INDIGENOUS POPULATION CHANGE IN THE NORTHERN TERRITORY 1966 to 2031

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This paper examines how the Northern Territory's Indigenous demography has changed over recent decades, an assessment made possible by a recently constructed Indigenous demographic database covering the period 1966–2001. The paper then presents population forecasts to 2031 prepared with a new population projection program specially designed to model the population by indigenous status. The results show that considerable growth and modest ageing of the NT Indigenous population may be expected.

INTRODUCTION

It is widely recognised that Indigenous population statistics in Australia are lower in quality and less complete in coverage than those for the Australian population as a whole. However, evidence from a number of sources indicates that these data shortcomings are much less of a problem in the Northern Territory (NT). For example, Indigenous birth and death statistics are deemed to be near complete;[1, 2, 3] special procedures are used in many areas for enumerating Indigenous people in the Census (though these remain far from perfect);[4] and the error of closure for the NT Indigenous population has been small in recent intercensal periods.[5] Error of closure refers to the difference between the population estimate from one census and the population from the previous census 'rolled forward' to account for births, deaths and migrations.

Recently the Indigenous demographic data coverage for the NT was substantially expanded through the construction of a high-quality and internally consistent database of Indigenous population estimates, deaths and births by the second author of this paper.[6] Covering 1966 to 2001, this database not only provides a unique insight into the NT's Indigenous demographic transformation, but also gives a reliable foundation on which to prepare population forecasts.

The aim of this paper is to describe how the NT's Indigenous population has changed in recent decades and how it is likely to change in the future. The future Indigenous demography of the NT has obvious relevance in many areas of policy-making and service delivery, ranging from educational provision, economic development, employment opportunities, welfare provision, the criminal justice system, health care and housing provision (especially for the growing elderly population). Although this paper is concerned with Territory-wide demographic change, the spatial dimensions of Indigenous population growth should also be mentioned. Past trends suggest that much of the coming Indigenous population growth is likely to occur outside Darwin, with attendant implications for major non-metropolitan service centres such as Alice Springs, Katherine and Tennant Creek. Regional NT projections will be the focus of further research.

The paper first of all describes the data and methods used to construct the database and how it was possible to ensure internal consistency and a high level of confidence in its accuracy. Some selected key changes to the NT Indigenous population over recent decades are then described using the database. The paper then switches attention to the future. A new population projection model designed to prepare NT Indigenous population forecasts is briefly outlined, and the various projection assumptions

described. The final substantive section of the paper then presents forecasts of the future size and composition of the Territory's Indigenous population from 2001 to 2031.

NT INDIGENOUS DEMOGRAPHIC DATABASE

The experimental Indigenous Estimated Resident Population (ERP) for the NT at 30 June 2001 produced by ABS[7] formed the starting point for the construction of the NT Indigenous Demographic (NTID) database. This was taken to be the most accurate recent estimate available for the NT Indigenous population. Indigenous population estimates for earlier years were then calculated by reverse projecting the 2001 estimates using data on deaths of Indigenous NT residents between 1967 and 2001 obtained from the ABS national deaths database. In the NT, death registrations have been almost complete since at least the early 1960s but identification of Indigenous people in those registrations has not. Indigenous status has been included on NT death notification forms since 1988; the ABS has assessed the completeness of identification since then as very high.[8] Prior to 1988, Indigenous status was not included on death notification forms. For deaths that were registered in the NT between 1967 and 1988, Indigenous status was inferred by the second-named author of this paper using other information on the death registration, such as an obvious Aboriginal name for the deceased or their parents, birth or burial in a remote Aboriginal community in the NT, burial by a pastor of the Aboriginal Inland Mission, etc. This inference process could not be undertaken for the small number of deaths of NT residents who died in another state; Indigenous status as recorded by interstate death registries was assumed to be correct. The inference method was validated by comparing inferred with notified Indigenous status for a sample of deaths registered in 1991; there was a high level of agreement between inferred and notified Indigenous status (94 per cent). Due to small amounts of net interstate migration being reported by the census, migration was assumed to be zero. Full details of the data sources and methods used to produce the time-series of population estimates for the NT Aboriginal and Torres Strait Islander population have been documented elsewhere.[9] We now turn to give a brief overview of how the NT's Indigenous demography has changed over the course of the 1966–2001 period, predominantly using data extracted or derived from the NTID database.

