

APPENDIX B: POPULATION PROJECTIONS

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Note:

The following is based on ONS data and sub-national projections from 2037 to the 2080s undertaken by ASC, in 2014, for the purposes of the CCRA2 research projects.

B.1 Overview

For the latest Climate Change Risk Assessment population projections are required at a relatively fine scale of resolution in order to discern localised impacts. The Office for National Statistics (ONS) produce population projections for each of England, Wales, Scotland and Northern Ireland to 2100 and each devolved administration creates Sub-National population projections to 2037. This note describes the method used to translate between the Principal National and Sub-National population projections in order to provide regional population projections to 2100 for Low, Principal and High variants. For more information on the variants and their assumptions, limitations and confidence, see here: http://www.ons.gov.uk/ons/dcp171776_355192.pdf

B.2 Method

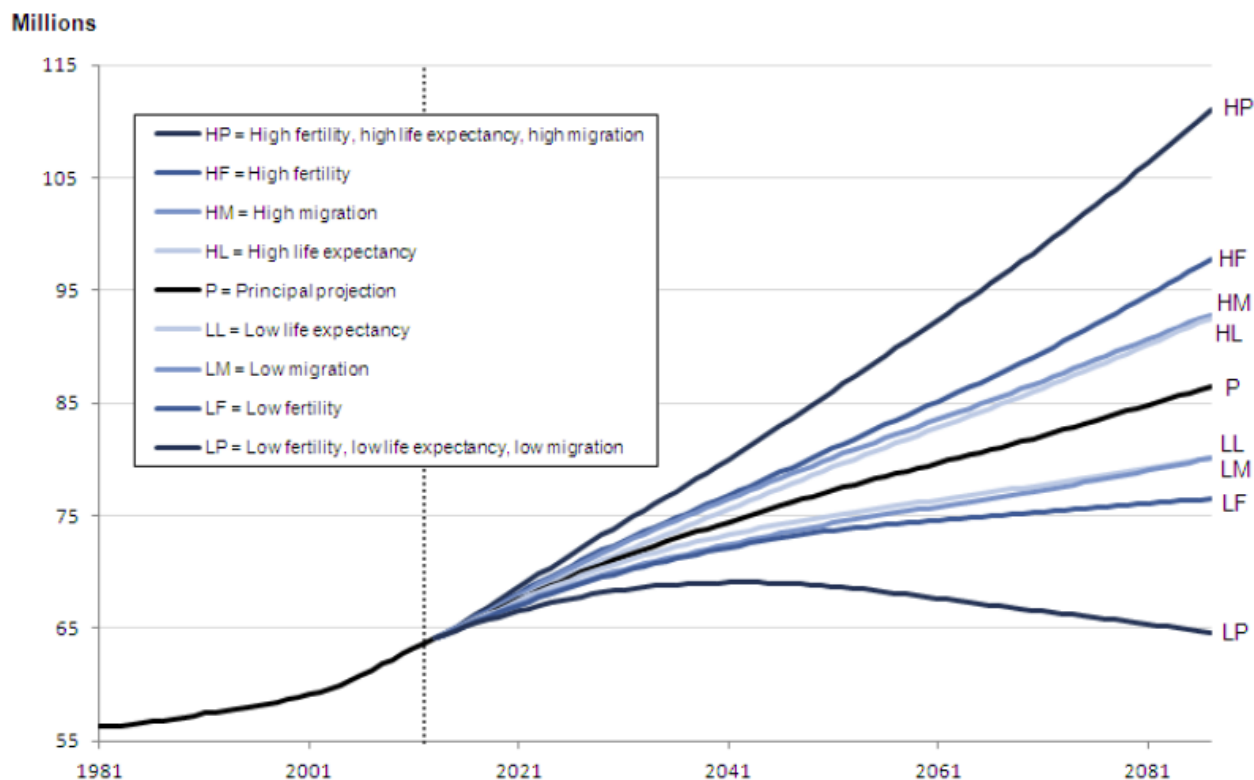
B.2.1 Step 1 – Relating National and Sub-National

The Principal National population projections are spatially and temporally consistent with the respective Sub-National projections to 2037. For this common period the relationship of the rate of change for each (Local Unitary Authority) LUA in the Sub-National projection compared to the National projection is calculated. This means that some LUAs populations increase at a faster (or slower) rate compared with the National projection and some LUA populations may even decline. This relationship is then used to extrapolate the Sub-National projections for each LUA to the 2080s in accordance with the National population projection. The outcome of this step is the production of Sub-National Principal projections to the 2080s for each LUA.

