

# 2006-based Subnational Population Projections for England

## Briefing Note on Methodology, Assumptions and Future Work Programme

### 1. Introduction

1.1. The 2006-based subnational population projections for England were released by the Office for National Statistics on 12 June 2008. These covered twenty-five years to 2031 and provided a breakdown of the official national population projections<sup>1</sup> for England to regional and local authority district level.

1.2. The projections are the best available at the time of production. This document outlines the methodology and assumptions used in their production, their limitations and ONS's future work programme which is designed to address these. Users should be aware of these limitations when considering how best to use the data for their own particular purposes.

### 2. Background

2.1. Population projections are currently produced every two years. Projections are based upon mid-year population estimates. The 2006 mid-year population estimates were produced on 22 August 2007 and 2007 mid-year population estimates will be published on 21 August 2008. Currently the next set of national population projections will be 2008 based projections and are planned for September or October 2009, with 2008 based subnational population projections following in early 2010.

2.2. Projections for areas within Wales, Scotland and Northern Ireland are the responsibility of the appropriate devolved administration and are not discussed here.

### 3. Underlying method and assumptions

3.1. The projections take the 2006 mid-year population estimates<sup>2</sup> as their starting point. The projected population for each year is calculated by ageing on the population from the previous year, applying assumed local fertility and mortality rates (derived from a historic reference period to the base year) to calculate the number of projected births and deaths, and then adjusting for

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<sup>1</sup> <http://www.statistics.gov.uk/CCI/nugget.asp?ID=1352>

<sup>2</sup> <http://www.statistics.gov.uk/popest>

local migration into and out of the area. Each of these components are constrained to the national totals shown in the national population projections. This is more fully explained in the methodology document accompanying the projections<sup>3</sup>.

3.2. It is important to note that the projections **provide the population levels and structure that would result if the assumptions about the fertility, mortality and migration levels were realised**. These assumptions include the assumptions made for England as a whole in the national population projections<sup>4</sup>. At the subnational level, it should be noted that since these assumptions are based solely on recent demographic trends the projections do not reflect, for example, the impact of likely future housing development in an area.

3.3. The projections cover a twenty-five year horizon but users should be aware that small variations in assumptions at the first year of projections can multiply up over this period. For example if recent migration for an area has shown an imbalance in sex ratios then this will feed into each year over the projected period and may result in larger imbalances by the twenty-fifth year. **There is therefore a greater degree of uncertainty the further ahead the projection is made.**

3.4. The projections are more robust at greater levels of aggregation, either by age or by area, since more detailed levels mean smaller counts contributing to the estimation process. Data is only published to quinary age groups at local authority level for this reason.

#### 4. International migration distribution

4.1. The mid-2006 population estimates used an improved methodology for the distribution of international migration as a result of the ONS 'Improvements to Migration and Population Statistics' work programme<sup>5</sup>. This has led to improvements in the way both inflows and outflows of migration are estimated, as well as better assumptions on the levels of visitor and migrant switchers. Papers detailing the new methods can be found on the IMPS web page<sup>6</sup>.

4.2. These changes were first incorporated into projections in the revised 2004-based subnational population projections. However, as a five year averaging period is used for migration assumptions in the subnational population projections, this period also encompassed migration data from 2001 and earlier, which were based on the previous methodology. Thus the

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<sup>3</sup> Available at <http://www.statistics.gov.uk/snpp>

<sup>4</sup> Discussed in Population Trends 131

[http://www.statistics.gov.uk/downloads/theme\\_population/Population\\_Trends\\_131\\_web.pdf](http://www.statistics.gov.uk/downloads/theme_population/Population_Trends_131_web.pdf)

<sup>5</sup> <http://www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/default.asp>

<sup>6</sup> See papers listed at <http://www.statistics.gov.uk/statbase/Product.asp?vlnk=14834>

2006 based subnational population projections are the first to include international migration data based solely on the new methodology.

4.3. The data used for subnational population projections is fully consistent with those used for the mid-year population estimates. At the detailed level we have made changes to the way the data are averaged that reflect the complex details of the mid-year population estimates methodology. Further details of this can be found in our methodology document and *Summary of Part One Consultation Response Analysis and Changes Implemented in the Projections*<sup>7</sup>

## 5. Additional Net Migration from countries joining the European Union

5.1. On 1 May 2004, ten countries joined the European Union (EU): Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. On 1 January 2007 Bulgaria and Romania joined the EU. At the time the 2006-based national population projections were produced there was evidence of increased immigration from these countries, and this was used in the setting of migration assumptions for the national population projections.<sup>8</sup> Since the 2006-based subnational population projections are constrained to the national population projections, these migration assumptions at national level will be reflected in the subnational projections (when they are summed across all the local authorities).

5.2. Migration data that include post-accession migrants have started to feed into the mid-year population estimates. Because the subnational population projections are mainly based on average migration figures over a five year period, any new migration patterns will take time to be fully reflected in projections and will only be partially reflected in the 2006-based subnational population projections. So, to some extent, the geographical distribution of additional migrants due to the accession of the A8 countries will be based upon the distribution of international migrants prior to A8 accession.

## 6. Internal Migration

6.1. Internal migration, defined as moves within England only, is derived from information taken from GPs' patient registers, which provide data on registrations down to postcode level.

6.2. A potential weakness with using this data source for this purpose is that **some internal moves will not be picked up, or there may be a delay in their recording**. It can sometimes take significant time before a person re-registers with a doctor following a move. This issue tends to affect the estimated number of moves of young men in particular. Additionally it can be

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<sup>7</sup> These documents are available from: [www.statistics.gov.uk/snpp](http://www.statistics.gov.uk/snpp)

<sup>8</sup> Further detail on these assumptions is available from:

<http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=4611&Pos=&ColRank=1&Rank=272>

prevalent in areas that have high numbers of students resident. Students leaving their place of study and moving on to different areas are less likely to be recorded as outward internal migration from the area of study, and may therefore be effectively inflating the projected future populations for certain areas. While probably not having a significant impact over the short term this effect may be compounded over the full twenty-five year horizon of the projections.

6.3. Research is underway in the ONS Centre for Demography on student origins and destinations from the Higher Education Statistics Authority (HESA).

## **7. Future Work Programme**

7.1. ONS has an ongoing work programme to improve population estimates, projections and migration statistics. In particular, migration, both international and internal, is the most difficult component of population change to measure reliably due to the paucity of available sources and the absence of a direct measure.

7.2. The ONS IMPS project has already made some key changes to the way in which international migration is distributed to local level in population statistics, and to the assumptions on rates of migrant switchers and visitor switchers used. In addition, the forward work programme is addressing the fifteen recommendations made by the inter-departmental Task Force on Migration Statistics, including:

- Development of estimates of short-term migration (i.e. people remaining in the country for less than twelve months). Experimental estimates were published for a London/outside London geography in October 2007 and further work is being done to investigate the feasibility of producing these at Local Authority level.
- A review of port surveys looking at how to improve the coverage of migrants<sup>9</sup>
- Providing statistical requirements into the UK Borders Agency electronic borders (e-Borders) programme, designed to provide increasing levels of information on passenger arrivals and departures.
- Better sharing of administrative data between departments to provide more information on the location and movement of migrant populations,

## **Office for National Statistics Centre for Demography**

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<sup>9</sup> See:

<http://www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/downloads/PSREVIEW.pdf>

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