

Response to the ONS 2012-based Subnational Population Projections consultation

February 2014

Introduction

This document forms the GLA Intelligence Unit's response to ONS's consultation on the 2012-based Subnational Population Projections (SNPP). Details of the consultation process and the accompanying documentation are, at the time of writing, available on the ONS website¹. The GLA attended a consultation meeting with a representative of the ONS population projection team in February 2014, where it was able to view preliminary results and ask questions regarding details of the methodology.

Summary of response

The GLA is happy with the changes proposed by ONS to the published outputs. Publishing unrounded single year of age data provides the flexibility to satisfy the widest range of user requirements.

The GLA has commented on several aspects of the projection methodology where issues may arise that disproportionately affect London local authorities. The GLA accepts that many of the issues highlighted would prove challenging to address through methodological change at this time. It therefore recommends that ONS instead ensures that the potential impacts of these issues are fully discussed in the documentation accompanying the projections to allow users to better interpret the results. The GLA considers that one key issue should be dealt with through the production of an additional projection variant.

The following is a summary of the methodological issues highlighted by the GLA:

- 1) The choice of five years of past internal migration flow data to determine future migration trends.

Net migration from London to the wider South East region fell by ~20k pa in the wake of the financial crisis. By choosing mid-2007 to mid-2012 as the basis for projecting future migration, it is effectively assumed that this pattern will continue for the entire projection period. The GLA believes that outflows will soon return to pre-crisis levels as the housing market recovers. As such, there is a significant risk that the ONS projections will over-project London's population and under-project for the wider South East.

¹ <http://www.ons.gov.uk/ons/about-ons/get-involved/consultations/consultations/consultation-on-the-2012-based-subnational-population-projections-for-england/index.html>

To provide an understanding of the sensitivity of the projections to the choice of past migration data, **the GLA strongly recommends producing a variant that projects forward using ten years of internal migration data.**

The GLA considers that ONS should include guidance in its documentation relating to issues with the following aspects of the methodology:

- 2) The incorporation of the revised mid-year estimate back-series and handling of the Unattributable Population Change (UPC) component within it.

For authorities where the UPC component was large, there remain some questions as to the accuracy of the assumed conventional components. In addition, the manner in which UPC is distributed across the back-series is liable to have skewed the mid-year estimate population trajectories and in turn distorted fertility and internal migration rates used in the projections.

- 3) Constraining the sum of subnational international flow components to match the components from the 2012-based National Population Projections (NPP).

This stage in the methodology is liable to cause projected local authority international flows to significantly differ from historic flow estimates. This is likely to distort projections for local authorities with large international flows – as is the case for many London authorities.

- 4) Accuracy of internal migration data based on GP re-registrations and Higher Education Statistics Agency (HESA) data.

This data underestimates the total number of moves between authorities. In addition, it is subject to a degree of bias by age and sex: moves by men being less well represented than those by females; and moves by young adults being recorded less robustly than those by children or the elderly. The flow characteristics of London authorities make them especially susceptible to projection distortions as a result of this.

Detailed response

Proposed changes to the outputs

The GLA is content with the proposed changes to the outputs. Publishing unrounded single year of age data provides the flexibility to satisfy the widest range of user requirements. For previous rounds of ONS projections, the GLA has requested, and been provided with, detailed components of change by single year of age. The GLA would support a move to make these more readily available by publishing them alongside the main outputs.

Unattributable Population Change

The UPC component was introduced into the revised ONS mid-year estimate (MYE) back-series to account for the discrepancies between the 2001 MYE, conventional components of change, and 2011 MYE. These discrepancies were relatively large for a number of London authorities – especially those where ONS's migration statistics improvement programme (MSIP) had made large revisions to international inflow estimates. These inflow adjustments were only applied from mid-2005 onwards, meaning that part of the UPC components compensates for inaccuracies in the earlier inflow estimates. The remainder of the UPC component reflects errors in the 2001 MYE as well as internal migration and international outflows. Errors

in each of these components are generally larger for London than for elsewhere and so the potential impact of UPC is of particular interest to London authorities.

