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Population Studies Group
School for Social and Policy Research
Charles Darwin University
Northern Territory 0909
andrew.taylor@cdu.edu.au

Population Change in the Northern Territory – History matters

KEY FINDINGS

- Historical changes in the Territory's population show there have been periods of both high growth and large declines in growth rates.
- Growth is volatile for small populations like the Territory's, particularly when they are subject to large fluctuations in migration flows.
- There is no compelling evidence that the high rates of growth currently being experienced will carry on into the future in a linear fashion.
- Most of the volatility in population change in the Territory is the result of widely fluctuating levels of net interstate migration and, to a lesser extent, net overseas migration.
- There are no indications that the volatility of migration will taper off in the immediate future. In fact a case can be made for increasing uncertainty around the migration components of change.

RESEARCH AIM

To examine historical trends in the components of population change for the Northern Territory to inform discussion on possible future population scenarios.

This Research Brief was prepared by
Andrew Taylor
&
Dean Carson

Introduction

During 2008 and into 2009 a considerable amount of fuss has been made about the Territory's population growth rates. With each successive release of Australian Demographic Statistics (see ABS, 2009) it has appeared that the Territory has been confirmed as a place for continued rapid growth (for example, NT News, 2009). And the tendency has been to focus on data for the most recent quarter or year to make assumptions about what might happen into the future. This is a tempting proposition since the Territory has indeed been amongst the fastest growing of the States and Territories during the past two years. For example, Australian Bureau of Statistics figures show the Territory grew by 2.2 percent during the year to September 2008. This was the third highest rate in the country behind Western Australia (2.9 percent) and Queensland (2.5 percent).

While high growth rates compared to other states may sound impressive, a different interpretation of the data is possible. It could be argued, for example, that the Territory recorded the lowest rate of growth of all the states whose economies were prospering through strong mining sector activity during 2007-2008. Or, a restatement of the year to September 2008 data might be that the Territory was in the mid-range when compared to growth amongst the states and territories. These interpretations demonstrate the need for understanding where successive quarterly data on growth sits in relation to the long term trends. In particular, analysis of the drivers of population change in the current period compared to those in the past is required to make informed commentary on possible Territory growth pathways and population scenarios into the future.

Long term trends are also important for modelling population projections. Population projection models are a formal and (usually) relatively complex method for projecting future population sizes and compositions. A common approach in many of the most widely used models is to base assumptions about future rates of fertility, mortality and migration on historical data. Here, demographers are faced with the central question of what constitutes the long term trend. The need to apply historical data in this way indicates that there is significant enough uncertainty around the future drivers of population change for the short-term data to be rolled-up into longer term trends as inputs to projections.

The crucial questions then are:

- Can we describe historical trends for population change in the Territory?
- How reflective of long term trends is the most recent data?
- What components of population change are driving current trends and how is this different to what has happened in the past?
- What might current trends say about the future?

In this brief we examine long term trends in the components of population change for the Northern Territory to shed some light on the questions above. We attempt to articulate what the long term trends in population growth and the components of change for the Territory have been and what these might indicate about future scenarios.

A potted history of Territory growth

Before examining long term trends in the components of change for the Territory, some historical background is warranted. The history of population growth in the Northern Territory is characterised by periods of both high growth and large declines (Figure 1). At least some of this volatility can be attributed to the relatively small size of our population, even today. During early years this is evident through the relatively large impacts of small events like closing of the Vestey's meatworks in 1921. And during the 1940s the population of the Top End (in particular) grew dramatically and then declined because of WWII troop movements. Subsequently the policy to actively defend the North saw a doubling of the population in a relatively short time after the War.

In more recent times a major decline in the Territory's population was recorded due to the evacuation of residents after cyclone Tracy, followed by a period of re-population after the re-building program. During the late 1970s and early 1980s resettlement after Tracy combined with activity around self-government, and especially an increase in the size of the Territory's public service, resulted in consistent growth of around five percent per annum. A reduction in jobs created during the end of the 1980s lowered the growth rate but this was turned around during the early 1990s with the build up of defence force capabilities in the North. Growth rates were relatively low from the late 1990s right up to 2005 when mining and construction activity began to peak. More recently significant investment and job creation has occurred as a result of Northern Territory Emergency Response and other Australian and Northern Territory Government initiatives and programs. The Territory economy has seemingly withstood any major impacts from the global financial crisis to date and these factors have combined to maintain a growth rate of more than two percent since 2005.