NT INDIGENOUS POPULATION CHANGE 1966–2001

Growth

In 1966 the Indigenous population of the NT is estimated to have been 25,345, about 2/5ths of the size it is today (Table 1). The

Table 1: Estimates of the NT Indigenous population, 1966–2001

Mid-year	Population	Annual average per cent growth rate over previous 5 years	per cent of NT population
1966	25,345	n/a	n/a
1971	29,090	2.76	33.9
1976	33,218	2.65	33.8
1981	37,289	2.31	30.4
1986	41,890	2.33	27.1
1991	46,642	2.15	28.2
1996	51,922	2.14	28.6
2001	56,875	1.82	28.8

Sources: NTID database, ABS

increase in population to 2001 has thus been considerable (124 per cent), exceeding national population growth over the same period (67 per cent), though not that of the NT non-Indigenous population (314 per cent). The growth in the NT Indigenous population has been driven by above-replacement fertility amongst Indigenous women, Indigenous births to non-Indigenous women, declining mortality rates (see Table 2) and a young age structure. Trends in mortality and fertility over the four decades covered by the NTID database are discussed below, and the changing age-sex profile is described. Due to space limitations the discussion is necessarily brief and priority is given to those measures of population change which are useful in informing projection assumptions.

Table 2: Pseudo-General Fertility Rate, NT Indigenous and non-Indigenous populations, and General Fertility Rate, Australia, 1966–2001 (per 1000 population)

Period	NT Indigenous	NT non-Indigenous	Australia
1966–71	191	103	85
1971–76	174	94	76
1976–81	144	75	63
1981–86	130	66	61
1986–91	119	61	57
1991–96	111	60	55
1996–2001	96	57	52

Source: calculated from the NTID database; ABS

Fertility

Indigenous fertility in the Northern Territory has declined substantially since the late 1960s. Table 2 presents estimates of the pseudo-General Fertility Rate (GFR) estimated for each intercensal period between 1966 and 2001. This is a pseudo-GFR because the numerator of this 'rate' includes all births counted as Indigenous (including those to non-Indigenous women), while the denominator consists of Indigenous women aged 15–49. Estimates of the number of Indigenous babies born were obtained by reverse projecting the populations in the NTID database back to birth. Unfortunately these births data do not permit age-specific rates to be calculated. A similar non-Indigenous pseudo-GFR was calculated for comparative purposes, as was the GFR for Australia as a whole.

Another source on fertility trends, ABS births registration data, is available for more

Table 3: Total Fertility Rates for the NT by indigenous status of mother, and Australia, 1990–91 to 2000–01

Financial year	NT Indigenous mothers	NT non-Indigenous mothers	Australia
1990–91	2.66	2.06	1.88
1991–92	2.72	1.90	1.87
1992–93	2.79	2.14	1.88
1993–94	2.66	2.05	1.85
1994–95	2.52	1.98	1.84
1995–96	2.68	2.05	1.78
1996–97	2.63	1.93	1.79
1997–98	2.20	2.07	1.76
1998–99	2.48	1.94	1.75
1999–2000	2.66	1.80	1.75
2000–01	2.81	1.81	1.74

Source: ABS, NTID database

recent years. Table 3 shows Total Fertility Rates (TFRs) by Indigenous status of mother in the NT, and for comparative purposes, Australia as a whole. The temporal coverage is limited because Indigenous status has only been collected on NT birth registration forms since 1988 and our data holdings only go back to 1990. Whilst the pseudo-GFR reveals long-run downwards trend of Indigenous fertility, the TFRs shown in Table 3 indicate no appreciable decline over the 1990s.

