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The Effect of Interstate Migration on non-Indigenous Sex Ratios in the Northern Territory

KEY FINDINGS

- The Northern Territory's sex ratio has been declining since 1901, but is still much higher (1.06 or 106 males to every 100 females) than that for Australia as a whole (0.97) according to usual resident counts from the 2006 Census.
- The Indigenous population of the NT has a very low sex ratio (0.97) compared with the non-Indigenous population (1.08).
- The sex ratio of the non-Indigenous population increases consistently for each five year age group between 35 and 60 years (inclusive), with the low ratio for ages 25-34 years a substantial departure from the overall trend.
- Interstate migration resulted in more males entering the population between 2001 and 2006 in all age groups except 5-15 years, 25-34 years and 65 years and over. Data quality offers some explanation for these exceptions, but other factors are also likely to have an impact.
- The research literature suggests that decreasing the sex ratio may help reduce population turnover.

RESEARCH AIM

To examine the impact that interstate migration has on sex ratios for different age groups in the Northern Territory's non-Indigenous population.

This research brief draws on data from the 2006 Census of Population and Housing provided by the Australian Bureau of Statistics. The study is part of a program of demographic research funded in part by the Northern Territory Treasury and the Australian Research Council.

The research has been conducted by **Associate Professor Dean Carson**.

Background

Relatively remote parts of developed nations such as Canada, the United States, the Scandinavian countries, and Australia are characterised by high levels of population mobility. One of the observed corollaries has been unusually high sex-ratios (where males outnumber females). This arises from a high out-migration of young women and a high in-migration of early career men to work in 'masculinised' industries such as mining, fishing and agriculture. Young women tend to leave either to pursue opportunities (through education and employment) in other industries, or to raise families in less isolated environments.

The historical data for the Northern Territory shows high sex ratios (greater than 1) extending back to 1901 (Figure 1), but a marked decrease in the sex ratio over time. There are many explanations for the decrease, including changes in who has been counted among the Northern Territory population (particularly the inclusion of Indigenous people). Despite the decrease, the sex ratio for the Northern Territory according to the 2006 Census (1.06) remained much higher than that for Australia as a whole (0.97) and was the highest of all states and territories (see *Methods* for further information).

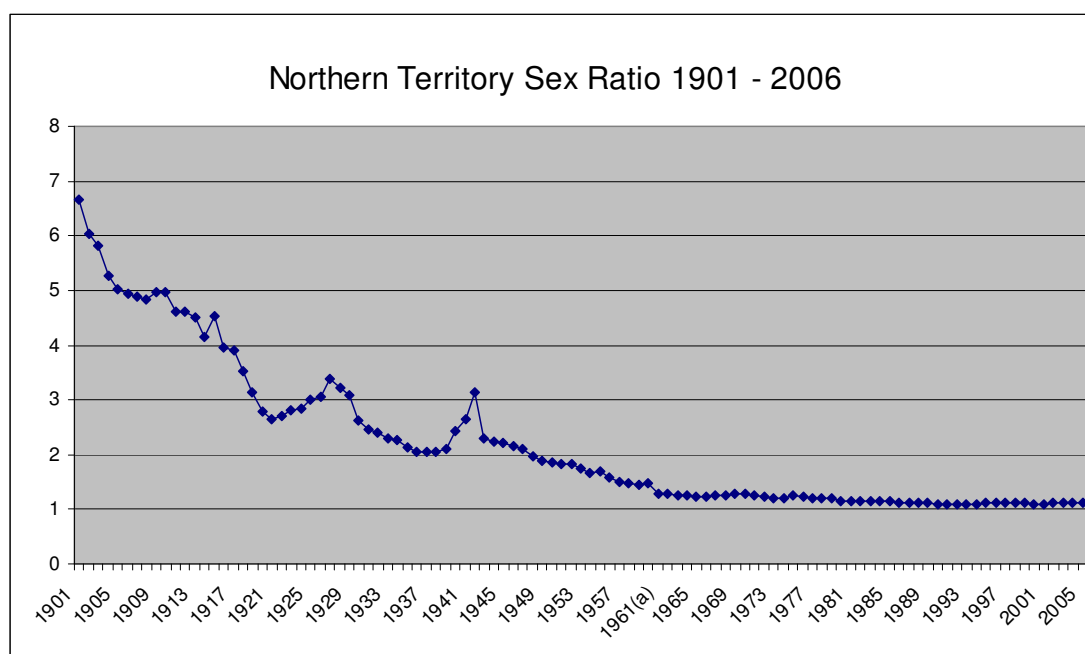


Figure 1. Northern Territory Sex Ratio 1901 – 2006

Source: Various data collections compiled by the Australian Bureau of Statistics.

