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The Economic Demography of NT Small Towns

KEY FINDINGS

- According to counts from the 2006 Census, there were 55 towns in the Northern Territory with populations between 200 and 2000 people;
- These towns could be distinguished by characteristics such as degrees of remoteness, experience of population growth since 1976, size of Indigenous population, age and sex structures, and residential mobility;
- Using these characteristics, a typology was developed which included “non-Indigenous towns” (10 of them), “fast growing” (16), “older age structure” (14), “male and working aged” (7), and “mobile and chaotic” (6);
- The addition of economic well being indicators (employment and education) to the model did not change the groupings, but the size of the female workforce appeared to contribute to population stability;
- The Northern Territory Government’s *A Working Future* strategy which focuses on 20 “Territory Growth Towns” which represent a selection of towns of different types, so different planning and investment strategies will be needed across the 20 towns.

RESEARCH AIM

To develop a ‘typology’ of small towns (between 200 and 2000 people) in the Northern Territory using demographic and economic ‘well being’ indicators.

This research brief draws on data from the 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.

The research has been conducted by Associate Professor Dean Carson, Andrew Taylor, and Krishnan Raman.

Background

The Northern Territory has a widely dispersed population. While over 60% live in the Greater Darwin Region (including Palmerston and Litchfield), the remaining 100 000 or so people are spread across a number of towns, the largest of which is Alice Springs with about 27 500 residents. Once Katherine (10,000), Nhulunbuy (5 000) and Tennant Creek (3 000) are excluded, there are 55 ‘towns’ which have populations between around 200 and around 2 000 people. These towns have recently become the focus of political attention because many of them do not have the range of facilities (particularly privately run businesses) that would be expected in other parts of Australia in towns of similar size. The Northern Territory Government has produced a strategy called *A Working Future* which is specifically aimed at investing in 20 small towns as “Territory Growth Towns” in an attempt to foster within those towns viable, independent economies (<http://newsroom.nt.gov.au/index.cfm?fuseaction=viewRelease&id=5584&d=5>).

Planning for such a dramatic change in the nature of NT settlements presents enormous challenges. The capacity for towns to adapt to change and engage in the process will at least in part be determined by their demographic characteristics and their current economic profiles. For example – towns with a high proportion of young children require different services and have different constraints on labour force participation than towns with higher proportions of older people. Towns that experience dramatic population changes (turnover, growth and decline) over time will be more difficult to engage in planning than towns which have more predictable and stable patterns of demographic change.

The capacity of communities to engage in changes of the nature proposed in the Territory Growth Towns strategy (which is essentially a process of economic diversification) has been studied in the international research literature. Some work in remote Canada in conditions somewhat similar to those faced in the Northern Territory (Stedman et al, 2004) proposed a set of ‘well being’ indicators based on demographic, education, and employment characteristics. The researchers investigated the diversity of these characteristics in single industry towns across Canada and commented on what various conditions would mean for attempts to diversify or revitalise local economies. This project does a similar thing for the 55 small towns in the Northern Territory, but it includes application of statistical modelling techniques to see if there are groups of towns with similar conditions.

Methods

Data were drawn from each Census since 1976 which describe the number of people, their age, sex and Indigenous status for each Urban Centre and Locality (UCL). In theory, UCLs are highly clustered groups of dwellings which contain at least 200 people. In practice, there is a degree of subjectivity applied by the Australian Bureau of Statistics in determining what to declare as a UCL. Not being declared a UCL in a particular Census does not necessarily mean that there was no settlement, or even that the population was less than 200. In general, however, a UCL does reflect the presence of a recognisable and permanent human settlement in the sense these are regarded by human geographers. Furthermore, UCLs (with some exceptions) represent the smallest geographical unit used by the ABS to release detailed Census data.

Detailed data were derived from 2001 and 2006 Census Basic Community Profiles about education, employment, and residential mobility. Data about remoteness included distance from Darwin and Alice Springs calculated ‘as the crow flies’ using MapInfo Geographic Information System (GIS) software and the ARIA+ measures of remoteness accessed at www9.health.gov.au/aria/ariaiapt.cfm.

Data quality issues which need to be kept in mind in interpreting the results include –

- The use of ‘place of enumeration’ counts for UCLs between 1976 and 1991 (our calculations included only those born in Australia to exclude a small number of overseas visitors, but will still be affected by visitors to the UCL on Census night, and usual residents absent on Census night);
- The unavailability of 2006 Census Basic Community Profiles for Peppimenarti (and hence its exclusion from our calculations);
- Only ‘place of enumeration’ profiles for Cooinda, Belyuen, and Jilkminggan (which were nonetheless included in calculations); and
- The exclusion of the UCL “Aurora Kakadu” from the calculations due to low numbers of people recorded there in 2006 (145) and its absence from any previous Census output.