Effect on population back-series

When ONS produced the mid-year estimate back-series, they elected to distribute the UPC component evenly across the decade. However, much of the error for which it was introduced to correct is likely to have arisen in the 2001MYE and international inflow estimates prior to mid-2005. Because of this mismatch, the trajectory of the estimate back-series population is likely to be skewed for boroughs where the UPC component is large. This is significant for the accuracy of the projections as the mid-year estimate series forms the basis for calculating migration, fertility and mortality rates used to project forward. The rates and therefore the projections are likely to suffer a degree of distortion as a result.

This issue could only be addressed through updating the mid-year estimate series to better reflect the likely distribution of population change over the decade. The GLA accepts that this would be a very large undertaking and is probably unrealistic at this time. Instead it recommends that ONS explores the sensitivity of the projections to errors in the estimates back-series and includes the results as part of the documentation accompanying the projections.

Decision not to make adjustment for the impact of UPC within the projections

ONS has elected not to attempt to incorporate the UPC component within the projections. The GLA agrees with this decision for the following reason:

A significant part of the UPC component is likely to have arisen as a result of errors in international inflow estimates for mid-2001 to mid-2005. Later estimates incorporating the Migration Statistics Improvement Programme (MSIP) methodology are more accurate. The international inflow components used in the projections are based only on post-MSIP estimates and so incorporating the UPC as a component would likely amount to overcompensation in many cases.

For some authorities, a significant portion of the UPC component probably did arise from errors in the estimates of internal migration, international outflows, or post-MSIP international inflows. ONS should continue to work to improve the accuracy of these estimates directly. Attempting to address their impact in the projections through a mechanism such as rolling forward UPC would likely prove unsuccessful and generate confusion.

Migration methodology

Constraining international flows to NPP totals

The proposed methodology constrains the sum of local authority international migration components for all local authorities to the values from the 2012-based National Population Projection (NPP).

Due to incompatibilities in how international flows are projected in the NPP (long term moving average) and prior to the constraining stage in the SNPP (based on average of previous six years of estimates), this constraining process is likely to reduce international flows to and from local authorities while leaving internal flows unchanged. This will lead to distortion of the relationship between international and internal flows for local authorities. The impact of this distortion on the projected population is dependent on the balance between international and internal migration flows. London contains boroughs with very large international inflows that are counterbalanced by large domestic outflows. For such authorities the constraining process is likely to lead to a disproportionate reduction in the projected population.

