. This compares to 10.79 million in the GLA short-term variant (a difference of 185,200) and 10.66 million in the GLA central variant (a difference of 316,300).

The next set of local authority level ONS projections will be the 2016-based SNPP which are scheduled for release in May/June 2018.

Borough Populations

Figure 4: Population change 2016-2041, central scenario
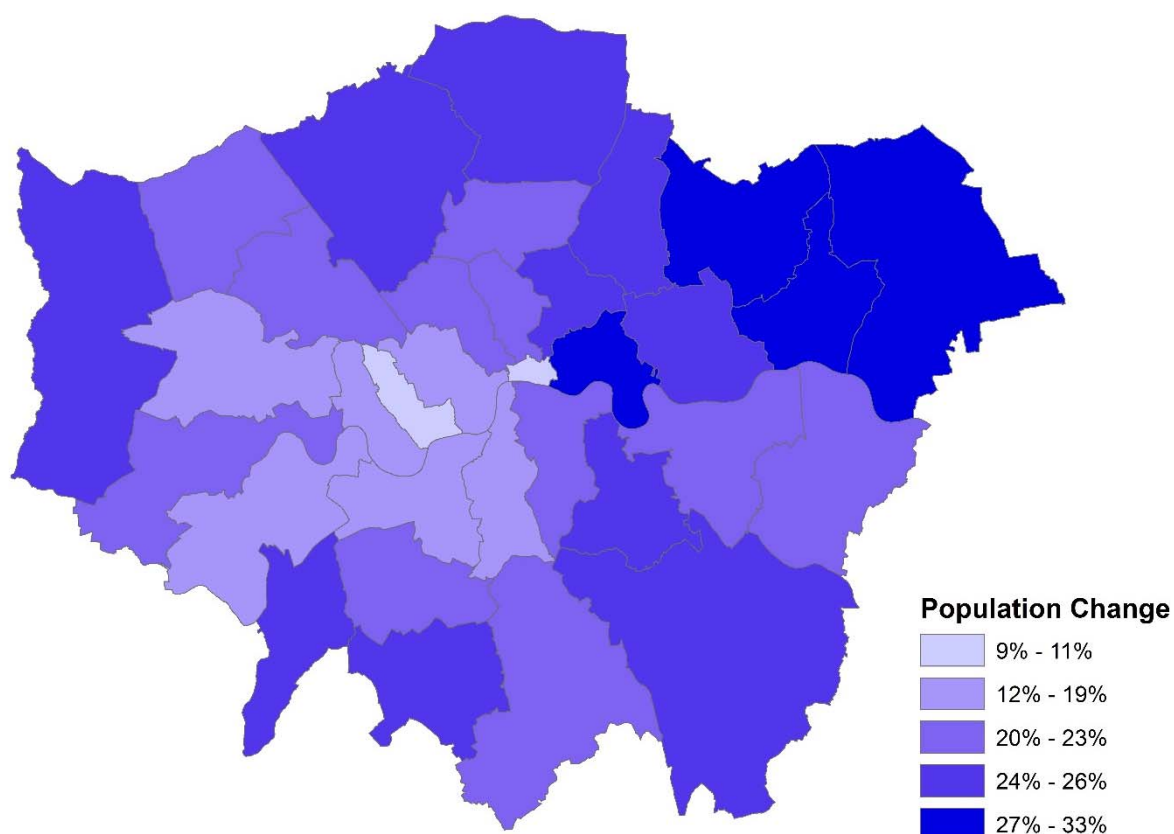
GLA, 2016-based population projections

Figure 4 outlines the distribution of population growth in London over the period 2015 to 2041. The largest growth is projected to be in east London in the boroughs of Barking and Dagenham (33 per cent), Redbridge and Havering (both 30 per cent). Tower Hamlets is also projected to see significant growth (29 per cent). The lowest growth is projected in the west-central boroughs of Kensington & Chelsea (11 per cent), Hammersmith and Fulham (15 per cent) and Westminster (16 per cent).

Table 2 shows borough total populations at five-year intervals for the period 2011-2041. The populations are taken from the central trend variant.