While these issues are not minor, the practice of making calculations based on ranges of values rather than specific values for most indicators helped ‘smooth out’ discrepancies resulting from differential treatment (and, not insignificantly, Census undercount).

We used Principal Components Analysis (PCA) with varimax rotation to identify underlying ‘factors’ in the collection of data about the small towns. PCA looks for common combinations of values of variables among cases (our cases being the towns). The analysis then suggests a number of factors (usually 3-8) which represent the variability in the cases. The researcher provides a label for each factor based on the variables that feature heavily in it. For example, if a factor featured towns which had an old age structure and had not grown much, we might call them ‘old and stable’ towns. Each case is scored according to how close to the ‘centre’ of the factor they were. In this way, cases are not automatically assigned to one factor of values, but receive a score indicating their position relative to each factor. In our analysis, we first assigned each town to the factor for which it received the highest score. But we then checked manually to see if the actual results for the town were consistent with our labels of the factors. If not, we either changed our labels or checked to see if the town better fit the factor it scored next best on.

Results

Demographic Indicators

Figure 1: Location of the 55 Small Towns

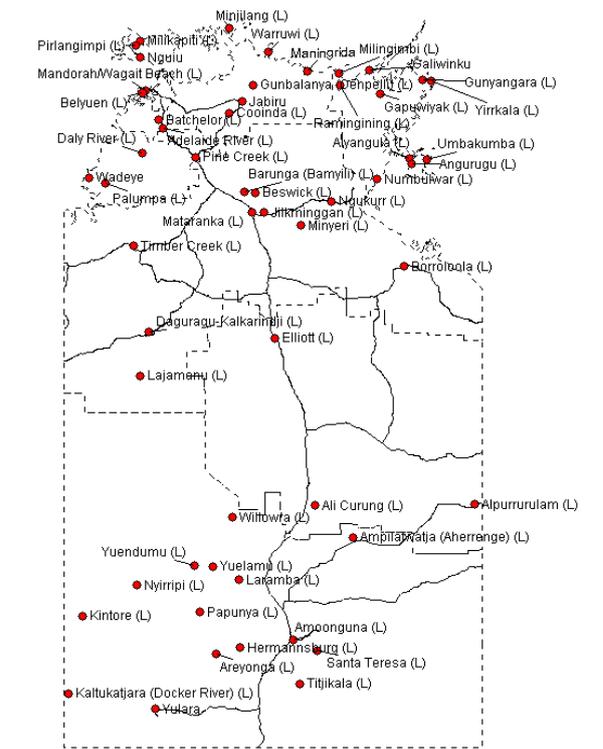
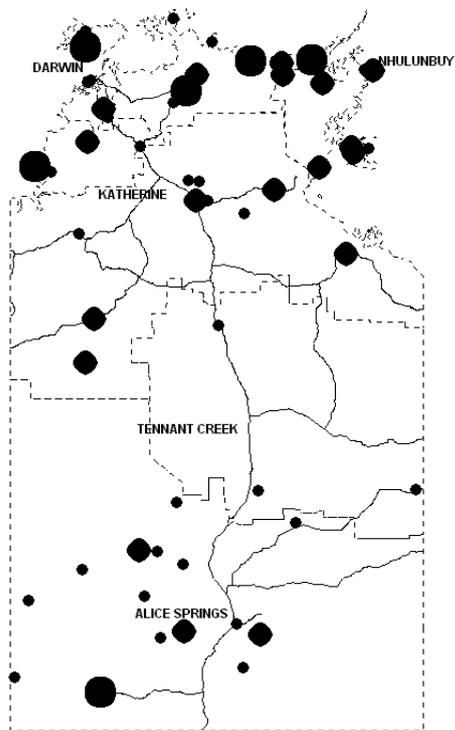
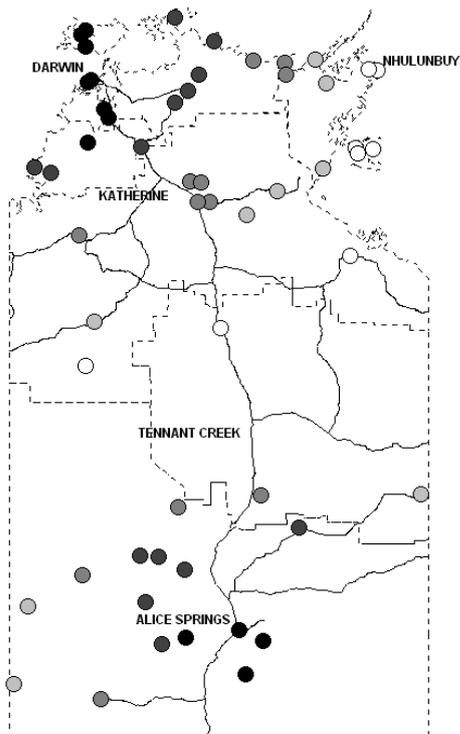