Previous research associates high sex ratios with high rates of out-migration and population turnover, high levels of domestic violence, high incidence of certain diseases, and poor social and cultural capital. In more stable and generally monogamous populations, continuing unbalanced adult sex ratios have been correlated with changes in the proportion of male and female live births. It has been assumed, then, that populations adjust so that unbalanced sex ratios do not persist.

In the Northern Territory, live births equate to about 1% of the population each year, but there is substantial net outmigration in the first five years of life. Interstate migration has a much greater impact on the composition of the Northern Territory population because it occurs at all age groups (including the newborn) and because about 20% of the population moves in or out of the Territory each year. This brief examines the impact that interstate migration had on the Northern Territory sex ratio between 2001 and 2006.

Methods

Data were from the 2006 Census of Population and Housing (Australian Bureau of Statistics). Variables used included age, sex, place of usual residence on Census night, and place of usual residence five years previous. Sex ratios were calculated as the number of males divided by the number of females. Ratios higher than 1.00 indicate more males than females, and rates lower than 1.00 indicate more females than males. It should be noted that data used in this brief were Census enumerations (based on place of usual residence). The published sex ratio for the Northern Territory (1.08 – see ABS cat. No. 3235.0) reflects estimated resident population (adjusting for Census undercount). Census counts have been used in this brief because they allow cross tabulation of migration data that is not included in estimated resident populations.

Indigenous status has a profound effect on the sex ratio of the Northern Territory, with the Indigenous population having a ratio very near the Australian average (0.97) and the non-Indigenous population having a much higher ratio (1.08). The volatility in both occurs in the older age groups. Figure 2 shows reasonably close sex ratios up to about age 20 years, but then an increasing divergence, with the Indigenous population having extremely low sex ratios (under 0.90) from age 50 years, and the non-Indigenous population having extremely high sex ratios (above 1.20) from age 55 years.

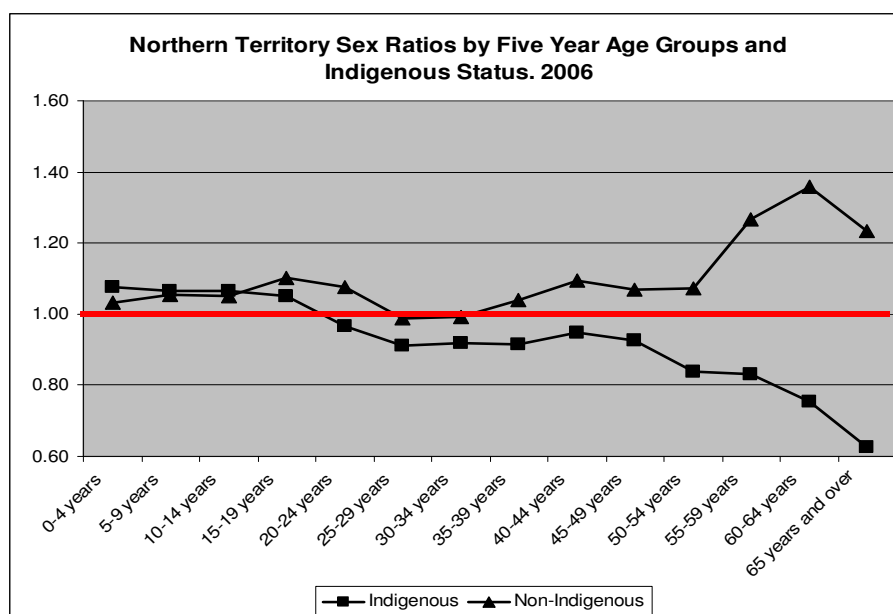


Figure 2: Northern Territory Sex Ratios by Five Year Age Groups and Indigenous Status. 2006

Source: Census of Population and Housing

The Indigenous sex ratio is less affected by interstate migration. Five year population turnover (the percentage of people in the population who had moved in or out of the Northern Territory between 2001 and 2006) was about 7% for the Indigenous population compared with 54% for the non-Indigenous population. The Indigenous sex ratio is more influenced by sex ratio at birth, undercount of males, and sex differences in mortality. This brief will therefore deal only with the effects of interstate migration on the sex ratio of the non-Indigenous population of the Northern Territory.