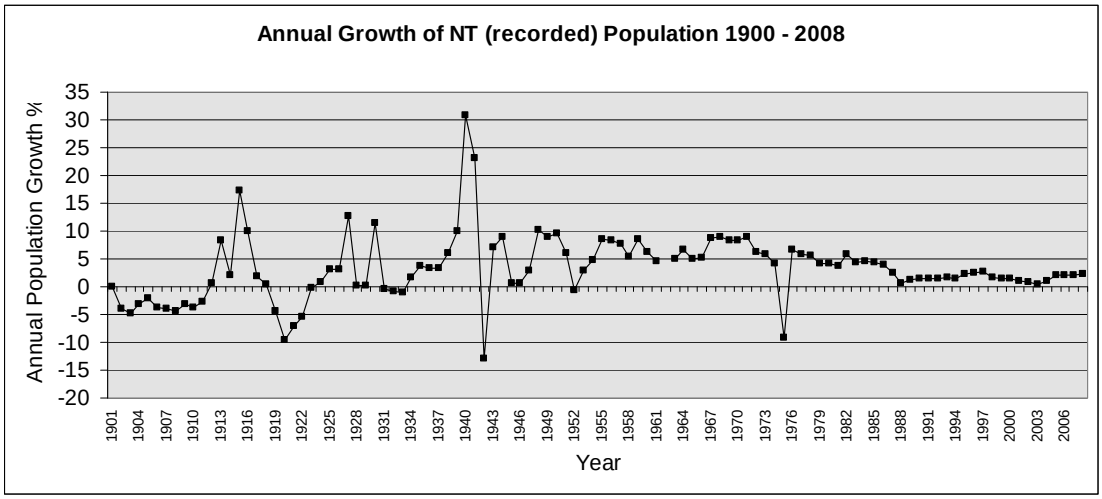

Figure 1 – Annual Territory population growth, 1900 to 2008

Data and Methods

This analysis is based on data sourced from the Australian Bureau of Statistics collection *Australian Demographic Statistics* (ABS, 2009). This series provides estimates of the resident populations (the ERP) for states and territory's based on the most recent Census data and adjusted for a number of factors. The main adjustments to Census usual resident counts to obtain ERP counts are for net undercounting and for Australian residents who were overseas at the time of the Census. ERP counts are adjusted during the years between Censuses by adding the components of population change to the estimated population at the beginning of each period. Very broadly the components of change are:

Natural increase – the excess of births over deaths

Net overseas migration – the number of long term migrants who have taken up residence in the Territory minus the number of Australian residents who have left the Territory for overseas on a long term basis.

Net interstate migration – the number of residents from elsewhere in Australia who have taken up residence in the Territory minus the number of Territory residents who have taken up residence elsewhere in Australia.

Comparisons of data for the components of change are made across four time periods:

1. The 27 year period from the June quarter 1981 to the September quarter 2008.
2. The past ten years from the September quarter 1998 to the September quarter 2008.
3. The past five years from the September quarter 2003 to the September quarter 2008.
4. The past two years from the September quarter 2006 to September quarter 2008.

Indicators of the average absolute contribution of each component and the standard deviation of these within each time period are derived to facilitate comparisons across the four time periods.

Results

1. Natural Increase

Natural increase is the most stable of the components of population change because changes to fertility levels tend to play out over long periods of time. Table 1 shows natural increase has averaged around 700 per quarter (i.e. an excess of 700 births over deaths) during the past 27 years. Natural increase has averaged slightly more in the past two years than for the both the last five, ten and 27 years, which is an expected result of a growing population. A relatively low standard deviation (a measure of how widely spread numbers are around the average) was also recorded across all the time periods.

	Whole period (1981 to 2008)	Past 10 years (1998 to 2008)	Past 5 years (2003 to 2008)	Past 2 years (2006 to 2008)
Average	685	698	689	709
Standard deviation	69	58	51	49

Table 1 – Summary indicators for natural increase

Despite the long term stability in natural increase there has still been significant variability for individual quarters (Figure 2). Some of this may be accounted for by batched and delayed processing of birth and death registrations, a situation which affects all states and territories.