Figure 2: Small towns by Size Classes



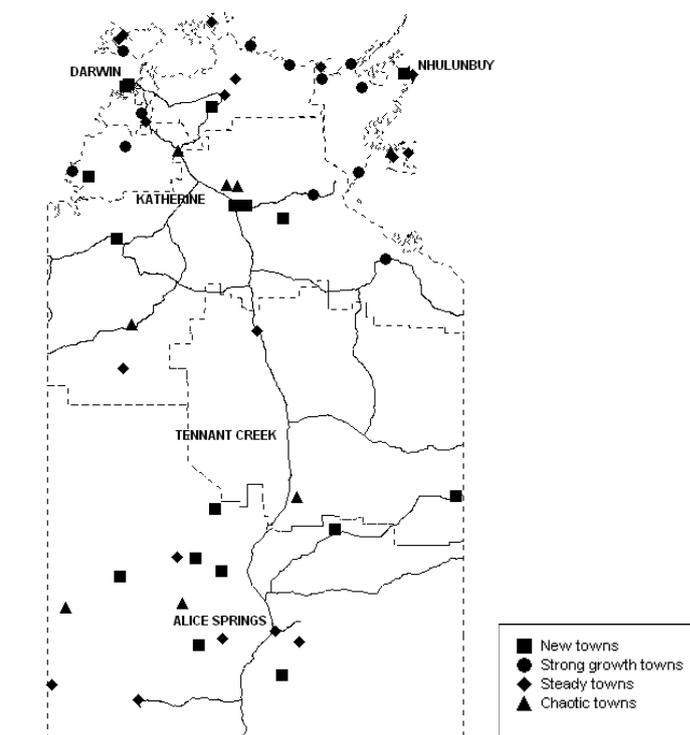
There were 32 towns with between about 200 and about 500 people, 18 towns with between about 500 and about 1000 people, and 6 towns between about 1000 and about 2000 people.

Figure 3: Distance to Darwin or Alice Springs



12 towns were within 150 kilometres (darkest circles), while 8 were further than 600 kilometres away (lightest circles). Virtually all towns had an ARIA+ remoteness index score of 12, and only a few towns immediately in the Darwin region had ARIA+ scores less than 11.

Figure 4: Experiences of Growth 1976 – 2006

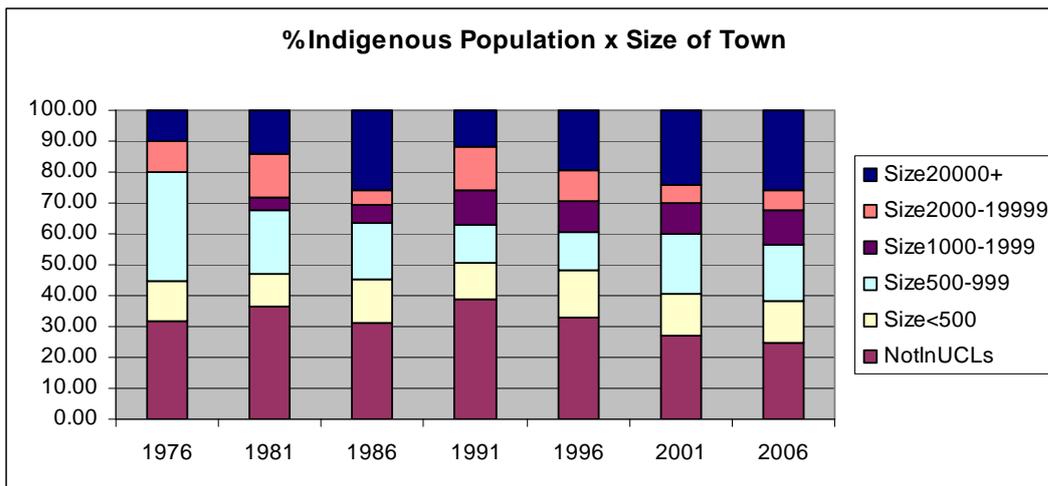


Eighteen small towns were featured as UCLs for the first time sometime after the 1991 Census. These are labelled 'new towns' in Figure 4. The circles in Figure 4 represent towns with unusually high growth rates between 1976 and 2006. The diamonds represent towns whose population stayed within the same band and was not subject to dramatic fluctuations. The triangle marks represent towns whose population changed often dramatically from Census to Census, with no clear pattern of growth or decline over time.

