



# BIRTHS

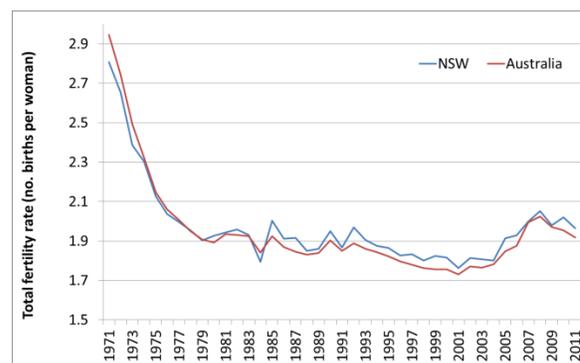
## NSW Population Projection Assumptions

Births are one of the two demographic factors that make a population grow. An upswing in NSW birth rates over the last decade is assumed to continue into the future, with the Total Fertility Rate rising to 1.95 births per woman during 2026-2031. Differences across the state in the number of children that women currently have are also taken into account, and are assumed to continue into the future.

The population projection model makes assumptions about future fertility levels as indicated by the total fertility rate, and the age profile of childbearing as indicated by age-specific fertility rates

Fertility rate trends in NSW have followed those for Australia. The post-war Baby Boom, when women were young mothers and had on average three children, was followed by steep fertility declines during the 1970s. Fertility rates slowly declined further over the next two decades, so by the beginning of the 21<sup>st</sup> century NSW women had on average fewer than two children. Since 2004 fertility rates have increased (see Figure 1). The main factor affecting whether the annual total fertility rate has gone up or down has been the age at which women have their children. The upswing in fertility rates from 2004 was unexpected. It began when a greater proportion of births occurred to women aged in their 30s.

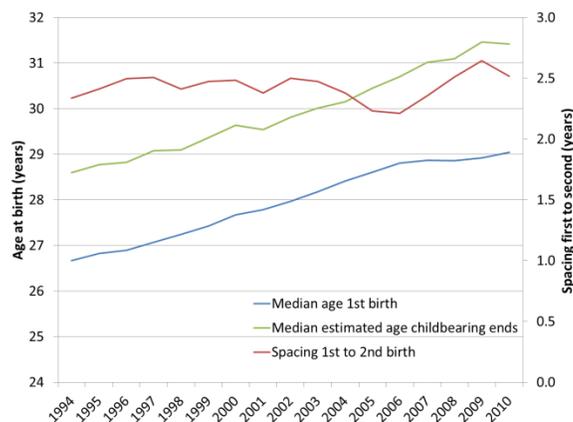
Figure 1: Total Fertility Rate, New South Wales and Australia, 1971-2011



Source: Australian Bureau of Statistics (ABS), Births Australia 3301.0, various years.

Looking at recent generations of NSW women, once they begin childbearing there is little difference in the spacing or number of births that they have. The average length of time between a first and second birth has been consistently around 2.5 years (see Figure 2).

Figure 2: Median age first birth, median estimated age at which childbearing ends, and median spacing from first to second birth, New South Wales, 1994-2010



Source: NSW Perinatal Data Collection, NSW Health, customised data set.

## Future Birth Rates

NSW birth assumptions are made on the basis that:

- Any further delays in the average age at which women have their first child will be less marked than changes seen over previous decades.
- Changes in annual birth rates because of changes in the age women have children, will be diminished in the future.
- Spacing between first and second births will remain at about 2.5 years.
- Fertility rates in New South Wales will remain slightly higher than for Australia as a whole.

Recent increases in fertility rates are considered unlikely to continue into the future, but will remain close to recent levels for some time because there is only a finite age that childbearing can be deferred to. It is also not expected that childbearing in NSW will decline again to levels seen in the late 1990s and early 2000s. Analysis of research in Australia and other countries with similar fertility patterns indicates that the up and down trends for fertility seen in the past are likely to be less marked in the future. Even if fertility rates remain stable we will see different numbers of births each year due to different numbers of women of childbearing age.

## Assumed Birth Rates

State-level fertility rates were set taking account of past trends in the age women had children and the spacing

between births. Analysis of a summary fertility measure (tempo-adjusted total fertility rate) designed to remove the impact of the changing age that women have children showed relative stability over time. The trends from this measure were used to inform setting of the state-level assumption, as well as changing age profiles of future mothers. Assumed fertility rates for NSW are shown in Table 1.

## Local Government Areas

Future changes in local government area birth rates are held constant in relation to the state assumptions over the projection period. This means if an area has a higher birth rate than New South Wales as a whole at the start of the projection period, the birth rate will remain higher for all projections. A ratio was calculated between each region and New South Wales based on births data from the Australian Bureau of Statistics (ABS) for the years 2006-2011. This ratio was then applied to the projected total fertility rate.

A similar approach was used to set the age profile of childbearing. Across all LGAs these have been based on births data from the Australian Bureau of Statistics for the years 2006-2011.

Table 1: Assumed future total fertility rates used for the 2014 NSW population projections

Period	Assumed total fertility rate
2011-16	1.947
2016-21	1.949
2021-26	1.951
2026-31	1.953
2031-36	1.956
2036-41	1.958

## Comparison with ABS Projection Assumptions

The ABS released projections in November 2013 for Australia, the states and territories. The fertility assumptions used by the ABS are lower than those used by Planning and Environment. The ABS assumes the total fertility rate in New South Wales will decline from 1.93 births per woman in 2013 to 1.79 births per woman by 2026, and thereafter remain constant.

The fertility assumption set by the ABS is based on recent trend data. It reflects a move to older childbearing but assumes a return to a lower overall number of children per woman. The ABS assumption is not informed by analysis of parity data (information about birth order) which indicates a relatively stable number of births per woman over her life time in recent years.

The setting of a higher assumption in relation to births has been endorsed by the NSW Population Projection Group for the following reasons:

- The analysis of parity data to inform setting of the assumptions was strong and supported as sound evidence to set the result;
- Previous revisions set a lower fertility assumption that required a special run of projections using a higher fertility assumption similar to the one set for 2014;
- Previous revisions with lower fertility assumptions have been shown to under-project the population (see Evaluation of Projections paper) which has important consequences for planning, particularly health and education services.

This means the NSW projections show a larger number of births over the next 20 years compared to the ABS projections; with flow on effects as those projected babies enter the school and early adult ages.

### More Information

More detail about the assumptions and methods used in the development of the final 2014 NSW population, household and dwelling projections is set out in other technical papers available from Planning and Environment's website.

*References used to prepare and support the projection models are available in the document "Reference Material"*

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