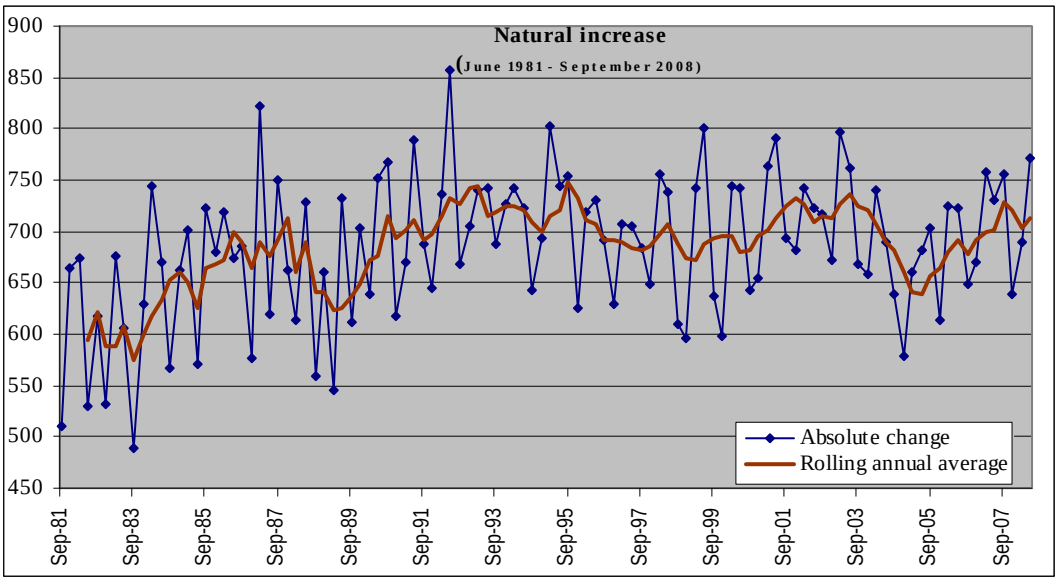

Figure 2 - Natural increase in the Northern Territory, June 1981 to Sept 2008

2. Net overseas migration

On average net overseas migration has contributed around 200 people per quarter to the Territory's population during the past 27 years. In recent times this has increased with the average rising to 280 in the past five years and 260 during the past two years (Table 2). Net overseas migration has been quite variable on a quarterly basis with a standard deviation twice the size of that recorded for natural increase over the 27 year period. The standard deviation for net overseas migration was relatively high during the past five years compared to the other time periods.

	Whole period (1981 to 2008)	Past 10 years (1998 to 2008)	Past 5 years (2003 to 2008)	Past 2 years (2006 to 2008)
Average	199	235	280	260
Standard deviation	149	165	182	153

Table 2 – Summary indicators for net overseas migration

Net overseas migration reached historical peaks in 2006 but declined during 2007 and 2008 (Figure 3). Levels are currently around those experienced consistently during the 1980s at around 250 (on a rolling annual average basis). National migration policy is the biggest influence on migrant intake at both the national level and for states and territories. A three year average (the most available under new

methods for collecting migration data) suggests that the Territory receives around 0.7 percent of all migrants to Australia (ABS, 2008). Local migration policy also impacts on net overseas migration outcomes. For example, the Territory has a Business and Skilled Migration Strategy (Northern Territory Government, 2009) which aims to draw one percent of the Australian skilled migration intake to the Territory to match with our proportion of the total Australian population.

