

Northern Territory small area population projections

Methods & assumptions

This paper explains the process of producing the NT's projected enrolled population at 22 August 2020 by Statistical Areas Level 1.

Projection Method

The method employed for projecting the population for the NT was the cohort-component method, widely accepted as the best way of producing age/sex population projections. Annual fertility rates, mortality rates, internal migration, and overseas migration by age and sex were applied to the base population to produce a projected population, which then became the base population for projecting the next year and so on. This cycle was repeated until the projection horizon was reached.

For each SA2 in the NT, total population aged 18 years and over was projected using average historical growth from 2015 to 2017. The projected SA2 populations were proportionally constrained to the projected total over-18 NT population.

For each SA1 in the NT, total population aged 18 years and over was projected using average historical growth rates. The totals of projected SA1 populations were proportionally constrained to the corresponding SA2 populations.

Complete process:

1. State projections. The total NT population at 30 June 2018–2021 was projected by single year of age and sex, from a base (observed) population at 30 June 2018.
2. Statistical Areas Level 2 projection. The total over-18 population of all SA2s in the NT at 30 June was projected, from a base population at 30 June 2017, and constrained to the total over-18 territory population.
3. Statistical Areas Level 1 projection. The total over-18 population of all SA1s in the NT at 30 June was projected, and constrained to the corresponding SA2 populations.
4. Projected population at 15 January 2019 and 22 August 2020 was calculated by linear interpolation between the projected populations at 30 June.
5. The enrolled population at 22 August 2020, by SA1, was calculated by applying an enrolment ratio to the total over-18 population. The enrolment ratio was the enrolled population at 15 January 2019 by SA1 divided by the population projection at that date.

Assumptions

The base population for the NT cohort-component projections was preliminary age/sex estimated resident population (ERP) as at 30 June 2018, as released by the ABS in [Australian Demographic Statistics](#) on 20 December 2018. The base population for SA2 and SA1 projections was preliminary age/sex ERP at 30 June 2017, as released by the ABS in [Regional Population by Age and Sex](#) on 28 September 2018.

Assumptions for the territory-level projection were based on both short and long-term trends for each component of population change. Fertility was disregarded as it does not affect the projection for the over 18 population at 22 August 2020. These assumptions were specified or agreed to by the Northern Territory Electoral Commission.

Population component	Year ending 30 June		
	2019	2020	2021
Mortality – standardised death rate	7.9	7.9	7.8
Net interstate migration – persons	-2 000	-1 500	-1 500
Net overseas migration – persons	1 803	1 835	1 816

SA2 and SA1 population assumptions were average historical growth from 30 June 2015 to 30 June 2017.

The enrolment ratio of enrolled population to total over-18 population at 15 January 2019 was assumed to be constant up to 22 August 2020, except for some outliers. The adjustments to these outliers reflect a trend of high growth areas having low enrolment ratios and areas with declining populations having high enrolment ratios. We (ABS) have interpreted this as lag in updating electoral roll address. The adjustments balance out to maintain consistency for the total enrolment ratio for the Northern Territory.

Data and method quality

The relationship between the roll count and the projected population at 15 January 2019 was not as strong or as well explained as for other jurisdictions. There are a number of general data quality issues with both data sources:

Lower data quality of SA1 population estimates compared to larger geographic areas

- The difference between the projected and the actual (yet to be estimated) population – historical population change has been inconsistent
- Variation in enrolment rates across the NT
- Lags in updating electoral roll address
- Other quality issues affecting the electoral roll counts

These quality issues often can't be isolated, and so they cannot be accounted for. We have presented a list of SA1s with an anomalous and unexplained ratio of roll count to population. These could be subject to further adjustments.

Other SA1s with anomalous ratios of roll count to population can be explained. These include areas with

- Prisons
- Student accommodation
- Darwin CBD areas with a lower proportion of Australian citizens

We (ABS) have made some adjustments to the ratio of enrolled population to total over-18 population at the SA 1 level in order to calculate the projected enrolled persons at 22 August 2020. These adjustments reflect a trend of high growth areas having low ratios and areas with declining populations having high ratios. We have interpreted this as lag of updating roll address. The adjustments in detail are:

- Increased enrolment ratio for high growth areas with an unusually low original ratio. This excludes the Darwin city area and areas with low proportions of Australian citizens.
- Decreased enrolment ratio for areas with population decline and an unusually high original ratio.

Geography

SA1 boundaries are from the [Australian Statistical Geography Standard \(ASGS\): Volume 1 – Main Structure and Greater Capital City Statistical Areas, July 2016](#) (ABS cat. no. 1270.0.55.001), as used for the 2016 Census.

Disclaimer

It is important to recognise that the projection results in this report reflect the assumptions made about future fertility, mortality and migration trends. While these assumptions are formulated on the basis of an objective assessment of historical demographic trends and their plausible future dynamics, there can be no certainty that they will be realised.

The ABS takes responsibility for the method employed, however in accordance with ABS policy regarding small area population projections, the assumptions used are the final responsibility of the client, and the projections are not official ABS population statistics.

The projections may be referred to as "...projections prepared by the ABS according to assumptions reflecting prevailing trends agreed to by the Northern Territory Electoral Commission".

No liability will be accepted by the ABS for any damages arising from decisions or actions based upon this population projection consultancy service.