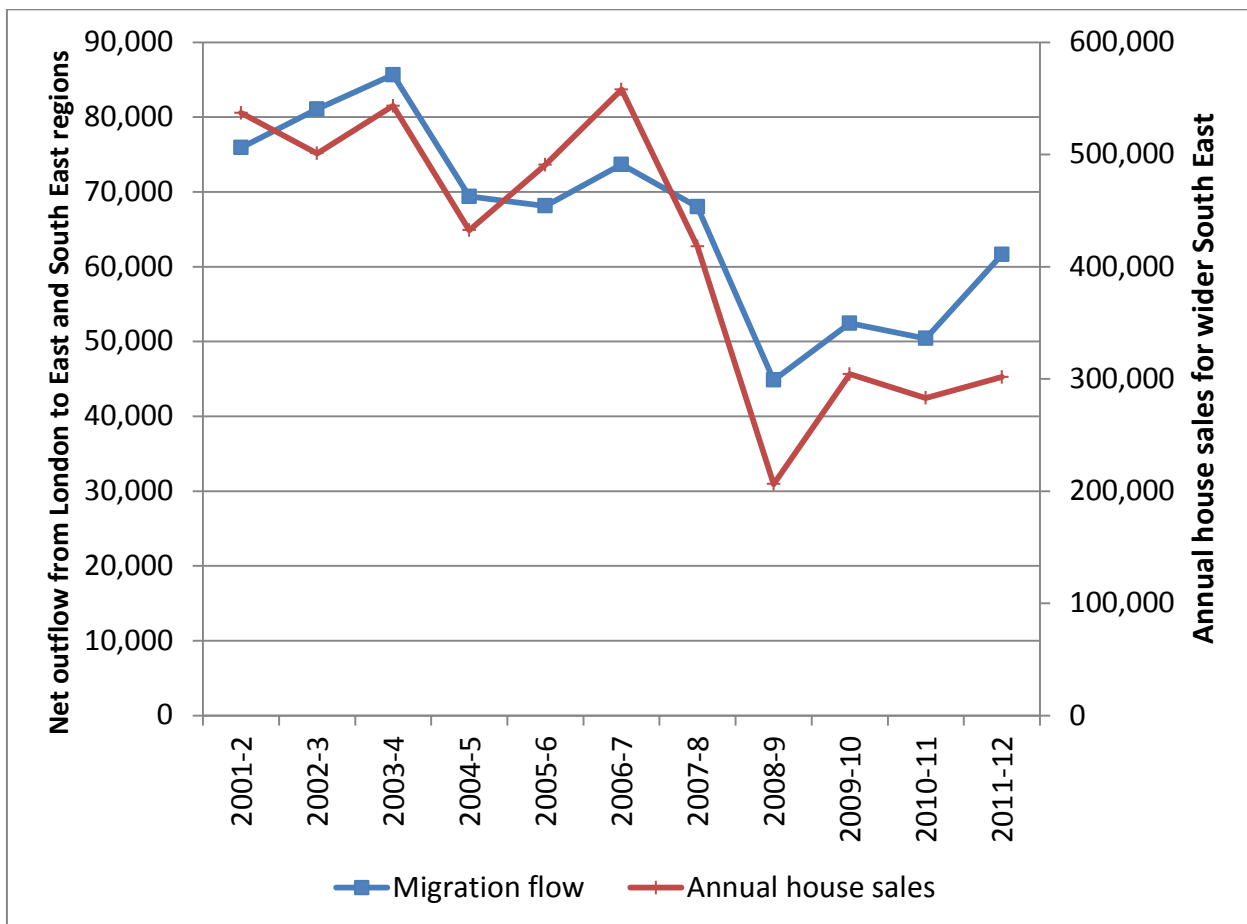
The GLA accepts that this issue is difficult to address without either abandoning the idea of constraining to the NPP or changing the migration methodology used for the NPP. As it seems unrealistic to adopt either

of these options, the GLA recommends that this feature of the methodology and its implications on the projections for certain authorities are clearly discussed in the accompanying documentation to help users interpret the results.

Trend period for internal migration calculations

ONS proposes to use a five year period to determine internal migration trends. Migration flows over this period, mid-2007 to mid-2012, were very heavily influenced by the impacts of the financial crisis of 2008. The financial crisis triggered a dramatic fall in house sales in the South East and with it a large drop in outflows from London to the surrounding county districts (see Figure 1). Using this period as a basis for internal migration trends effectively builds into the model the assumption that these patterns will persist for the duration of the projection period. The GLA believes that outflows are likely to return to pre-crisis levels as the housing market recovers. As such, there is a significant risk that the ONS methodology will over-project London’s population and, at the same time, under-project for many county districts in the East and South East regions.

Figure 1: Net outflows from London to East and South East regions plotted alongside annual house sales in the wider South East region