As the towns changed over time, they held a different share of the total Northern Territory population. Throughout the period 1976 – 2006, settlements with less than 2000 inhabitants (including locations too small to be classified as UCLs) consistently housed about 30% of the population, but the mix changed dramatically from about 20% being in locations too small to be UCLs to about 12%, and from 0% in 1976 living in towns sized 1000 – 2000 people, to over 5% living in such towns in 2006.

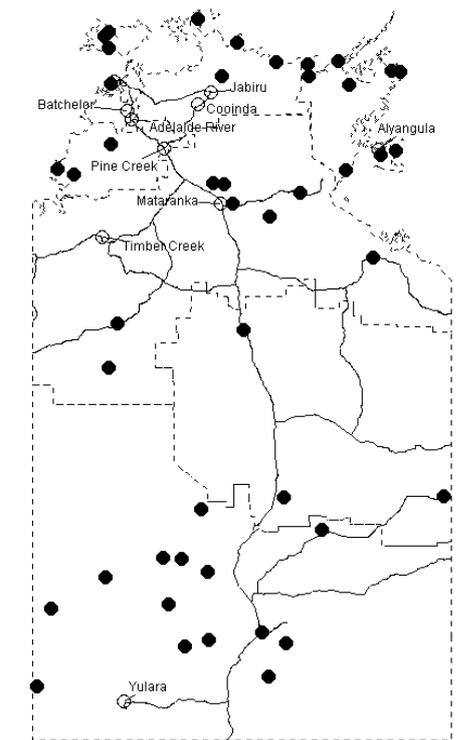
The distribution of the Indigenous population changed even more dramatically (see Figure 5). There has been strong increase in the percentage of Indigenous people living in the urban centres (Greater Darwin and Alice Springs), and living in towns sized 1000 – 2000 people. On the other hand, the percentage of the Indigenous population living in locations smaller than 200 people has decreased from 30% in 1976 to 23% in 2006.

Figure 5: Percentage of Indigenous People in Towns of Various Sizes



The distribution of the Indigenous population was strongly correlated with all other variables included in our analysis. If a town had a high proportion of Indigenous people, it also had a young age structure, for example. There were ten towns with less than 50% Indigenous people, and we identified these and excluded them from our PCA. These ‘non-Indigenous towns’ (Figure 6) represent a ‘factor’ of their own, albeit one with just a single variable.

Figure 6: Towns with Greater than 50% Indigenous Population (dark circles)



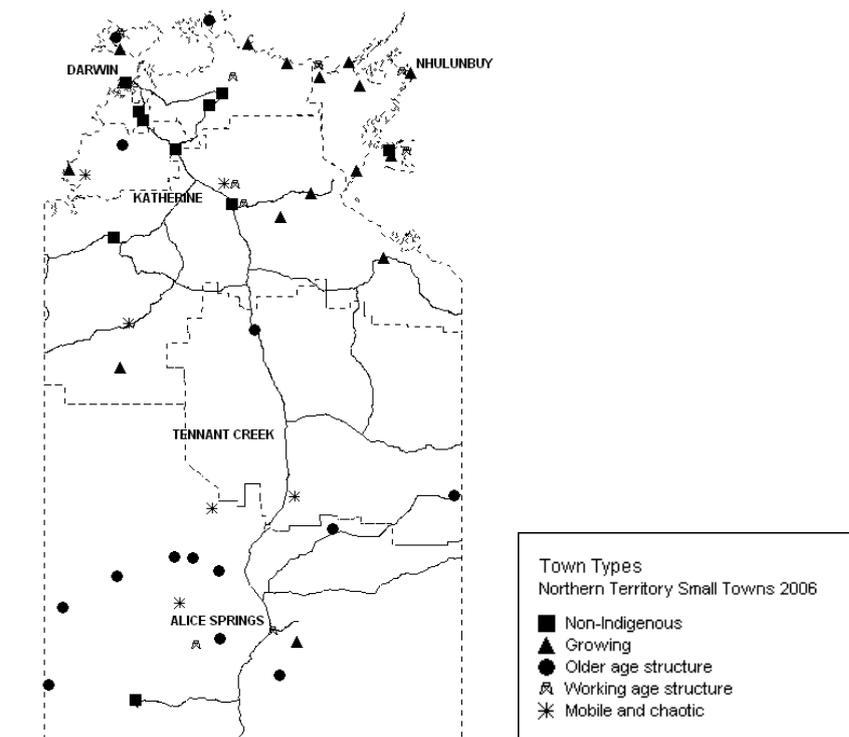
Having excluded non-Indigenous towns, we included the following variables in a PCA –