Table 2: Borough populations, central scenario

Borough	2011	2016	2021	2026	2031	2036	2041
Barking and Dagenham	187,400	206,800	224,500	240,000	253,200	265,000	275,500
Barnet	357,700	386,200	411,500	433,500	452,600	470,200	485,800
Bexley	233,000	245,000	256,300	267,700	278,500	288,800	298,500
Brent	313,100	329,100	346,200	360,700	373,300	384,700	394,500
Bromley	311,100	327,400	344,900	361,500	376,500	390,400	403,000
Camden	220,100	246,200	260,300	270,800	280,100	288,100	295,100
City of London	7,400	7,400	7,500	7,600	7,700	7,900	8,100
Croydon	364,800	382,300	402,300	420,600	436,900	452,100	465,700
Ealing	339,700	343,500	360,000	373,600	385,100	395,900	405,600
Enfield	314,000	331,500	351,800	370,300	386,600	401,700	415,200
Greenwich	255,500	279,800	294,700	308,700	321,300	332,800	343,200
Hackney	247,600	273,900	291,000	305,600	318,200	330,300	341,000
Hammersmith and Fulham	182,800	180,000	187,700	192,900	197,600	202,300	206,200
Haringey	256,400	279,300	293,900	306,500	317,800	328,400	337,700
Harrow	241,100	249,300	262,700	274,800	285,400	295,100	303,700
Havering	238,300	253,100	268,700	284,500	299,900	314,500	328,000
Hillingdon	276,100	303,100	321,900	338,700	353,600	366,300	377,600
Hounslow	255,300	271,500	287,700	301,200	312,500	322,400	331,200
Islington	206,600	233,200	244,300	254,600	264,100	272,900	280,200
Kensington and Chelsea	158,700	157,100	161,000	164,500	168,100	171,600	174,900
Kingston upon Thames	160,500	176,100	187,000	196,500	204,700	211,400	217,300
Lambeth	304,800	328,200	342,200	353,900	364,700	376,400	386,400
Lewisham	277,500	302,500	321,400	338,100	352,500	365,600	377,300
Merton	201,200	205,700	217,400	227,000	234,800	242,100	248,600
Newham	311,900	342,400	365,700	385,200	401,700	416,300	428,700
Redbridge	281,500	299,400	321,300	341,100	358,500	374,200	388,200
Richmond upon Thames	187,500	195,800	205,800	214,100	220,700	226,800	232,600
Southwark	289,400	313,900	331,600	346,200	359,200	371,300	381,600
Sutton	191,500	202,600	214,300	225,100	234,400	242,900	250,800
Tower Hamlets	256,700	305,500	330,500	349,900	366,400	380,900	392,900
Waltham Forest	260,400	276,500	293,600	308,600	321,700	333,400	343,900
Wandsworth	308,300	316,700	330,400	341,300	350,500	360,300	369,200
Westminster	219,600	247,600	258,300	267,200	275,100	282,000	288,200
London	**8,217,500**	**8,799,000**	**9,298,000**	**9,732,400**	**10,113,700**	**10,464,800**	**10,776,400**

GLA 2016-based population projections

2016-based trend projection results

Age Structure

Figure 5 shows estimated and projected age structures for London for 2016 (MYE) and 2041 (central projection). It illustrates that the population is projected to rise for almost all ages over the period. Large increases are projected among children between six and 18 and for all ages over 35.

Figure 5: Age structure, London 2016 & 2041
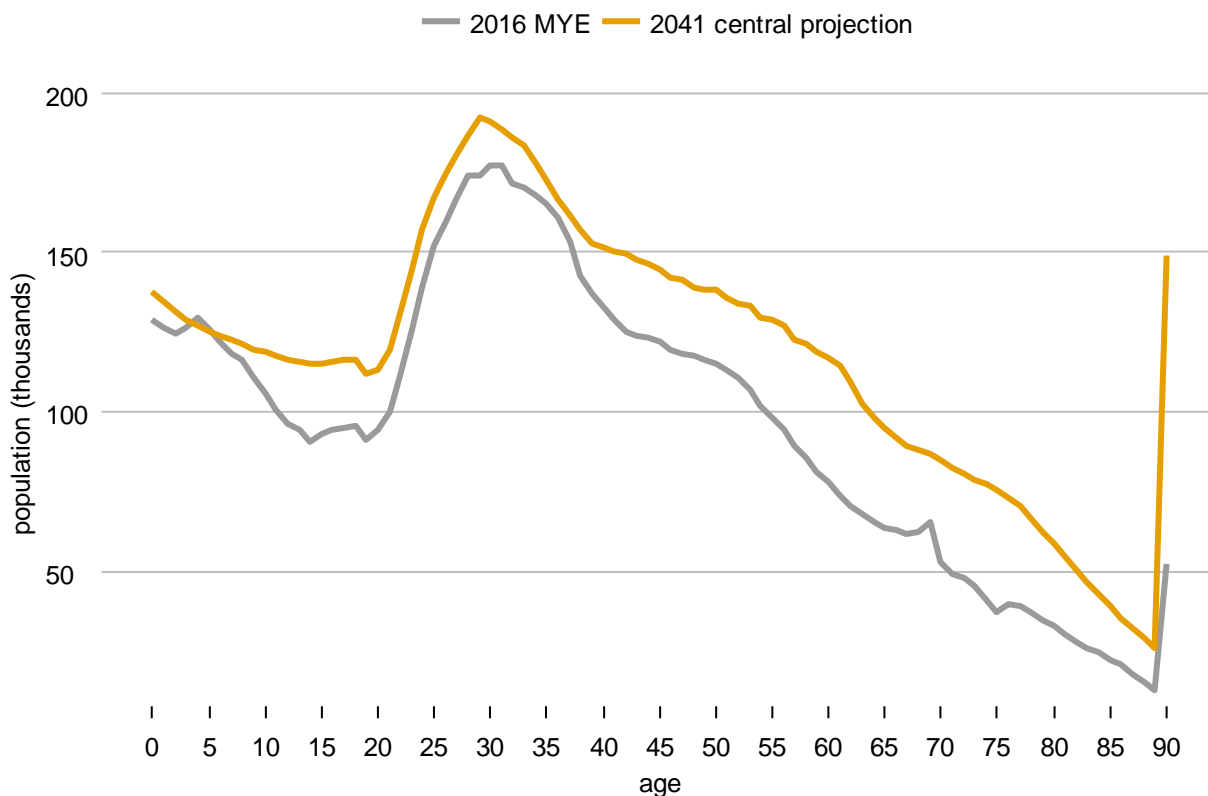
ONS 2016 Mid-Year Estimate, GLA 2016-based population projections