ABS births data do not provide a complete picture of Northern Territory childbearing, however, due to mixed Indigenous/non-Indigenous partnering. ABS classifies a birth as Indigenous when one or both parents are Indigenous. Unfortunately this precludes some theoretically possible options. Evidence suggests that a small number of births to mixed Indigenous/non-Indigenous couples are regarded as non-Indigenous.[10] To gain some indication of the Indigenous status of births to mixed Indigenous/non-Indigenous couples a number of census tables were purchased. Although the census does not directly collect data on numbers of births and the Indigenous status of babies and parents, it is possible to obtain data on the Indigenous status of natural and adopted children aged 0–4 in family households by parents' Indigenous status. These data can only be regarded as proxy indicators of Indigenous status at birth, of course. Nonetheless in the absence of a better data source we make use of these figures. Table 5 shows the relevant counts from the 1981 to 2001 censuses. It can be seen that whilst the majority of children with parents of different identities are Indigenous, a minority are reported as non-Indigenous. Unfortunately the data in this table from 1981 look less reliable. The number of Indigenous lone parents in 1981 seems very low, and a comparison with the Indigenous status of children aged 5–9 in 1986 reveals major discrepancies which do not exist when comparing later censuses in a similar way. Table 6 makes use of these counts to estimate the Indigenous status distribution of children by Indigenous status of mother. These proportions are used as an approximation of the Indigenous status distribution of births in the five years prior to each census, and are the proportions required by the population projection model (described below). Excluded in calculating the proportions are those children reported as Indigenous when both parents are non-Indigenous (and vice versa), and children where the mother's Indigenous status was not known (in lone father families and not stated census responses).

Table 4: Percentage decline* in death rates by broad age group, NT Indigenous and total Australian populations, 1967–2000

Age group	NT Indigenous population	Total Australian population
Males		
0–4	85	76
5–24	22	59
25–44	12	32
45–64	14	65
65+	31	48
Females		
0–4	84	75
5–24	46	54
25–44	27	51
45–64	25	59
65+	29	52

Sources: Calculated from the NTID database and ABS data

Note: *Calculated from the average annual rate of decrease as estimated by a binomial regression model due to the volatile trends of the NT Indigenous death rates. For consistency the same method was used for the total Australian death rates

Table 5: Indigenous status of natural and adopted children aged 0-4 in family households, Northern Territory, 1981–2001

Indigenous status of children	Both parents Indigenous	Both parents non-Indigenous	Indigenous mother; non-Indigenous father	Non-indigenous mother; Indigenous father	Lone Indigenous mother	Lone Indigenous father	Lone non-Indigenous mother	Lone non-Indigenous father
1981								
Indigenous	2,505	24	283	278	5	6	33	67
Non-ind.	5	6,920	47	48	0	0	297	624
1986								
Indigenous	1,894	0	205	196	236	251	16	24
Non-ind.	0	7,850	32	28	4	4	341	345
1991								
Indigenous	2,013	23	217	206	272	263	41	49
Non-ind.	6	7,535	31	34	5	5	416	474
1996								
Indigenous	2,334	6	250	257	637	706	53	52
Non-ind.	7	7,431	16	15	7	4	530	506
2001								
Indigenous	2,424	13	268	222	563	662	69	74
Non-ind.	19	6,891	14	19	9	3	445	484

Source: ABS census (unpublished data)

Mortality

Table 4 shows how NT Indigenous death rates have declined between 1967 and 2000 by sex and age group. For comparison, statistics for the total Australian population are also given. For both NT Indigenous males and females it is clear that considerable progress has been made in combating under-five mortality. For females substantial reductions in mortality have been made in the other age groups as well. For men, there has been little improvement in the younger and mid-adult ages, though significant reductions in older age mortality have been achieved.

These death rate changes translate to significant improvements in life expectancy at birth. NT Indigenous males have seen their life expectancy rise from 52.3 years in 1967–71 to 59.9 years by 1997–2001; for females the equivalent figures are 53.7 and 66.0 years. For NT Indigenous women the improvement has been such that the gap with total Australian female life expectancy has narrowed from about 21 years in 1967–71 to 16 years in 1997–2001. For NT Indigenous men the gap has unfortunately widened from 15.5 to 17 years, but in absolute terms life expectancy at birth has increased by nearly eight years over the period.