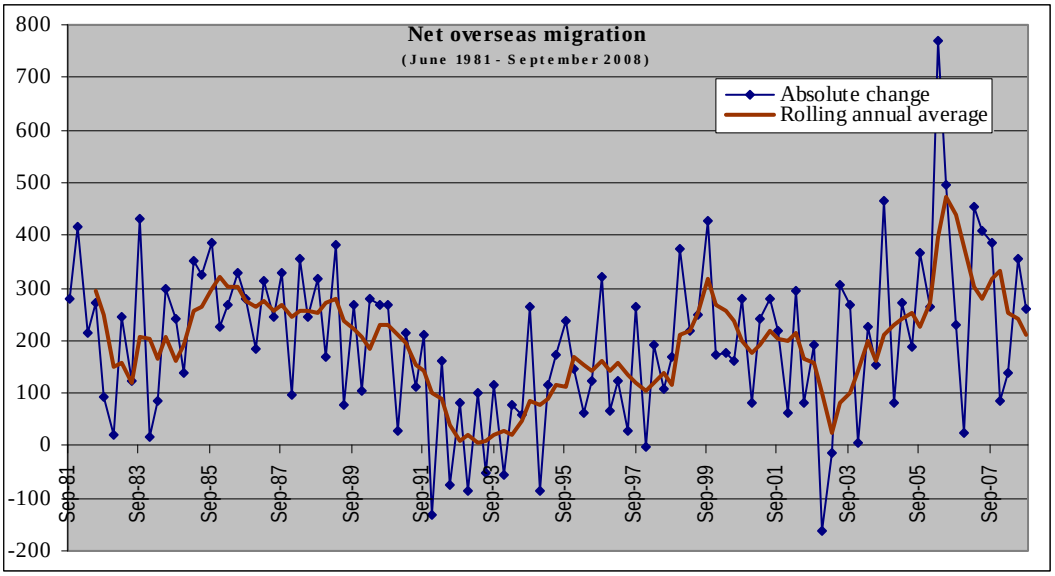

Figure 3 – Net overseas migration in the Northern Territory, June 1981 to Sept 2008

3. Net interstate migration

Historically net interstate migration has been negative by just under 100 people on average per quarter (Table 3). But in the past two years this has been reversed to just short of (+) 200. This represents a large change from the long term historical average on a net basis of just short of 300.

	Whole period (1981 to 2008)	Past 10 years (1998 to 2008)	Past 5 years (2003 to 2008)	Past 2 years (2006 to 2008)
Average	-94	-189	13	190
Standard deviation	478	362	306	201

Table 3 – Summary indicators for net interstate migration

Net interstate migration has been highly volatile over the 27 year period since 1981 and this is reflected in a standard deviation of close to 500 on a quarterly basis. Peaks were experienced during the mid 1990s but from 1997 onwards strong negative net interstate migration were recorded right up to 2005, and particularly in the early years of the current decade (Figure 4). In fact, net interstate migration has been more often negative than positive since the 1960s. Influences on net interstate migration for the Territory include the strength of employment opportunities here relative to elsewhere, as well as perceived lifestyle benefits, the location of family, and costs of living. Some international literature also views critical population mass as the basis for stable levels of net interstate migration citing that people are

attracted to big cities as perceived places for opportunity and excitement (see for example, Halfacree, 2004).

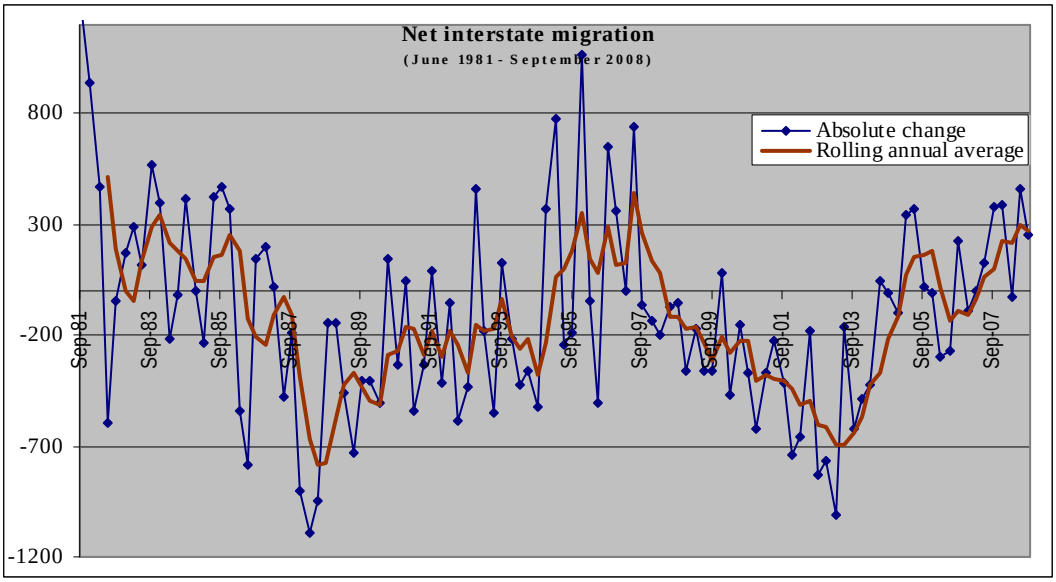

Figure 4 – Net interstate migration in the Northern Territory, June 1981 to Sept 2008