- Size of the town
- Sex ratio
- % of children (aged under 15 years)
- % of older people (aged 65 years and over)
- Rate of growth 1976 – 2006

- Distance to Darwin
- Distance to Alice Springs
- Rate of residential mobility 2001 – 2006 (number of people who indicated in the 2006 Census that they lived somewhere else in 2001)

The PCA (and post-hoc tests) returned four factors of variables. Figure 7 shows the towns scoring highest in each factor, along with the non-Indigenous towns previously described.

Figure 7: A Demographic Typology of NT Small Towns



The second factor (after ‘non-Indigenous towns’) was towns which had experienced high but uni-directional rates of growth between 1976 and 2006 but were otherwise demographically similar to the average of all towns. The third factor was towns with a high proportion of people aged 65 years and over and a low proportion of children. The fourth factor had low proportions of both children and old people, and a high proportion of males. While they have been classified as ‘working age structure’, it does not mean that more people were employed in these towns (and in fact, they were not). The final factor was towns whose rate of growth was unpredictable over time (chaotic) and which had relatively high levels of residential mobility. Towns in each of the factors are listed in Table One.

Table One: A Typology of NT Small Towns

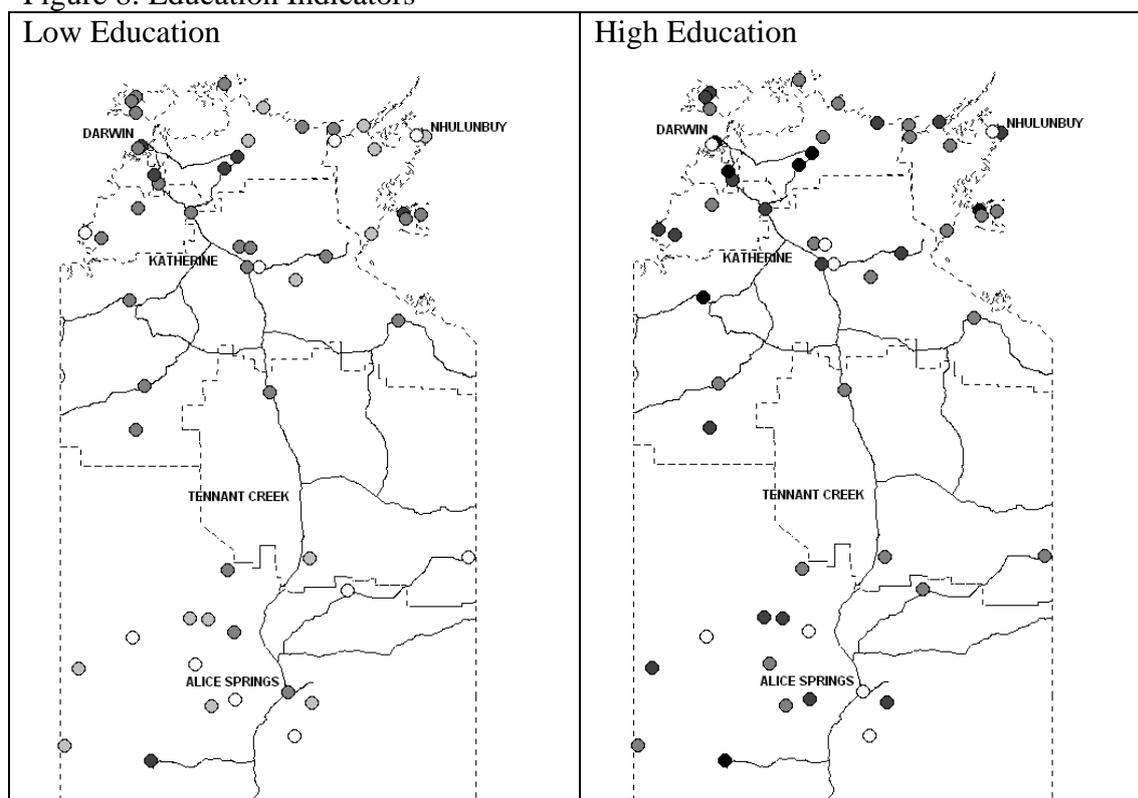
Non-Indigenous	Fast Growing	Older Age Structure	Working Age Structure	Chaotic Growth
Adelaide River	Angurugu	Alpurrurulam	Amoonguna	Ali Curung
Alyangula	Borroloola	Ampilatwatja	Areyonga	Barunga
Batchelor	Galiwinku	Daly River	Belyuen	Daguragu-Kalkarindji
Cooinda	Gapuwiyak	Elliott	Beswick	Palumpa
Jabiru	Lajamanu	Hermannsburg	Gunbalanya	Papunya
Mandorah/Wagait Beach	Maningrida	Kaltukatjara	Gunyangara	Willowra
Mataranka	Minyeri	Kintore	Jilkminggan	