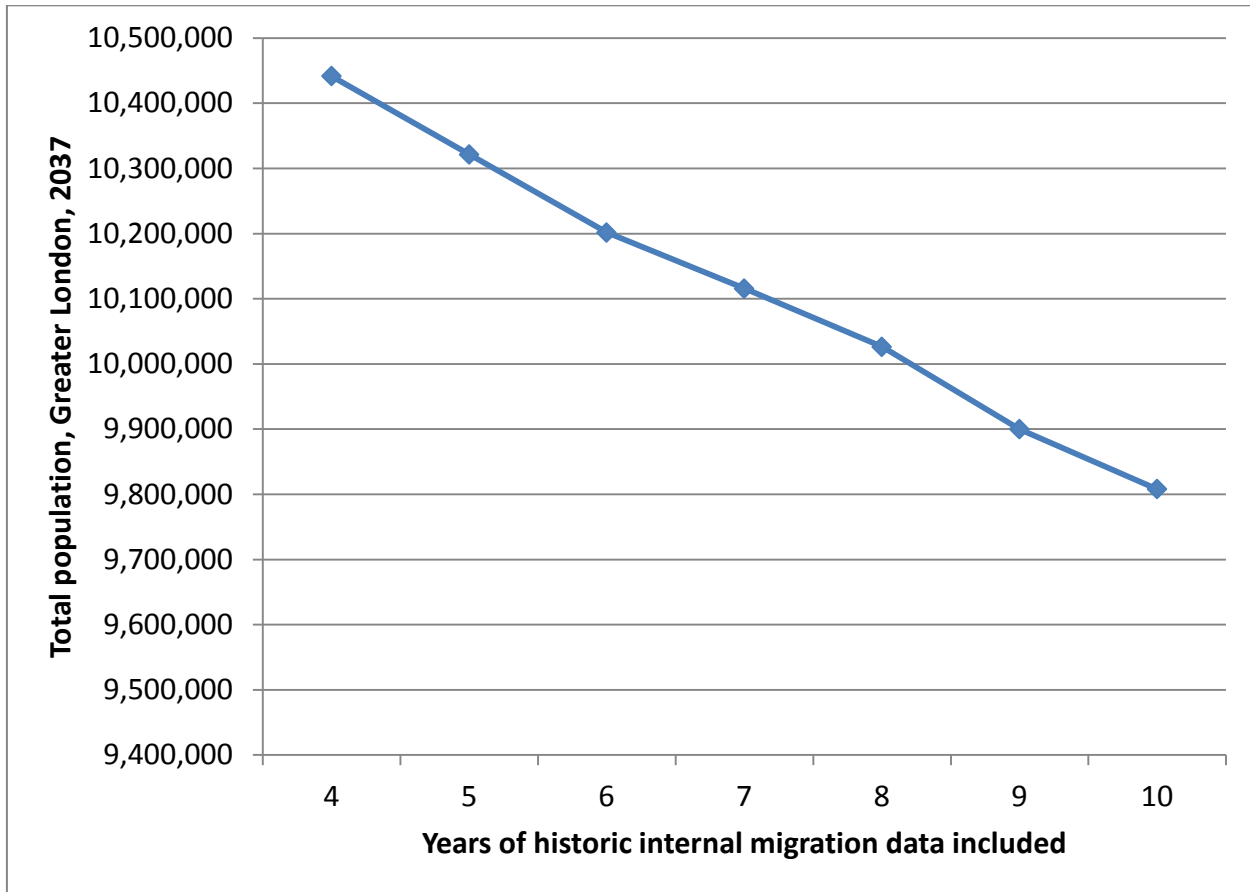


ONS internal migration flows; Land Registry

Analysis by the GLA Demography Team suggests that the results of the projections for London are very sensitive to the period of data chosen to establish the internal migration trends. By way of sensitivity testing, the GLA has produced seven sets of projections varying the number of years of internal migration data included from four to ten. Figure 2 shows the effect of changing the number of years of migration data included on the projected 2037 total London population. These results indicate that increasing the series of data used from five to ten years would have the effect of reducing the 2037 projected population

for London by approximately 500,000 persons. While the GLA model differs from the ONS SNPP model in a number of ways, there is reason to expect them to exhibit similar levels of sensitivity to this parameter.

Figure 2: Results of GLA sensitivity testing – 2037 Greater London population vs. number years internal migration used to determine trends



This same analysis shows that there is a wide range of sensitivity to this factor. Hackney was shown to be the most sensitive to changes, with a variation in total projected population of 14.2% across the range of model runs (using four to ten years of data). Kingston upon Thames was the least sensitive with a variation of just 0.5%. Table 1 shows the difference in projected 2037 population when changing between five and ten years of data.