4. Putting it together – a long term picture of Territory growth

Since 2005 the Territory has recorded strong population growth with rates well above those for Australia as a whole (Figure 5). In 2005 the Territory grew by 2.27 percent while Australia grew by 1.44 percent. In the following year the Territory growth was at 1.88 percent compared to 1.60 for Australia and then in 2007 the Territory grew by 2.40 percent while Australia grew by 1.74 percent. In absolute terms average annual change is currently at round those levels experienced during the mid-90s (when there defence force presence was enhanced significantly) and for the early 1980s when the full extent of re-population after Cyclone Tracy was felt. In 2006-2007 Darwin grew by 2.66 percent which accounted for 73 percent of all Territory growth.

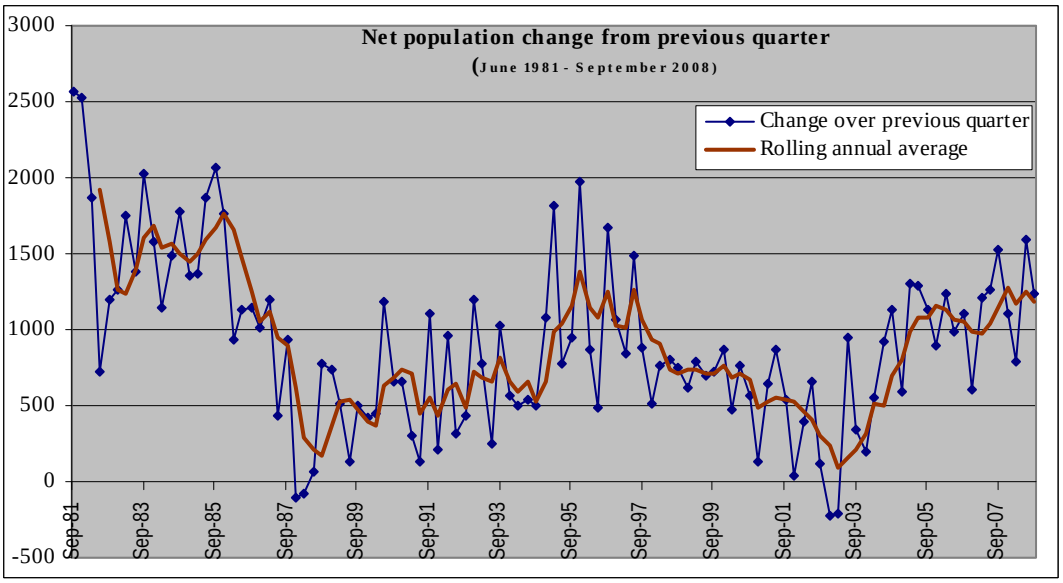

Figure 5 – Population change in the Northern Territory, June 1981 to Sept 2008

Discussion and conclusion

Statisticians sometimes describe the onset of a substantial departure from the long term average (or the equilibrium) as a 'bifurcation point'. In a colloquial sense these points in time equate to 'forks in the road' where a noticeable and sustained shift from the past is recorded. It is difficult, in light of long term historical trends reported here, to argue that the Territory is in a pattern of growth which is unprecedented and which represents a bifurcation point in our population history. In spite of high levels of growth being recorded for some quarters during the past two years, growth at such levels is not new. Comparing each component to the long term trends supports this.

First, natural increase is very close to its long term average and, while net overseas migration is currently higher, it is not substantially so. Perhaps the major difference in the current period of high growth is a turnaround in the contribution of net interstate migration. At an average of around 200 people per quarter the turnaround from the long term average is at around 300 people. Hence, while net interstate migration contributes proportionally less to growth than natural increase (around 16 percent from September 2006 to September 2008 for example), the effect of its turnaround from a negative to a positive impact on growth is apparent.

Net interstate migration has always been highly volatile in the Northern Territory. Indeed even within the current period of strong population growth it has recorded negative values for some quarters and for most of the past ten years (Figure 6). The ability of the Territory to maintain positive net overseas migration might also be questioned in light of the decision by the Australian Government to reduce permanent skilled migrant arrivals by 14 percent during 2008-2009 in response to the global financial crisis. While the relationship between Australian Government migration policy and settler arrivals to the Northern Territory is not fully understood, these cuts are likely to signal a reduction in net overseas migration in coming years.