Pine Creek	Nguiu	Laramba	Milikapiti	
Timber Creek	Ngukurr	Minjilang	Milingimbi	
Yulara	Numbulwar	Nyirripi	Umbakumba	
	Ramingining	Pirlangimpi		
	Santa Teresa	Titjikala		
	Wadeye	Yuelamu		
	Waruwi	Yuendumu		
	Yirkala			

Well-Being Indicators

The commonly used economic well-being variables relate to education, employment and income profiles. Two education variables are commonly used – the proportion of people with relatively low education attainment (normally below the compulsory schooling years), and the proportion of people with relatively high education attainment (a bachelors degree or post-graduate degree). There is a weak correlation between these variables in the Northern Territory – towns with a high percentage of people who did not complete year 8 education tend to have a lower percentage of people with bachelors’ degree or above. But the correlation is weak, so it is worth examining these variables separately. In Figure 8, lighter coloured circles represent a ‘poorer’ outcome – more people with below year 8 schooling only (left hand map) or more people with university degrees (right hand map).

Figure 8: Education Indicators



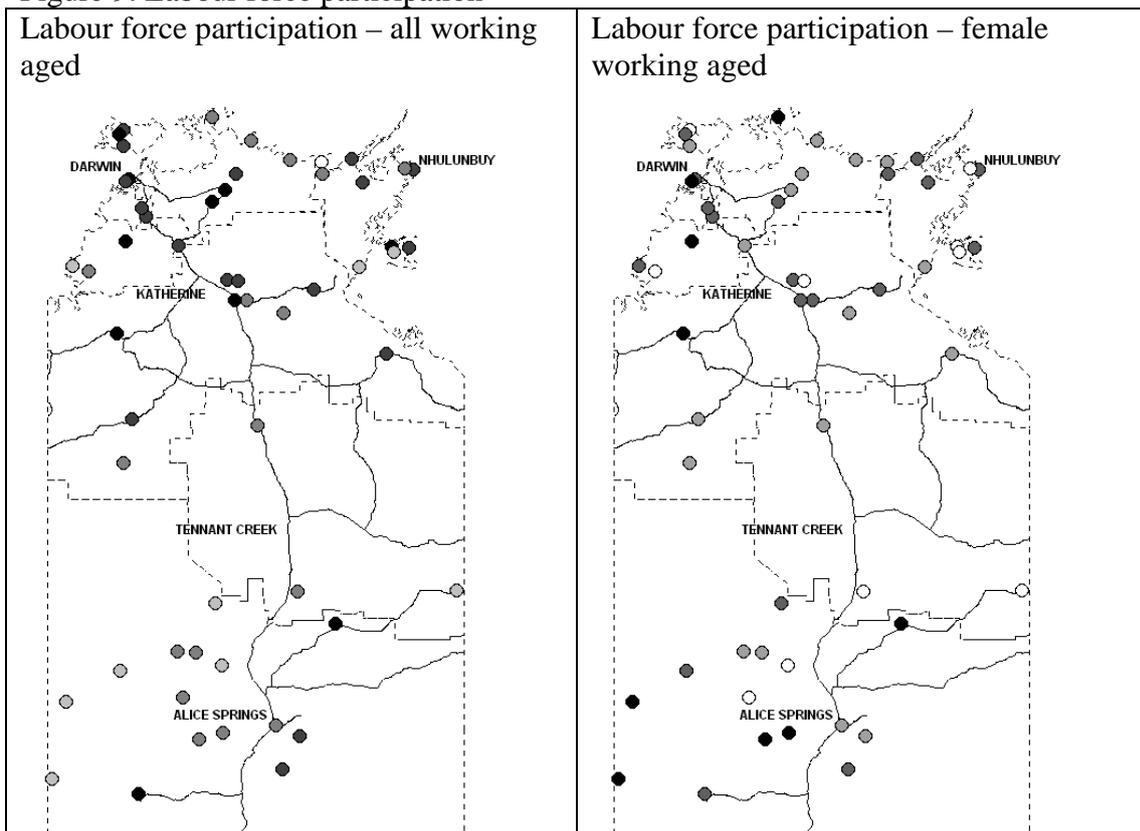
There are several towns around Central Australia in particular which have both high proportions of people with low levels of education, and high proportions of people with high levels of education.