Indigenous mortality in the NT remains very high but, in stark contrast to the commonly held pessimistic view of Indigenous mortality change, important progress is being made. The evidence reported here suggests that efforts to improve NT Indigenous health and combat high mortality rates are worthwhile and effective. But they also show that efforts need to be redoubled. Further details on mortality change in the NT Indigenous population are available in other papers.[11]

Age–sex structure

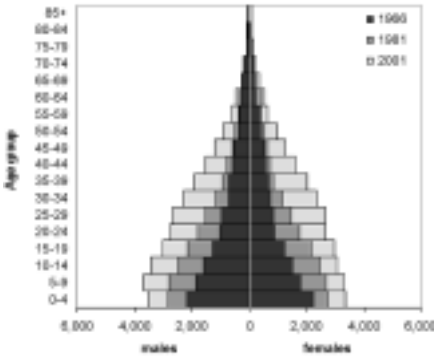
How have the trends in the demographic components of change discussed above impacted on the age–sex profile of the NT's Indigenous population? Figure 1 shows population pyramids for 1966, 1981 and 2001. The concave-sided pyramid of 1966 clearly reveals the impact of very high fertility and mortality in the decades preceding that year. In the 1960s and 70s high fertility rates, coupled with relatively large numbers in the peak child-bearing age groups, continued to generate successively larger birth cohorts. Over time, as fertility has fallen and survival improved, the pyramid has shifted towards a straighter, even slightly convex-sided, profile.

PROJECTION MODEL AND ASSUMPTIONS

Projection model

A multistate cohort-component projection model, NTPOP, was designed to produce population forecasts for the Northern Territory by Indigenous status (Indigenous and non-Indigenous). The description 'multistate' refers to models in which people may transfer between demographic 'states'.[12] In the NTPOP model this includes movement between geographical areas, specifically migration flows between the NT and the rest of Australia and overseas, and changes of identification between non-Indigenous

Figure 1: The changing age–sex profile of the NT Indigenous population, 1966–2001



Sources: ABS, NTID database

and Indigenous.

Additionally, NTPOP permits children born to mixed Indigenous/non-Indigenous couples to take either Indigenous or non-Indigenous identification. The model first projects births by Indigenous status of mother. Then, a proportion of births to non-Indigenous mothers are allocated to the Indigenous population, and similarly, a proportion of births to Indigenous mothers

Table 6: Indigenous status distribution of natural and adopted children aged 0-4 in family households by indigenous status of mother, Northern Territory, 1981–2001 (per cent)

Census	Children aged 0–4 of Indigenous mothers		Children aged 0–4 of non-Indigenous mothers	
	Indigenous	non-Indigenous	Indigenous	non-Indigenous
1981	98.3	1.7	4.1	95.9
1986	98.5	1.5	2.5	97.5
1991	98.6	1.4	3.0	97.0
1996	99.3	0.7	3.7	96.3
2001	99.3	0.7	3.8	96.2

Source: calculated from Table 5

Table 7: Summary of projection assumptions for the NT

	Indigenous	Non-indigenous
Fertility	Constant TFR of 2.61 for Indigenous mothers (average over 10 years to mid-2001)	Constant TFR of 1.97 for non-Indigenous mothers (average over 10 years to mid-2001)
	Proportion of babies to non-Indigenous mothers identified as Indigenous increases to 6.9 per cent by 2030–31	Proportion of babies to Indigenous mothers identified as non-Indigenous held constant at 0.7 per cent
Mortality	Linear increases to 68.0 and 73.9 years by 2030–31 for males and females respectively	87.0 and 83.3 years by 2030–31 for males and females respectively (ABS 2004-based national assumptions)
Interstate migration	Net -85 per annum	Net -915 per annum (to give -1000 per annum for the NT; based on judgement)
International migration	Zero	Net 736 per annum (average over 10 years to mid-2001)
Identification change	No Indigenous to non-Indigenous change	Limited non-Indigenous to Indigenous change, equivalent to 0.2 per cent per annum (error of closure over the 1996–2001 intercensal period)

are ascribed non-Indigenous status. This latter feature is an important difference with the ABS method of projecting the Indigenous population which assumes that all births to mixed Indigenous/non-Indigenous couples are Indigenous.[13] A detailed mathematical description of the NTPOP model is available in a separate paper.[14]