B.2.2 Step 2 – Producing Low and High Variants

During consultation with ONS, it was agreed that combined population projections should not be used as the upper and lower bounds of the population projections for CCRA2, see Figure 1.

The Low and High Fertility variants from the ONS are produced for each of England, Wales, Scotland and Northern Ireland to 2100. This provides the lower and upper bound of the population projections either side of the Principal population projection. For each year in the Low and High population projection the percentage difference is calculated relative to the Principal projection at the national scale. These scale factors are then used to modify the Principal projection for each LUA calculated in Step 1 in order to create Low and High variants for each LUA to the 2080s.



Source: Office for National Statistics

Figure 12-1 Variants of actual and projected total population for the UK from mid-1981 to mid-2087. © Crown Copyright 2014 Source: http://www.ons.gov.uk/ons/dcp171776_355192.pdf

B.3 Population Projections

The population projections are provided in the form of shape files for each of the Low, Principal and High population variants. Each shape file contains the population projection for each LUA for 2012, 2025 (i.e. 2020s), 2056 (i.e. 2050s) and 2086 (i.e. 2080s).

B.4 Data

Data	Description	Citation
ONS Principal Projections	Principal population projection to 2100 for England, Scotland, Wales and Northern Ireland.	Office for National Statistics (2014) 2012-based National Population Projections, 1951-2087, [www.ons.gov.uk]
ONS High Fertility	High Fertility population projection to 2100 for England, Scotland, Wales and Northern Ireland.	Office for National Statistics (2013) 2012-based National Population Projections High Fertility variant projection, England, 2012-2112, [www.ons.gov.uk] Office for National Statistics (2013) 2012-based National Population Projections High Fertility variant projection, Wales, 2012-2112, [www.ons.gov.uk] Office for National Statistics (2013) 2012-based National Population Projections High Fertility variant projection, Scotland, 2012-2112, [www.ons.gov.uk] Office for National Statistics (2013) 2012-based National Population Projections High Fertility variant projection, Northern Ireland, 2012-2112, [www.ons.gov.uk]
ONS Low Fertility	Low Fertility population projection to 2100 for England, Scotland, Wales and Northern Ireland.	Office for National Statistics (2013) 2012-based National Population Projections Low Fertility variant projection, England, 2012-2112, [www.ons.gov.uk] Office for National Statistics (2013) 2012-based National Population Projections Low Fertility variant projection, Wales, 2012-2112, [www.ons.gov.uk] Office for National Statistics (2013) 2012-based National Population Projections Low Fertility variant projection, Scotland, 2012-2112, [www.ons.gov.uk] Office for National Statistics (2013) 2012-based National Population Projections Low Fertility variant projection, Northern Ireland, 2012-2112, [www.ons.gov.uk]
England Sub-National Projection	Principal projection for English Local Unitary Authorities (LUA) to 2037.	Office for National Statistics (2013) 2012-based Subnational Population Projections for Local Authorities in England, 2012-2037, [www.ons.gov.uk]
Scotland Sub-National Projection	Principal projection for Scotland Local Unitary Authorities (LUA) to 2037.	National Records of Scotland (NRS) (2014) 2012-based Population Projections Scotland, Tables, 2012-2037, [www.gro-scotland.gov.uk]
Wales Sub-National Projection ¹	Principal projection for Wales Local Unitary Authorities (LUA) to 2037.	Welsh Government (2013) 2011-based local authority population projections for Wales, 2011-2036, [www.statswales.wales.gov.uk]
Northern Ireland Sub-National Projection	Principal projection for Northern Ireland Local Government Districts to 2037.	Northern Ireland Statistics and Research Agency (2013) Population projections for areas within Northern Ireland, 2012-2037, [www.nisra.gov.uk]

1 – The Welsh Sub-National projections use a base year of 2011. This leads to a slight inconsistency compared with the National projection which uses a base year of 2012.

B.5 Notes

These data are treated as scenarios within the analysis of future flood risks - Due to the fine detail of these population projections there are some areas that are identified as having very significant increases in population and large ranges between the Low and High projections. For the 2080s in particular, these projections are associated with considerable uncertainty and should be used as a 'sensitivity test' to population change rather than a prediction of a certain population in a given area.