Figure 6 shows the proportional changes in age structure for London between 2016 and 2041 in the central projection. The largest proportional increases can be seen in the older population, particularly those age 90 and over. The smallest changes are in the very young and in the age range 25 to 35. The dip visible in the age range 65-70 is a result of the baby-boom population which in 2016 is present this age group but by 2041 has graduated to the 90+ category.

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Figure 6: Proportional change in age structure, London 2016-2041
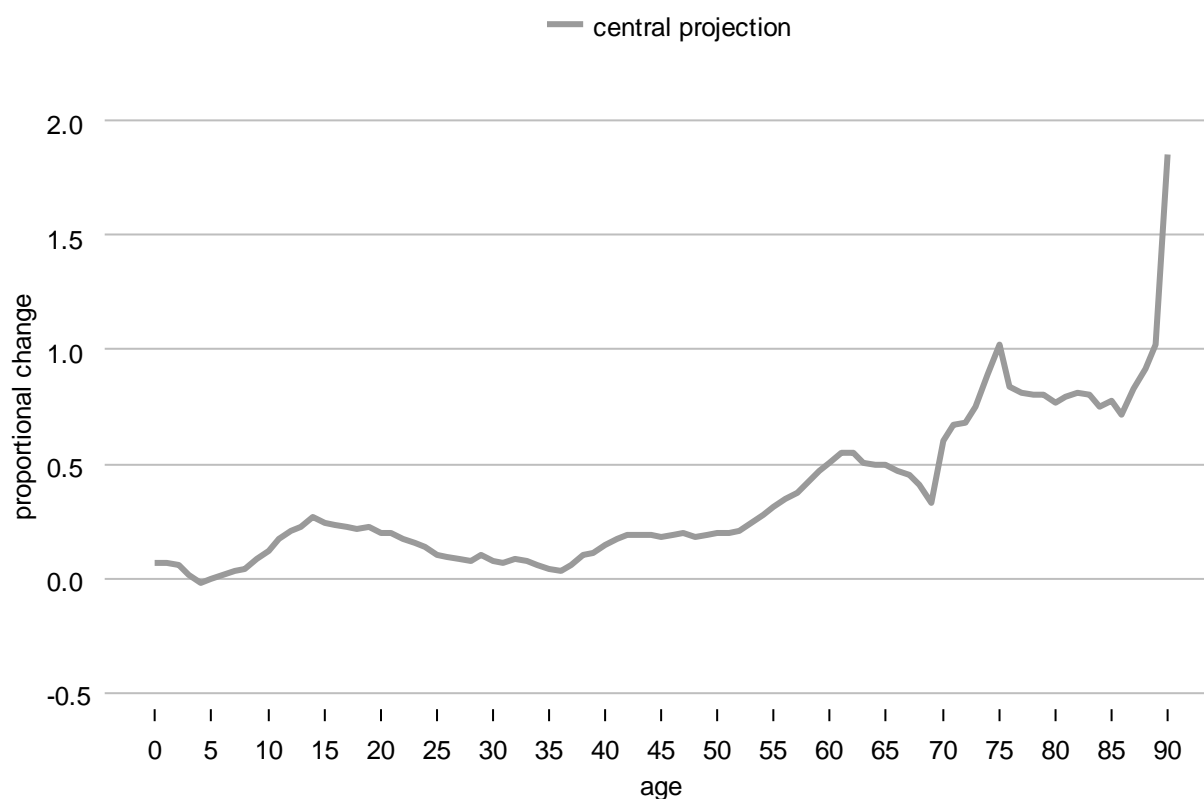
ONS 2016 Mid-Year Estimate, GLA 2016-based population projections