Projection assumptions and jump-off populations

The initial, or jump-off, populations for the Indigenous projections were the 30 June 2001 experimental ERPs, the most recent Indigenous population estimates available. Projection assumptions are set out in summary form in Table 7. Reasons for the assumptions as they affect the Indigenous population are given briefly below.

In projecting fertility a crucial, and largely unexplored, question is whether Indigenous fertility in the NT is likely to follow the trajectory of Indigenous fertility Australia-wide and fall to around replacement level,[15] or whether the particular socio-economic conditions of the NT will maintain higher fertility. Although the long-run picture of Indigenous fertility is one of decline (Table 4), no clear pattern of decrease or increase can be seen in the Indigenous TFRs of recent years shown in Table 3. In the absence of better information a 'status quo' projection was made. The average TFR for Indigenous women for the 10 years to mid-2001, 2.61, was assumed to apply for the whole projection horizon. The future proportions of babies born to non-Indigenous mothers assumed to be Indigenous were based on a linear

Table 8: Estimating the 1996–2001* error of closure for the NT Indigenous population

Component of change	Value
Experimental ERP, mid-1996**	51,876
Registered births to Indigenous mothers	6,504
Proportion Indigenous infants (Table 6)	0.993
Indigenous births to Indigenous mothers	= 6,504 x 0.993 = 6,458
Registered births to non-Indigenous mothers	11,621
Proportion Indigenous infants (Table 6)	0.038
Indigenous births to non-Indigenous mothers	= 11,621 x 0.038 = 442
Total Indigenous births***	= 6,458 + 442 = 6,900
Registered deaths	2,077
Census net interstate migration	-426
Assumed net international migration	0
Mid-2001 rolled-forward population	= 51,876 + 6,900 – 2,077 – 426 = 56,273
Experimental ERP, mid-2001	56,875
Error of closure	= 56,875 – 56,273 = 602

Sources: ABS, NTID database

* Between 30 June 1996 and 30 June 2001

** This is the experimental ERP based on the 1996 Census, not the revised 1996 ERP based on the 2001 Census.

*** An alternative would be to use 7,022, the number of Indigenous births in NTID database calculated by reverse projection. It would give an error of closure of 480.

extrapolation of the 1986 to 2001 figures in Table 6. By 2030–31 6.9 per cent of infants born to non-Indigenous mothers are assumed to be Indigenous. Preparing an assumption for the proportion of babies born to Indigenous mothers deemed non-Indigenous was more difficult given the trend shown in Table 6. It was decided to hold the 2001 Census proportion of 0.7 per cent constant.

It has been assumed that, in line with past trends, Indigenous life expectancy will continue to increase. Recent successes in reducing NT Indigenous adult mortality rates[16] as well as public pressure to reduce still unacceptably high mortality point, in our view, to further increases in life expectancy. Linear extrapolations of life expectancy were made based on the period 1977 to 2001 for males and 1972 to 2001 for females because the long-run trends over these years appeared to be roughly linear. This brings life expectancy at birth by 2030–31 to 68.0 years for males and 73.9 years for females.

The NTID database was constructed on the assumption of no net interstate migration because of the historically small amounts of Indigenous net migration recorded by the census. Whether allowance for migration should be made in the projections is a more difficult question, however. On the one hand NT Indigenous net interstate migration appears to have been increasing over time. It was -76 in the 1986 to 91 period, -217 in 1991 to 96 and -426 in 1996 to 2001. On the other hand there is some uncertainty surrounding the reliability of census migration data for the Indigenous population. Aside from under-enumeration, the conventional notions of home and usual residence which underpin the concept of migration may not always be culturally applicable to some Indigenous communities. For the purposes of these projections we took the decision to include Indigenous migration. In- and out-migration rates for the NT Indigenous population were set to ensure a net loss of 85 per year, the annual average recorded by the census over the 1996 to 2001 intercensal period.