In normal practice, these variables would be calculated separately for women, and raising the economic prospects for women is a key to regional development. In the context of NT small towns, however, there are almost perfect correlations between education achievement for the total population and female education achievement.

The most useful employment variable for the Northern Territory is participation in the labour force. Measures of unemployment are unreliable indicators because of programs like CDEP and other 'work for the dole' schemes which create a somewhat artificial view of the labour market. Actual participation in the labour market (irrespective of the employment outcomes) offers a better measure.

Labour force participation by residents of NT small towns aged between 15 and 64 years was about 43% in 2006. The rate was slightly higher (45%) for women, but there was very weak correlation between rate of overall labour force participation and rate of female labour force participation. The rates of total labour force participation ranged from 12% (Milingimbi) to 75% (Alyangula). For females, the range was from 32% (Angurugu) to 65% (Areyonga). The relatively less variable rates for women were reflected in a smaller standard deviation (6%) than for the total population (15%).

Figure 9: Labour force participation



Employment in NT small towns is almost entirely within the public sector, with the notable exceptions being high rates of employment in mining in Alyangula, Jabiru and Pine Creek (all non-Indigenous towns) and in tourism in Cooida and Jabiru (likewise non-Indigenous towns). There were two towns whose public sector employment was highly concentrated in the education sector (Batchelor with 42% of all employed people working in the education sector) and Adelaide River (28%). Again, these were non-Indigenous towns. Similarly, Timber Creek (non-Indigenous) had an unusually high rate

of employment in the health sector (36%). There were also two Indigenous towns with high rates of employment in the health sector – Ampilatwatja (52%) and Laramba (20%).

Adding these well-being variables to the PCA did not provide any useful outcomes in terms of reviewing the typology detailed above. Re-running the analysis created a ‘factor’ for each of these variables. In other words, the well-being variables are distributed chaotically among the NT Indigenous small towns and the correlations between (for example) level of schooling and participation in the labour force was very weak.

“Territory Growth Towns”

Figure 10 shows the town ‘types’ for the 20 Territory Growth Towns and Table Two presents some of the key indicators.

Figure 10: Town Type of “Territory Growth Towns”

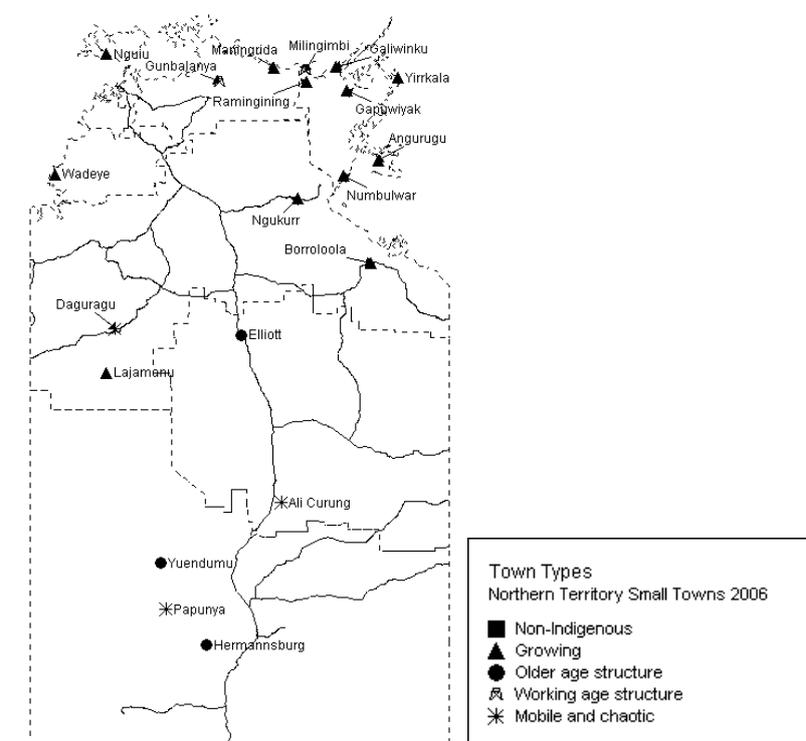


Table Two: Key Indicators and “Territory Growth Towns”

