

What should I use as my base year?

You should use a year for which you have a good estimate of the population for each single year of age 0 to 89 and 90+, for males and females separately.

Some users make the base year the most recent year for which a good estimate is available.

Others update their forecasts each year or two by entering the most recent births, deaths and migration data into their existing files, and put the most recent population estimates on a constraints file. The 'base year' is then a while ago, but the forecast only 'takes off' from the most recent population estimate. For the earlier years POPGROUP uses the population estimates to give its best estimate of demographic change each year. In particular it provides estimates of past net migration consistent with the births and deaths in each year, and fertility and mortality rates.

This can be invaluable when fertility and mortality rates are not available, or when recent migration is not available: POPGROUP uses counts of births and deaths with the population to estimate fertility and mortality rates, and then indirectly computes migration at each age and sex by comparing adjacent years' data. These indirect estimates are described in the paper *Integrating estimates and targets within a population projection*.

<http://www.ccsr.ac.uk/popgroup/docs/APPIntegratingestimatesinprojections.pdf>

This approach is often used when making projections for small areas in the UK: a forecast is run for the past years when only births, deaths and population estimates are known. The output from that 'training projection' summarises the fertility, mortality and migration in past years, which is then used as the initial assumption for future years. This strategy for small area projections is described in [Link to methodology paper].

The advantages of a historical series placed in the same data bank as the forecast are so great that they start at a much earlier year. For example, the POPGROUP user guide and many of the services provided using POPGROUP, start with 1991 as their base year as a matter of course.

In summary, to help choose the base year:

1. A forecast can be achieved most quickly by using the most recent set of population estimates as the population base. There is no requirement to include a past data series and an earlier population base.
2. The use of an earlier population base integrates "actual" and forecast statistics within the same time series and is useful in presentation - particularly in the charter facility of the reports workbook and the comparison of forecasts.
3. None of this past actual information is used directly by POPGROUP to create the projections for future years.
4. The user can compare historic and projected values through POPGROUP to help judge whether the assumptions made about the future seem reasonable when compared to the past. The user can take the outputs from early years when birth, deaths and population were known, to set the assumptions for future years.
5. When 'forecasting' past years for which the population is already known and entered in a constraints file, POPGROUP effectively adjusts the initial fertility, mortality and migration in a year to meet the births and deaths during the year and the population at the end of the year.