Results

There was substantial variability in the age specific non-Indigenous sex ratios observed in the Northern Territory (Figure 3). Most notably, females outnumbered males in the 25-29 and 30-34 year age groups, following which the sex ratio increased to its peak of 1.36 in the 60-64 year age group. Some of the effect in the 25-34 cohort may be the result of Census undercount of young males.

Figure 3 compares non-Indigenous age specific sex ratios for the Northern Territory and Australia. Ratios appear relatively similar in the younger age groups, then diverge from about age 30 years. By the 60-64 year cohort, the difference in ratio is 0.36.

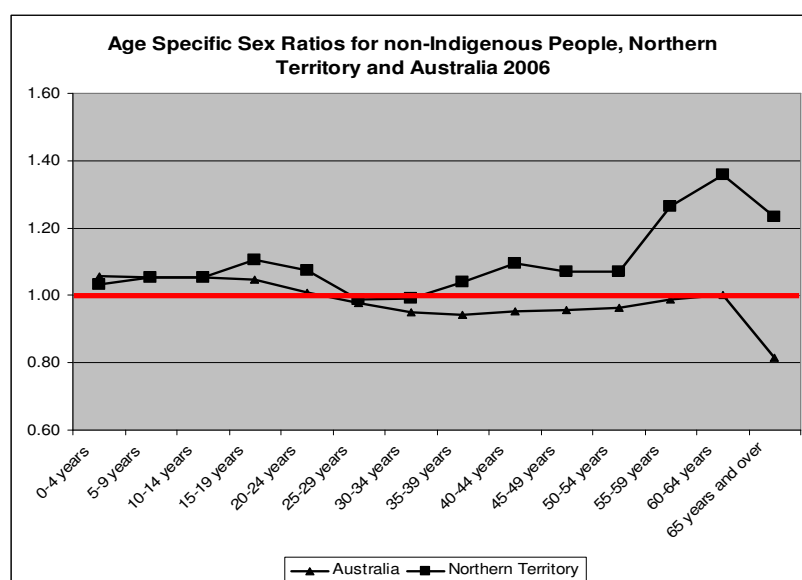


Figure 3: Non-Indigenous Sex Ratios for Northern Territory and Australia by Five Year Age Groups. 2006

Source: Census of Population and Housing

Between 2001 and 2006, the Northern Territory was reported as having 27 500 non-Indigenous in-migrants from other states and the Australian Capital Territory. In the same time period, 34 000 non-Indigenous people were reported as moving out of the Northern Territory to other States and the ACT. Overall, the Northern Territory lost 3 185 males and 3 303 females as a result of interstate migration. The net impact of interstate migration on the total sex ratio was therefore negligible. However, there were some substantial impacts for specific age groups.

Immigration rates were higher than emigration rates for both males and females aged 20-24 years and 25-29 years. In all other age groups, there were more emigrants than immigrants. Table One shows the sex distribution of immigration, emigration and net migration for each five year age group. For example, there were two more male immigrants than female immigrants for the 5-9 year age group, and 100 more male emigrants than female emigrants. This meant a net 'loss' of 98 males compared with females in this age group. There were only four other age groups where more males were lost than females – 10-14 years, 25-29 years, 30-34 years, and 65 years and over.

Table One: Sex distribution* of interstate migration to the Northern Territory 2001-2006

Age	Immigrants	Emigrants	Net result**
5-9	2	100	-98
10-14	-7	22	-29
15-19	65	-71	136
20-24	80	-40	120
25-29	-95	45	-140
30-34	1	70	-69
35-39	250	58	192
40-44	184	181	3
45-49	69	63	6
50-54	14	-11	25
55-59	164	78	86
60-64	101	90	11
65+	45	170	-125
Total	873	755	118

*calculates the number of male migrants minus the number of female migrants in each class.

**calculates the number of immigrants minus the number of emigrants. Negative numbers indicate a net loss of males from the population. Positive numbers indicate a net gain of males.

Figure 4 shows the difference net interstate migration made to the sex ratio for each five year age group. For example, the Northern Territory lost 98 more males than females as a result of interstates migration from the 5-9 year age group between 2001 and 2006. If the loss of males and females had have been equal, the sex ratio in this age group would have been 0.03 higher than the 1.05 recorded at the Census in 2006. The net effect of interstate migration, then, was to reduce the sex ratio for this age group by 0.03. The positive contributions to the sex ratio occurred in ages 15-19 and 20-24 years and from about 35 years to 64 years.