Census immigration data as well as local anecdotal evidence reveal Indigenous international migration to be extremely limited. An assumption of no Indigenous international migration has therefore been made.

In the construction of the NTID database it was assumed that individuals would report their Indigenous status consistently from one census to another. Although no direct data on identification change exist, it is generally believed that very little Indigenous status change occurs in the NT. The closest thing to evidence on this issue is the small error of closure recorded for NT Indigenous population over the last couple of intercensal periods[17]. Table 8 presents our calculations of the error of closure for the period between mid-1996 and mid-2001. The estimate of 602 is

Table 9: Projections of the NT Indigenous population, 2001 to 2031

	Population	Annual average percentage growth rate over the previous five years	per cent of NT population
2001	56,875	1.82	28.8
2006	62,669	1.94	30.5
2011	68,738	1.85	31.3
2016	75,332	1.83	32.1
2021	82,467	1.81	33.0
2026	90,045	1.76	33.8
2031	98,052	1.70	34.5

Source: Authors' calculations

equivalent to about 0.2 per cent per annum in population growth. It should be stressed that the error of closure is certainly not the same as identification change; errors of closure contain unknown amounts of identification change and data deficiencies. Nonetheless, for these projections we decided to include a small amount of identification change (though, admittedly, this introduces an inconsistency with the NTID database). Rates of change from non-Indigenous to Indigenous were employed, equivalent to the 0.2 per cent per annum error of closure for 1996 to 2001. The same rates were used for both males and females and all ages. No change from Indigenous to non-Indigenous identification was assumed.

Finally, we included some actual data on components of change in the initial years of the projections. Although 2001 had to be used as the jump-off year of the projections, total births and deaths figures by Indigenous status were available up to 2004–05. These data were used to constrain projected births and deaths for this initial period of the projection horizon.[18] The 'projected' population figures up to 2005 may therefore be considered hybrid estimates-projections.

INDIGENOUS POPULATION PROJECTIONS, 2001–2031

Total population

The above projection assumptions and estimates were input into the NTPOP model and projections produced from 2001 to 2031. The results show that the Indigenous population of the Northern Territory is projected to grow from 56,875 in 2001 to 98,052 by 2031, a 72 per cent increase. Table 9 presents summary statistics. As a proportion of the total NT population the Indigenous share is likely to rise somewhat, due to slightly faster growth of the Indigenous compared to the non-Indigenous population.

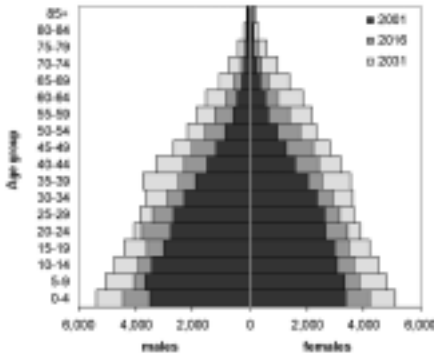
Births and deaths

The annual number of Indigenous births (from both Indigenous and non-Indigenous mothers) is expected to increase from around 1,600 per year currently to around 2,200 by the end of the projection horizon. The number of Indigenous deaths is projected to rise from approximately 450 currently to around 650 by 2030–31.

Age–sex structure

Figure 2 illustrates the projected age–sex structure changes. Declining mortality has the effect of gradually shifting the age composition to an older profile with a smaller share of the population below about age 35 and a larger share in the older adult ages. In terms of population change by age group, the population pyramids clearly show large increases at all ages between 2001 and 2031. Table 10 presents some figures on absolute and relative increases by broad age group. One of the most striking features of this table is the significant growth of the 65+ population, projected to increase by 278 per cent over the course of the projection horizon. The ageing of the population is also apparent in the population's increasing median age. It is set to rise from 21.8 years in 2001 to 26.9 by 2031. The NT Indigenous

Figure 2: The projected age–sex profile of the NT Indigenous population, 2001 to 2031



Sources: ABS, author projections

population will remain very young, of course, and even by 2031 its median age will be lower than the 2001 median ages of the NT non-Indigenous population (32.4 years) and the total Australian population (35.7 years).