Components of Change

Births, deaths and migration all contribute to London's changing population. Natural change, which is the difference between the number of births and deaths, is the largest direct contributor to London's population growth. Natural change is high in London because of the age structure which, when compared to the national age structure, is much younger. The migration of young adults to the capital, and older residents away, leads to a bulge in population at the ages when family formation has traditionally occurred. This results in a relatively high number of births, and low number of deaths, in the capital. The result is high natural change.

Births & Deaths

Births in London rose continually from 2002 to 2012, reaching a peak of 134,000 before dropping back to 127,800 in 2014 (see figure 7). The last two mid-year estimates have shown small increases in births; in 2016 there were 129,800 births recorded in the capital. It is too early to determine whether these recent increases constitute a trend or are the result of the natural fluctuations inherent in this type of data. Over the projection period (2016-2041) births are predicted to rise steadily.

Deaths fell over the period 2002 to 2016 and are projected to remain relatively stable over the first years of the projection. After 2020 deaths begin to gradually increase reaching 61,600 by 2041. The increase in deaths is a result of growth elderly population, particularly in the 90+ group where mortality rates are higher.

The combined impact is that natural change, which increased sharply over the period 2002-2011 and then fell over 2012-2015, is projected to remain relatively stable over the projection period. There is a projected increase over the first years of the projection period followed by a gradual decrease.