Table 1: Results of GLA sensitivity testing – 2037 borough populations when using five and ten years of internal migration to determine trends

Local authority	Five-year result	Ten-year result	Difference (persons)	Percentage change
Camden	266,505	265,080	-1,425	-0.5%
Kensington & Chelsea	161,534	162,131	598	0.4%
Westminster	258,016	257,225	-792	-0.3%
City of London	8,843	9,352	509	5.8%
Hackney	324,300	284,180	-40,120	-12.4%
Hammersmith & Fulham	199,980	191,665	-8,315	-4.2%
Haringey	316,029	297,256	-18,773	-5.9%
Islington	266,226	250,219	-16,007	-6.0%
Lambeth	379,987	352,838	-27,149	-7.1%
Lewisham	352,085	330,768	-21,317	-6.1%
Newham	421,659	388,338	-33,322	-7.9%
Southwark	362,378	341,279	-21,100	-5.8%
Tower Hamlets	364,623	330,340	-34,283	-9.4%
Wandsworth	363,312	344,889	-18,423	-5.1%
Barking & Dagenham	264,614	240,369	-24,245	-9.2%
Barnet	467,826	446,775	-21,050	-4.5%
Bexley	275,257	271,839	-3,418	-1.2%
Brent	397,609	374,542	-23,067	-5.8%
Bromley	373,598	364,160	-9,438	-2.5%
Croydon	445,502	420,985	-24,517	-5.5%
Ealing	412,802	384,655	-28,147	-6.8%
Enfield	404,937	385,003	-19,934	-4.9%
Greenwich	316,461	308,765	-7,696	-2.4%
Harrow	296,935	289,869	-7,066	-2.4%
Havering	296,868	290,323	-6,545	-2.2%
Hillingdon	362,042	340,873	-21,169	-5.8%
Hounslow	330,879	308,384	-22,495	-6.8%
Kingston upon Thames	199,415	198,947	-468	-0.2%
Merton	251,781	240,085	-11,696	-4.6%
Redbridge	378,706	364,229	-14,477	-3.8%
Richmond upon Thames	221,874	219,196	-2,678	-1.2%
Sutton	240,069	230,558	-9,511	-4.0%
Waltham Forest	338,840	322,792	-16,048	-4.7%
Central	694,898	693,788	-1,110	-0.2%
Rest of Inner	3,350,579	3,111,772	-238,807	-7.1%
Inner	4,045,477	3,805,560	-239,917	-5.9%
Outer	6,276,014	6,002,350	-273,664	-4.4%
Greater London	10,321,491	9,807,910	-513,581	-5.0%

It is the GLA's view that the recent trends in migration between London and the wider South East are strongly linked to problems in the housing market resulting from the financial crisis and are temporary in nature. The widely reported recovery in the housing market and the most recent year of migration data suggest a return to past trends is already underway.

The subnational population projections will form the basis for the next round of Department of Communities and Local Government (DCLG) household projections. As such, failure to address this issue could have serious implications for planning decisions throughout the wider South East region. The GLA accepts that this issue may only affect the South East and that the chosen methodology will likely provide good results for the remainder of the country. The GLA, nonetheless, recommends that a variant projection is produced alongside the standard output to give an indication of the sensitivity of the projections to the migration assumptions. This variant should only differ from the standard projection in it using a longer time period (e.g. ten years) to establish internal migration trends.

Accuracy of internal migration flow data

Internal migration data is based on re-registrations of patients with GPs and HESA data on student moves. This data is incomplete as not all moves are recorded by this method. The quality of data varies by propensity to engage with health services (children and the elderly being recorded more accurately than young (non-student) adults, and women being recorded more accurately than men). For authorities where *net* domestic migration is low, inaccuracies in the migration data will tend to cancel out. However, where net flows are larger, or the age/sex characteristics of in and out migrants are significantly different, there is the potential for significant errors to accumulate over the course of the projections.

The GLA accepts that ONS is currently using the best available data and commends its ongoing work to improve the quality of internal migration estimates. It is recommended that ONS highlights the possible impacts on projections that these inaccuracies in migration estimates may cause and those authorities likely to be most vulnerable to such problems.