ABS comparison

How do these projections compare with the ABS short-term projections of the NT Indigenous population to 2009? Table 11 provides the answer. The ABS high series allows for 'unexplained growth', defined as population increase 'observed between the 1996 and 2001 censuses which cannot be attributed to natural increase',[19] while the low series does not. The slower growth projected by ABS in both series is due to assumptions of declining fertility and no improvement in mortality.

Components of growth

The projected change in the NT Indigenous population may be attributed to high fertility amongst Indigenous women, mixed parentage childbearing, rising life expectancy, migration, identification changes and a young age structure. But how can the relative contributions of each of these processes be quantified? This section attempts to provide an answer using the decomposition approach of Bongaarts and Bulatao.[20] These authors investigated the components of future population change in global regions by running a series of projections in which factors affecting population growth were 'removed' one by one. They first produced a projection in which the factors affecting population growth were: a young age structure, rising life expectancy, above-replacement fertility and net migration. In subsequent projections they removed migration, then rising life expectancy (replaced with constant life expectancy), and then above-replacement fertility (substituted by replacement fertility). The final projection thus included only replacement fertility and constant life expectancy, illustrating the effects of a young age structure (that is, population momentum). In decomposing the projection for the NT Indigenous population we incorporated the additional factors of identification change and mixed parentage childbearing. The various projections produced for the decomposition are defined in Table 12.

The contributions of the various factors, together with their percentage contribution to 2001 to 2031 growth, are shown in Figure

Table 10: Projected changes in the NT Indigenous population by broad age group, 2001–31

Age group	2001 population	2016 population	2031 population	Absolute change 2001–31	Percentage change 2001–31	Per cent of age group Indigenous 2001	Per cent of age group Indigenous 2031
0–4	6,869	8,631	10,488	3,619	52.7	39.0	43.6
5–14	13,480	15,508	19,103	5,623	41.7	40.1	45.1
15–24	11,445	14,303	16,537	5,092	44.5	37.0	41.0
25–44	16,990	22,102	28,539	11,550	68.0	24.4	31.2
45–64	6,516	11,971	17,433	10,918	167.6	16.8	28.2
65+	1,576	2,817	5,951	4,375	277.6	21.3	24.9
Total	56,875	75,332	98,052	41,177	72.4	28.8	34.5

Sources: ABS, authors' projections

3. Just over half the projected population growth to 2031 is due to the young age structure of the NT Indigenous population (momentum). So even if fertility fell to replacement level (a TFR of 2.15), mortality rates did not change, there was no migration, no mixed parentage births and no changing identification, the population would still grow to 78,434 by 2031. This would be a 38 per cent increase from 2001. Above-replacement fertility (with all newly-born infants taking the Indigenous status of their mothers) generates about a fifth of the population change over the projection horizon. The net effect of allowing infants born to mixed Indigenous/non-Indigenous couples to be either Indigenous or non-Indigenous contributes about 12 per cent of the growth. This contribution is positive because more non-Indigenous mothers give birth to Indigenous babies than vice versa. Identification changes also make a significant contribution, even with a low rate of identification change.

It should be noted that removing factors in a different order does make a difference to the percentages (except for momentum), but the differences are fairly small. For example, removing factors in the opposite order to Table 12 (starting with the Standard projection, then removing increasing life expectancy, then above-replacement fertility, and so on) results in the percentage contributions to population growth changing by no more than one per cent.