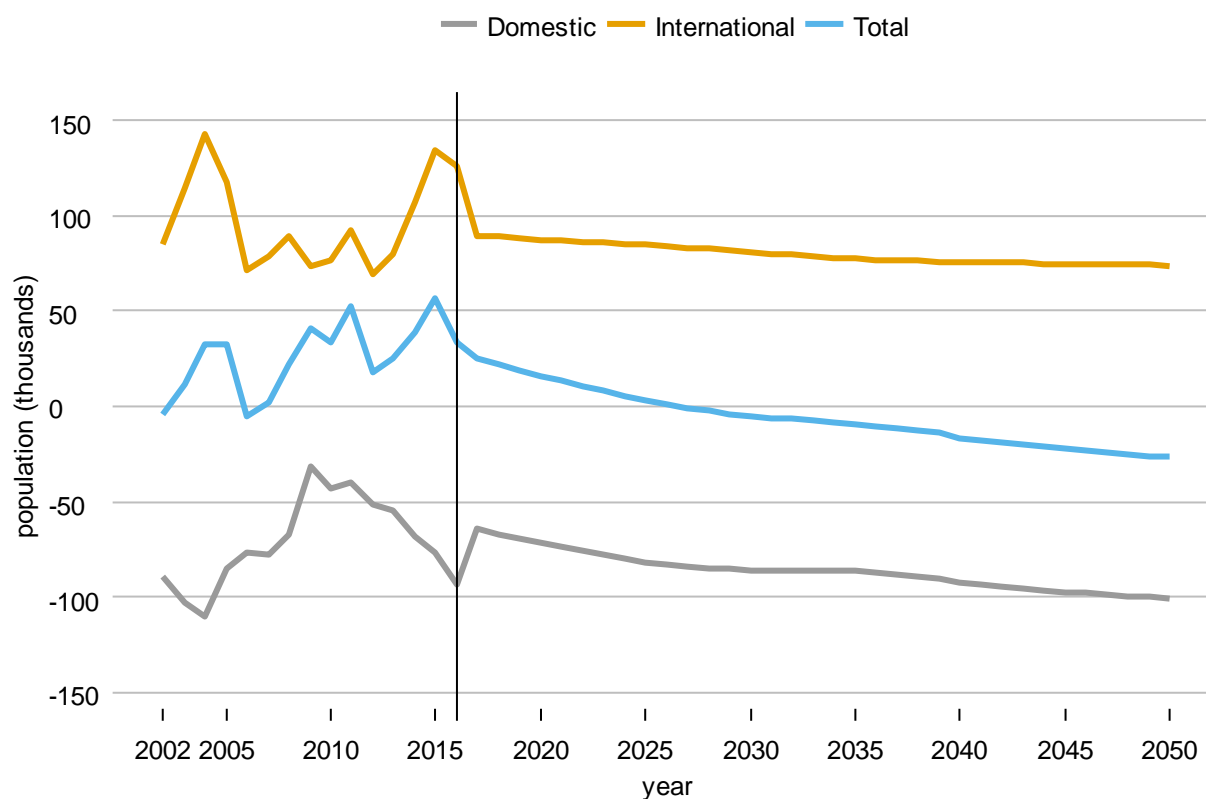**Figure 7: Births, deaths & natural change, London 2002-2050**
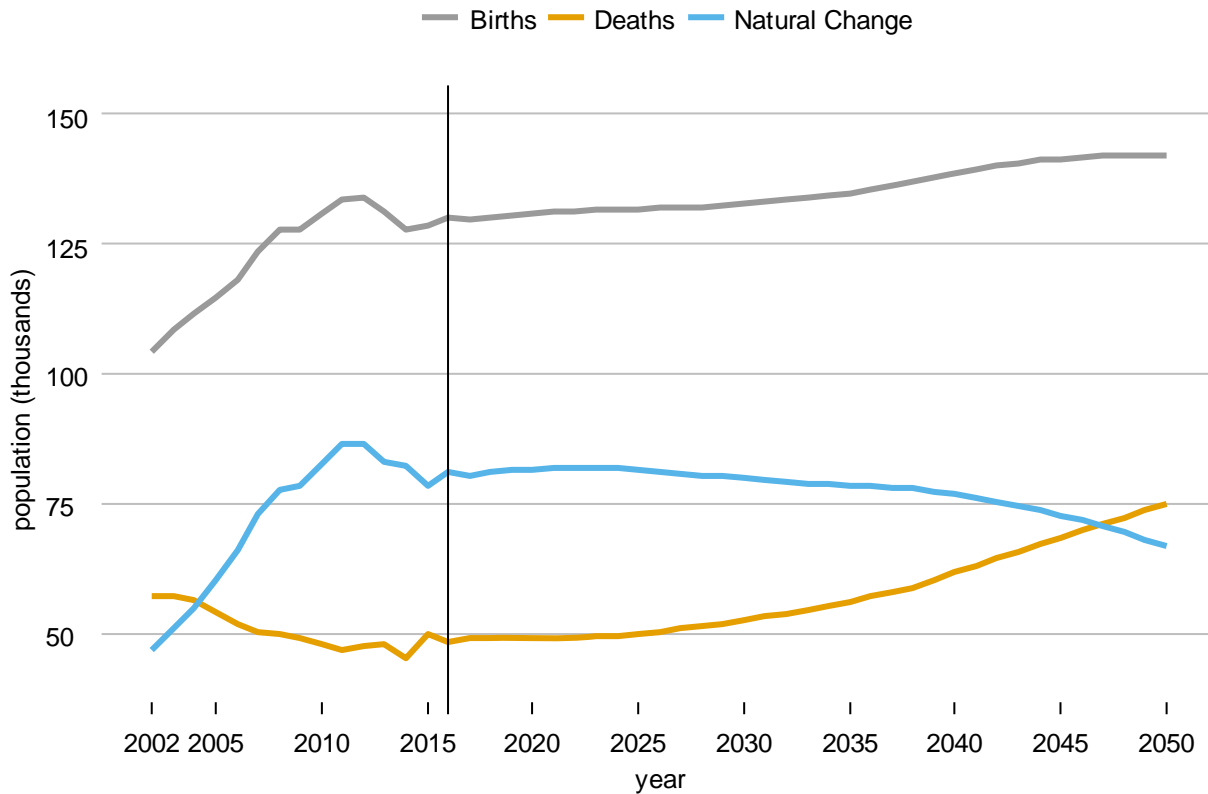
GLA, 2015-based population projections, ONS Mid Year Estimates

Note: Data pre-2017 are estimates, data for 2017 and later are projections

Migration

Figure 8: Net migration, London 2002-2050

GLA, 2016-based population projections, ONS Mid Year Estimates, ONS Internal migration estimates

Figure 8 shows net migration for London (domestic, international and total). Total net migration in London has fluctuated between a net outflow of 4,900 in 2006 and a net inflow of 56,400 in 2015. In 2016 the net impact of migration was an increase of 33,200 persons, 23,600 lower than in 2015. This is the result of domestic migration continuing its return to pre-financial crisis levels combined with a relative drop in international migration.

The central projection, using a ten-year trend, projects that total net migration in 2017 will be 25,200. This is then projected to fall consistently across the projection period. In 2024 total net migration is projected to move from a positive flow (inflow exceeds outflow) to a negative flow (outflow exceeds inflow). In 2041 there is projected to be a net outflow of 18,100 from London.