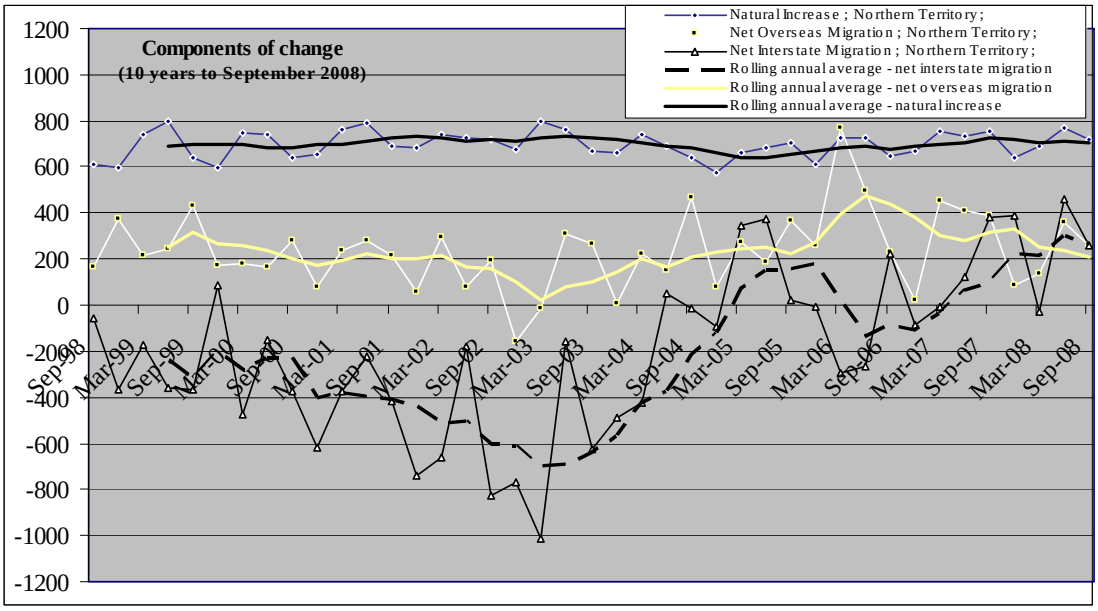

Figure 6 – Long term directions in the Northern Territory's components of change, 1981 to 2008

An interesting consideration in the results is that the Territory's population is now around 80 percent larger than it was in 1981. Yet absolute numbers for natural increase have not grown in proportion to overall growth despite the fact that there has been no indication of a significant decline in the total fertility rate for the Territory during the 2000s (it has remained at around 2.3 since 2002-2003). Meanwhile death rates have also remained at relatively consistent levels in recent years, although infant mortality rates have actually increased. This is likely to indicate that growth (particularly for women) has been concentrated outside of child bearing age groups (i.e. mostly over 45 years).

The findings here emphasise the importance of examining population change within the context of long term statistical trends. Variations in the contributions of the components of change must also be examined to assess likely future population scenarios for the Territory. With both natural increase and net overseas migration currently at around their long term averages, the strongest marginal impact on growth has been from the most volatile component, net interstate migration. In demographic research migration is known to be a complex and dynamic phenomenon. Key questions arise about whether positive net interstate migration can be sustained against the long term trend.

Hence, with successive releases of quarterly data for the Territory it is important to view the results as part of a long term analysis. A long term approach provides an understanding of the conditions which account for the volatility inherent in relatively small populations which are subject to large changes in migration flows, such as the Territory. To demonstrate this we can consider a futuristic view of the Territory's population made at two different points in time. First, if we project straight line growth using the year to September 2008 growth rate for the Territory (2.33 percent) we would see our population double to around 442,000 by the year 2038 (or 30 years on). If the identical exercise had been undertaken in 2003 (where both positive and negative quarterly growth was recorded), doubling would not occur until the year 2224 (or 221 years later). This marks a difference of 191 years in the population doubling time between the two scenarios.

Finally, it must be noted that the analysis here describes only part of the complex population system of the Northern Territory. One important consideration is that future growth will be strongly influenced by the ages and gender of 'the net' for migration. If young migrants from overseas and interstate stay in the Territory through to their middle ages, for example, they are likely to enhance growth into the future by forming families and having offspring. However, if net migration results in a negative outflow of young Territorians we can expect the opposite to occur. Of course, all sorts of scenarios in between are possible and many of these are explored in our other research briefs.

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