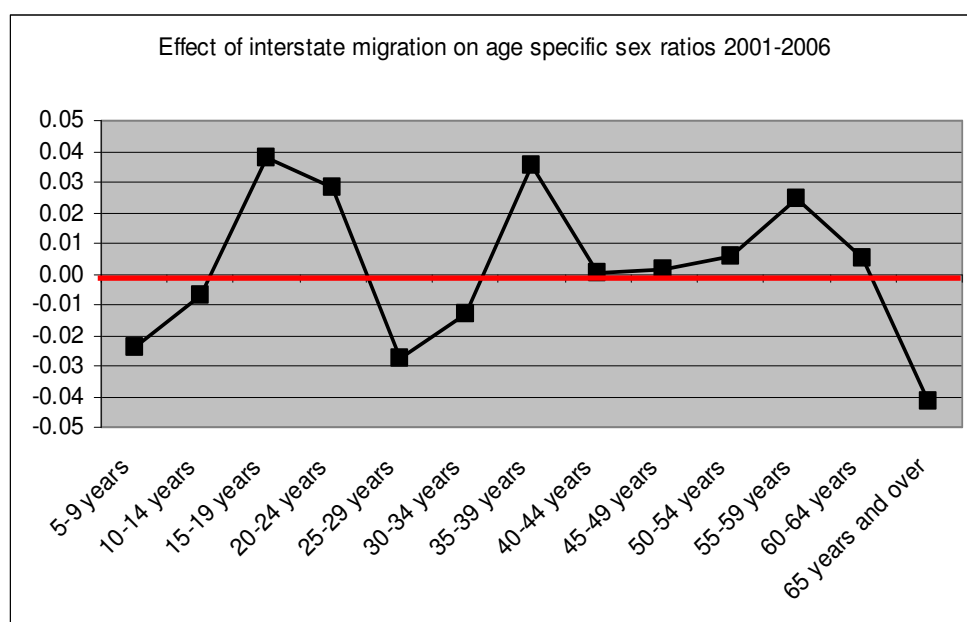


Figure 4: Effect of interstate on age specific sex ratios in the Northern Territory. 2001-2006

Source: Census of Population and Housing

Discussion

The conclusion that interstate migration has very little impact on the overall sex ratio of the Northern Territory's non-Indigenous population hides very important age specific effects. In particular, interstate migration raises the sex ratio of people aged between 35 and 64 years. These are the people in their mid and late working lives. The compensating effects (lowering the sex ratio) occur for children, early working life, and post-retirement age groups. Both of these latter compensating effects are worthy of further investigation.

The effect at the 25-34 year age groups may be partially the result of Census undercount. It has been reported at the national level that the differences in undercount of males and females are greatest between ages 20 and 39 years. Comparison of Northern Territory 2006 Census counts with estimated resident population figures for June 2006 suggest the effect may be greater for the Northern Territory than nationally. If that is the case, we might expect the high reported sex ratio in the 35-39 years age group to be even higher in practice. Even so, there is some evidence (forthcoming) that high in-migration in some feminised industries such as nursing and teaching occurs in the 25-34 year age groups, and that these women stay relatively short periods of time in the Northern Territory.

There are other explanations of the effect for the population aged 65 years and over. It is important to remember that the sex ratio for this age group remains very high at 1.23. Males (18%) and females (16%) aged 65 years and over experience similar rates of emigration and immigration (around 10.5%), but there are substantially more males in the Northern Territory population entering this age group, so their outmigration has a far greater impact.

Several factors combined in the 2006 Census to keep the sex ratio in the Northern Territory lower than it might otherwise have been. The obvious factor is the low sex ratio of the Indigenous population. Even within the non-Indigenous population, relatively more females entered the population in certain age groups as a result of interstate migration, tempering quite dramatic male bias for people of mid and late working age.

The next stage in this research is to compare 2006 findings with data from previous Census to see if these patterns have persisted over time, or whether new age/sex specific migration patterns have begun to emerge. In particular, is the apparent low sex ratio in the 25-34 year age groups a feature that we can expect to flow through as that cohort ages, or are these 'exceptions to the rule' likely to be compensated by the swing back to a male bias in net migration in older age groups?

A persisting of the high sex ratio for the Northern Territory is likely to have implications for population mobility into the future. Places with high sex ratios are universally described as transient places as people come for work opportunities and leave to find mates or rejoin their families. There has been very limited research into how to reverse the masculinisation of these places, but this is a process that is necessary if the aim is to increase the stability of the Northern Territory population.