Net international migration into London was positive over the period 2002 to 2016 indicating inflows from abroad have exceeded outflows. The 2016 level of 126,100, while a decline from the 2015 level, is still almost as high as the 2004 peak when ten new countries joined the EU. Over the projection period net international migration falls gradually so that in levels in 2041 are around 60 per cent of those in 2016.

Net domestic migration is below zero and therefore constitutes an outflow from London to the rest of the UK. The period immediately following the financial crisis saw a sharp fall in out-migration from London leading to a reduction in net out migration. This reached a minimum in 2009 with a net outflow of 31,900. Since 2009, migration levels have been returning to pre-crisis levels so that flows in 2016 were the largest since the pre-crisis peak in 2004. The trajectory shown in figure 8 is based on a ten-year average of migration rates and shows net domestic will increase steadily over the projection period.

Figures 9 and 10 show the impact of varying the length of the backseries used in calculating future migration rates (both domestic and international). The dots in the charts show the average of three different periods: The five-year period 2012-2016; the ten-year period 2007-2016; the 15-year period 2002-2016. The vertical lines in the charts are placed at 2002, 2007 and 2012.

Figure 9 shows the impact of varying the length of the backseries on domestic migration flows. The short-term projection uses a five-year average of rates (2012 to 2016) which yields an average domestic net migration of 68,800 persons from London to the rest of the UK. The central projection takes a ten-year average (2007 to 2016) and yields a net outflow of 60,300 persons. Finally, the long-term projection uses 15 years of data yielding the higher outflow and lower net migration of 71,100 persons.

The ten-year period includes the years following the financial crisis and therefore captures the impact this had on domestic migration. Domestic out-migration fell significantly and is only now returning to pre-crisis levels. The result of including this data in the calculation is to reduce the average flow.

Figure 10 shows the impact of varying the length of the backseries on international migration flows. The short-term five-year average for London is 103,200 while the central ten-year is 92,600 and the long-term 15-year is 97,100.
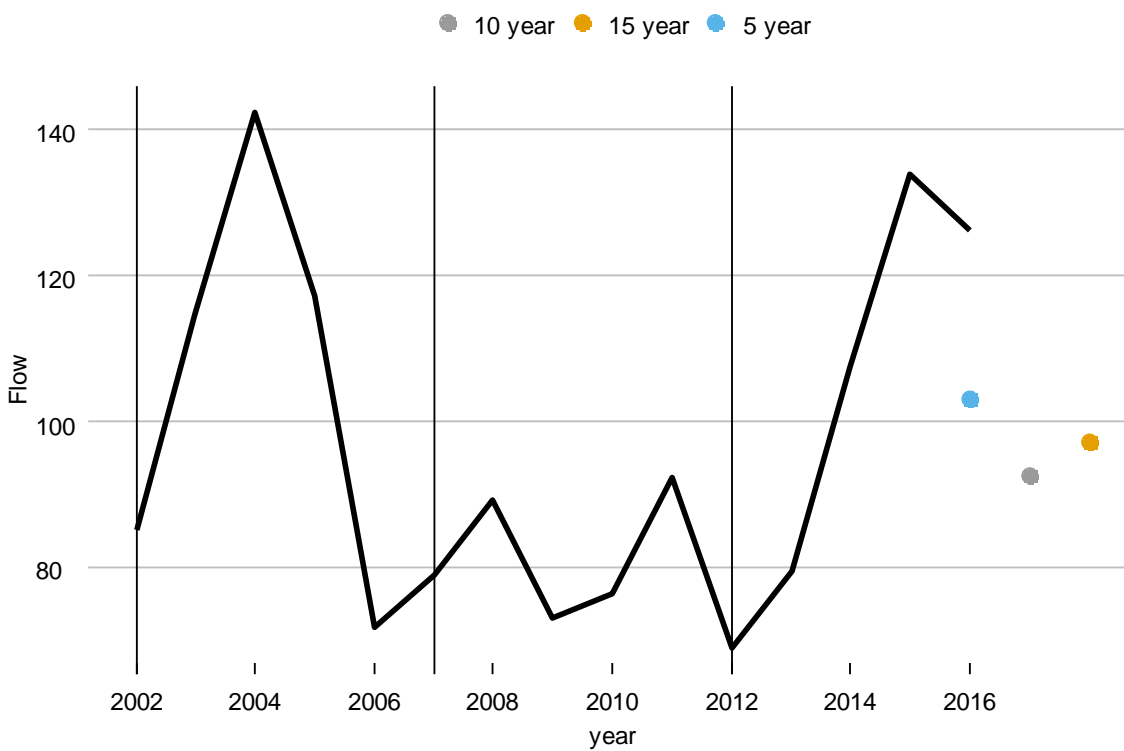
The points in figures 9 and 10 represent the average flow over the three period of backseries (five, ten and 15 years).