Uncertainty

Of course, uncertainty is the one absolute certainty about population projections. NT

Table 11: Comparison with ABS experimental projections of the NT Indigenous population, 2001 to 2009

	Authors' projections	ABS low series	ABS high series
2001	56,875	56,875	56,875
2002	58,106	57,758	57,888
2003	59,250	58,634	58,895
2004	60,442	59,508	59,899
2005	61,514	60,373	60,896
2006	62,669	61,232	61,886
2007	63,843	62,085	62,870
2008	65,035	62,932	63,848
2009	66,247	63,775	64,820

Sources: Authors' projections, ABS

Table 12: Factors affecting future population change included in each of the projections

Projection	Young age structure	Rising life expectancy	Above-replacement fertility	Net interstate migration	Mixed parentage childbearing	Changing identification
1. Standard	✓	✓	✓	✓	✓	✓
2. Mixed parentage	✓	✓	✓	✓	✓	
3. Migration	✓	✓	✓	✓		
4. Natural	✓	✓	✓			
5. Replacement	✓	✓				
6. Momentum	✓					

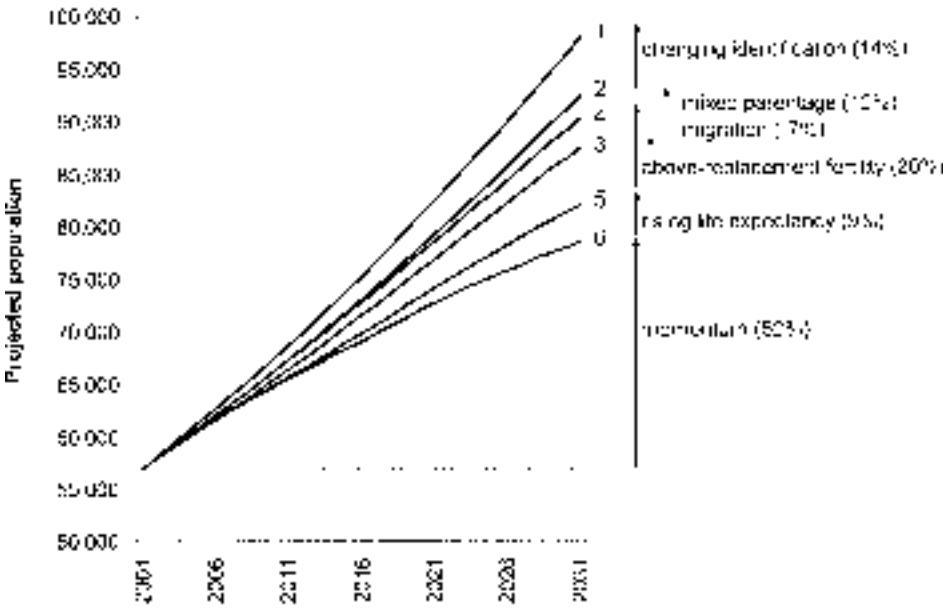
Indigenous fertility might fall in the next few years. The trend in life expectancy improvements could stall as chronic diseases prove increasingly difficult to combat. The rate of Indigenous/non-Indigenous mixed partnering could accelerate. Net out-migration might increase as improved educational outcomes present NT Indigenous people with increased access to Australia-wide labour markets. It is important to be cognisant of the uncertainty inherent in the projections reported in this paper, although quantification of the uncertainty in the form of probabilistic forecasts must wait for a future research project.

CONCLUSIONS

This paper has provided a brief account of how the Indigenous demography of the NT has evolved over the period between 1966 and 2001, and how we expect it to change in the years to 2031. The NTID database has permitted, for the first time, medium-term demographic change in the NT Indigenous population to be measured with a high degree of confidence. Using statistics from the database we have shown how the population has been undergoing a transition over the last three-and-a-half decades from very high to lower fertility and mortality, and how the population pyramid has 'aged' from very young to young.

The projections reveal that considerable growth in the Indigenous population may be expected in the coming decades. As Figure 3 demonstrates, even a momentum projection with replacement-level fertility and no improvement in life expectancy will lead to a large population increase. Substantial increases in size may be expected for all age groups, with the older ages increasing by proportionately greater amounts (Table 10). These coming changes clearly present considerable challenges for current and future NT and Commonwealth governments.

Figure 3: Factors contributing to NT Indigenous population growth 2001 to 2031



Source: authors' projections

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