Name	Size	Growth Pattern	Sex Ratio	Age profile	Residential Mobility	% females in the labour force	Typology
Ali Curung	< 500	Chaotic	High	Older	High	35.56	Mobile and chaotic
Angurugu	500 - 1000	Steady	Low	Younger	Low	32.32	Fast growing
Borrooloola	500 - 1000	Fast	High	Older	High	42.32	Fast growing
Daguragu-Kalkarindji	500 - 1000	Chaotic	Low	Bi-modal	High	43.53	Mobile and chaotic
Elliott	< 500	Steady	High	Older	High	40.00	Older Fast
Galiwinku	> 1000	Fast	High	Younger	Low	49.52	Fast growing
Gapuiyak	500 - 1000	Fast	High	Younger	High	47.46	Fast growing
Gunbalanya	500 - 1000	Steady	High	Even	Low	39.41	Working age and male

Hermannsburg	500 - 1000	Steady	Low	Older	Low	53.13	Older
Lajamanu	500 - 1000	Steady	Low	Bi-modal	High	41.48	Fast growing
Maningrida	> 1000	Fast	High	Younger	Low	42.89	Fast growing
Milingimbi	500 - 1000	Steady	High	Even	Low	43.53	Working age and male
Nguiu	> 1000	Fast	High	Even	Low	42.95	Fast growing
Ngukurr	500 - 1000	Fast	High	Younger	Low	45.36	Fast growing
Numbulwar	500 - 1000	Fast	High	Older	Low	40.00	Fast growing
Papunya	< 500	Chaotic	Low	Even	High	36.07	Mobile and chaotic
Ramingining	500 - 1000	Fast	Low	Even	Low	51.43	Fast growing
Wadeye	> 1000	Fast	Low	Bi-modal	Low	46.41	Fast growing
Yirrkala	500 - 1000	Steady	Low	Even	High	47.19	Fast growing
Yuendumu	500 - 1000	Steady	Low	Older	High	41.62	Older

What is apparent is the diversity of conditions among these towns. While twelve of the towns were classified as ‘fast growing’, there were also three towns with chaotic growth patterns. And while some towns had high working age populations, others had substantial older populations.

Discussion and Conclusion

Large amounts of data were compiled to profile the Northern Territory’s small towns (those with populations between about 200 and about 2000 people. The diversity of experiences among the towns meant that summary indicators (median age, mean % in the labour force etc) provide very little insight into actual conditions in any one town. Instead, what is presented here is an attempt to identify the major differentiating features of **groups** of towns –

- Whether they have a high proportion of non-Indigenous people living in them or not;
- Whether they have been consistently fast growing, or their growth patterns have been chaotic;
- Whether they have an older or younger age structure;
- Whether they have higher or lower levels of residential mobility.

What was particularly interesting was the lack of relationships between these demographic characteristics and indicators of economic well being. There was no clear pattern of towns which had high education attainment and high levels of labour force participation AND had been fast growing, for example. More research is required to examine why this might be the case but in the absence of such relationships which are generally found in the research elsewhere the formulation of policy responses for diversification becomes more difficult. Because the towns are essentially small, the impacts of relatively minor changes in economic demography might quickly change the nature of these relationships and place individual towns in a different cluster.

History tells us that NT towns have emerged and developed through a wide range of circumstances, policies and local influences. In many cases individual entrepreneurs have determined the development paths at particular instances in time, and given their small size we should expect each NT town to face a unique future development path because it

brings with it a unique history and a unique set of 'starting conditions' for progress from this point forward. In this respect the findings in this research brief of great variety are to be expected. In spite of this, some groupings of similar town types have been possible. The message to policy makers is clear – there will be no formulaic approach to fostering economic development in these towns. Each will need consideration of the detail of its demography, location, human capital, and economic history. And strategies such as *A Working Future* are unlikely to be able to account for the economic diversity of settlements if they work on the basis of 'one size fits all' approach.

References

Stedman, R.C., Parkins, J.R. and Beckley, T.M. (2004), "Resource dependence and community well-being in rural Canada", *Rural Sociology*, Vol. 69 No. 2, pp. 213-34.