Figure 9: Net domestic migration flow, London 2002-2015
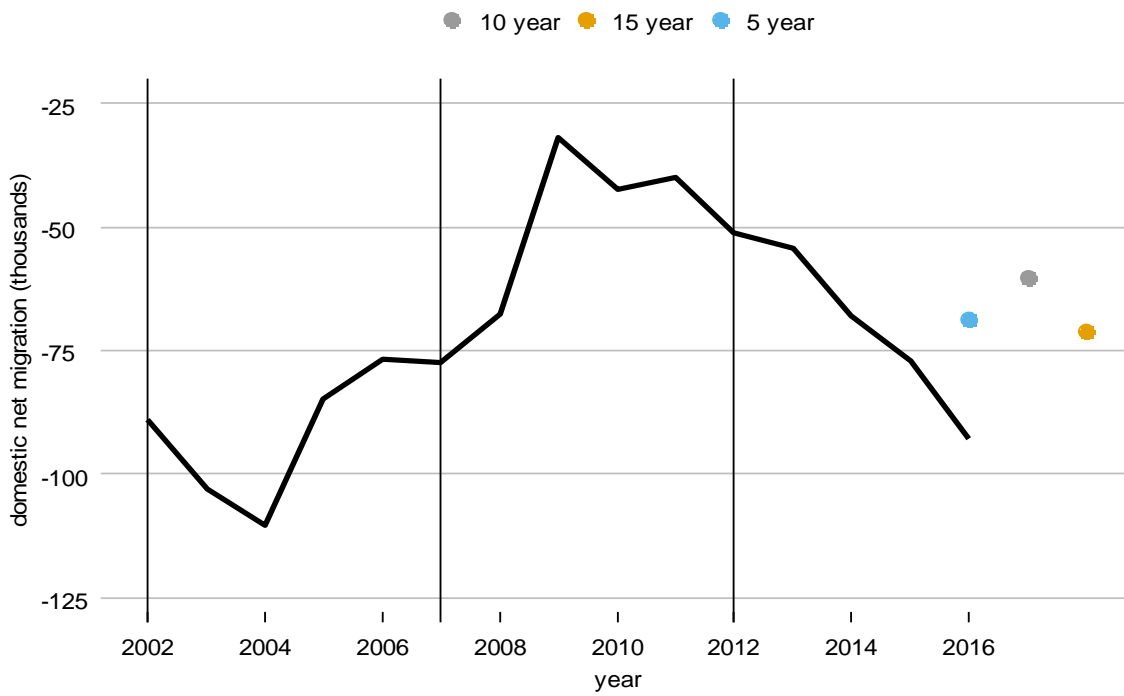
ONS, Internal migration estimates

