

2019 NSW Population Projections



Methodology

The NSW Department of Planning, Industry and Environment has prepared the 2019 NSW Population Projections using a method called the cohort component method.

This method takes the starting population broken down by age and sex (cohorts) and sends them forward in time making assumptions about how many people at what age will have children, die or change addresses (the components).

The cohort component method makes sure that the logical impacts of age in any place are seen in the future projections. For example, an area with lots of people in their 30s is more likely to see more births over the next 20 years than an area where a big share of the population is in retirement ages.

The Department's method is the same as that used by the Australian Bureau of Statistics and the United Nations.

Two things are important for understanding the NSW Population Projections:

- Assumptions about births, deaths and population movements
- Top-down approach so all local government areas add up to the state projection.

Assumptions

More detail about the assumptions are in the Assumptions factsheet. These assumptions affect the population numbers we see in the projections. The projected rate of growth is worked out after the assumptions have been applied and we can see the impact.

Assumptions are made for three main components or areas:

- Births (how many babies are born to women of certain ages)
- Deaths (how many people die at each age)
- Migration (how many people move in or out of an area at each age from other areas in NSW, other states and overseas).

These assumptions are made for NSW as a whole, regions and each local government area (LGA). As the next section explains, these assumptions are made first for NSW as a whole, then for each region or LGA, with the assumptions for each component limited so they always add up to those set for NSW.

Assumptions are also made about how the urban population of Sydney, the Illawarra and Lower Hunter is distributed between LGAs. The Housing Supply Forecast and information about other strategic activities are used for this assumption.

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Top-down approach to projections

The model used by the Department is a multi-regional model. This means the process of applying assumptions to individual age groups is done for NSW, regions and LGAs; and figures for regions add up to figures for NSW, and LGAs add up to the regions.

The model runs them in a sequence so the NSW projection is run first, and after that the region and LGA projections cannot add up more to the state total. The main reason for this is that it is easier to set assumptions for large populations because there are fewer year-to-year fluctuations. There are also not big statistical responses to small changes at a state level compared to LGAs. For example, ten more births for NSW doesn't affect population trends, but in a small council area this could be double the number of average births in a year.

This top-down approach affects assumptions and outputs. Net interstate migration and net overseas migration assumptions for each region have to add up to the state total. Net migration within NSW has to add up to 0. If one area has more in-migrants based on internal migration then the model will take them from somewhere else.

For births and deaths, assumptions are based on a rate, or the number of births and deaths for each age group. These are applied and give a total number of births and deaths, and after that the number of births and deaths at each age group are made to add up to the total.

Outputs are limited to the NSW totals a similar way to the assumptions, and they are done so the age profiles in each region or LGA are based on the starting population, and add up to the state numbers.