Figure 10: Net international migration flow, London 2002-2015

ONS, Mid-Year Estimates

Table 3: Net migration flows, 2016 & 2041

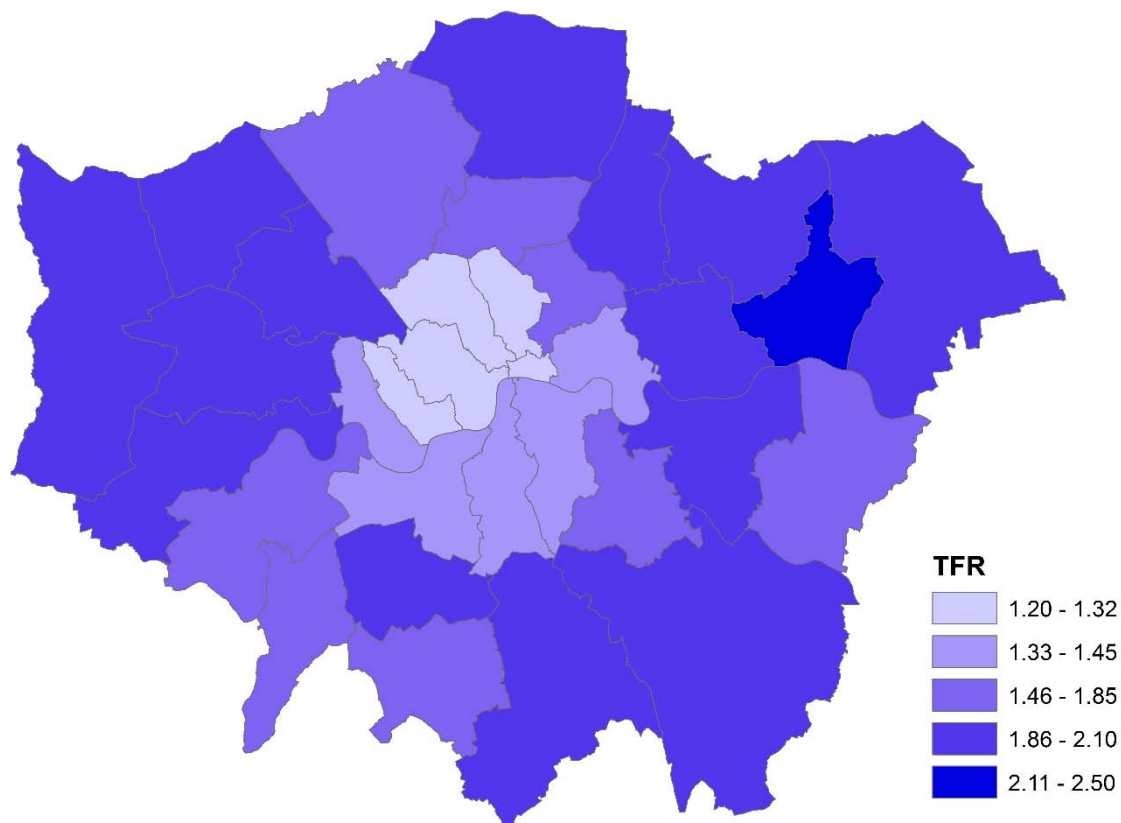| Borough	2016			2041		
	Domestic	International	Total	Domestic	International	Total
City of London	-7	688	681	103	318	421
Barking and Dagenham	-1,535	3,301	1,766	-3,196	1,905	-1,291
Barnet	-1,779	5,223	3,444	-2,637	3,439	802
Bexley	731	809	1,540	166	607	773
Brent	-7,956	8,677	721	-6,906	5,512	-1,394
Bromley	-456	774	318	572	387	959
Camden	-3,141	6,638	3,497	-3,810	3,619	-191
Croydon	-2,802	2,607	-195	-1,927	1,516	-410
Ealing	-6,802	3,667	-3,135	-3,817	2,784	-1,033
Enfield	-3,402	3,415	13	-2,540	2,351	-189
Greenwich	-1,425	3,178	1,753	-2,893	1,957	-936
Hackney	-1,620	2,754	1,134	-2,890	1,354	-1,536
Hammersmith and Fulham	-3,696	2,315	-1,381	-860	126	-733
Haringey	-3,376	6,029	2,653	-5,054	4,034	-1,020
Harrow	-4,164	3,589	-575	-2,492	2,210	-282
Havering	1,703	847	2,550	1,000	348	1,348
Hillingdon	-2,253	4,241	1,988	-3,094	2,746	-347
Hounslow	-5,010	4,392	-618	-4,152	3,158	-993
Islington	-1,994	5,455	3,461	-3,333	2,721	-611
Kensington and Chelsea	-3,875	1,946	-1,929	-195	253	57
Kingston upon Thames	-878	2,256	1,378	-1,608	1,706	98
Lambeth	-2,395	2,948	553	-3,458	2,125	-1,333
Lewisham	-1,897	3,111	1,214	-3,256	2,191	-1,065
Merton	-2,871	1,186	-1,685	-1,790	971	-819
Newham	-7,780	11,039	3,259	-11,740	9,079	-2,660
Redbridge	-4,421	3,961	-460	-2,432	2,106	-326
Richmond upon Thames	-852	602	-250	118	-34	84
Southwark	-3,440	4,607	1,167	-5,178	3,844	-1,334
Sutton	350	494	844	244	255	499
Tower Hamlets	-2,962	9,145	6,183	-6,098	4,655	-1,444
Waltham Forest	-4,881	6,195	1,314	-5,030	3,705	-1,325
Wandsworth	-2,681	800	-1,881	-1,268	-566	-1,834
Westminster	-5,358	9,190	3,832	-4,113	4,104	-10
London	**-93,302**	**126,079**	**32,777**	**-93,564**	**75,488**	**-18,076**

GLA 2016-based population projections

Total Fertility Rate (TFR)

Total fertility rate for 2017 shows a clear pattern of being lower in Inner London and higher in Outer London (figure 11). Barking and Dagenham is projected to have the highest TFR (2.50 births per woman) while Westminster is projected to have the lowest rate (1.20 births per woman).

Eight boroughs have a TFR over 2.0 while ten have a rate lower than 1.5.

Figure 11: TFR, 2017

GLA, 2016-based population projections