THE AUSTRALIAN NATIONAL UNIVERSITY

Regional change in the Indigenous population –
Early results from the 2006 Census

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Overview of presentation

- Background to project

- Data and geography
  - 2001 and 2006 Censuses using Indigenous Regions

- Population change
  - Change in usual resident population
  - Net migration

- Change in socio-economic outcomes
  - Individual variables and summary index

- Conclusions
  - Robustness of the results and further work
  - Implications of the results for policy evaluation and development

Data

- Based on 2001 and 2006 Censuses
  - 410,003 and 455,028 Indigenous Australians respectively
  - Increase in population of 10.98%
  - compared to 3.84% for non-Indigenous

- Focus is on usual place of residence
  - Gives (arguably) more accurate values for regions than place of enumeration, however…

- Issue of undercount significant…
  - …especially when comparing change through time in population counts
  - Hence we focus on change in rates (Census as a sample survey?)
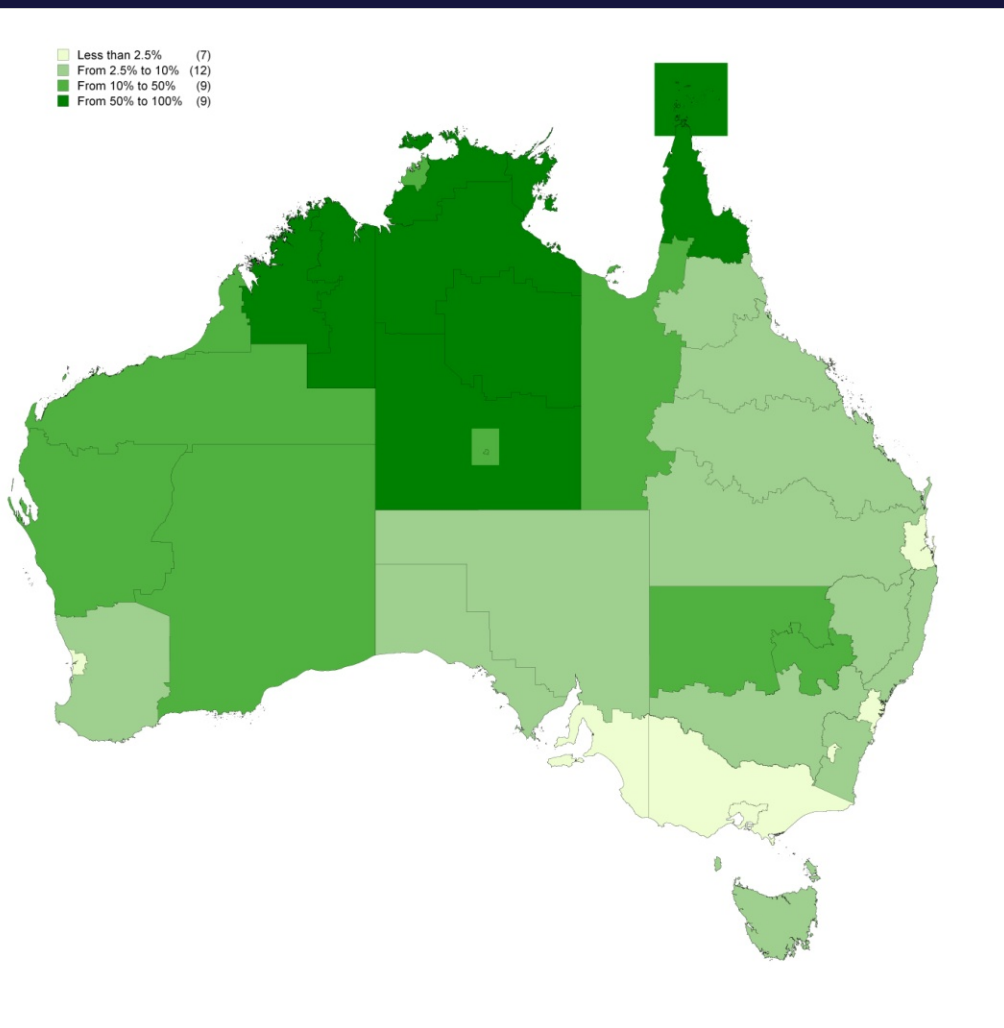 - However there are issues if undercount not random

Geography
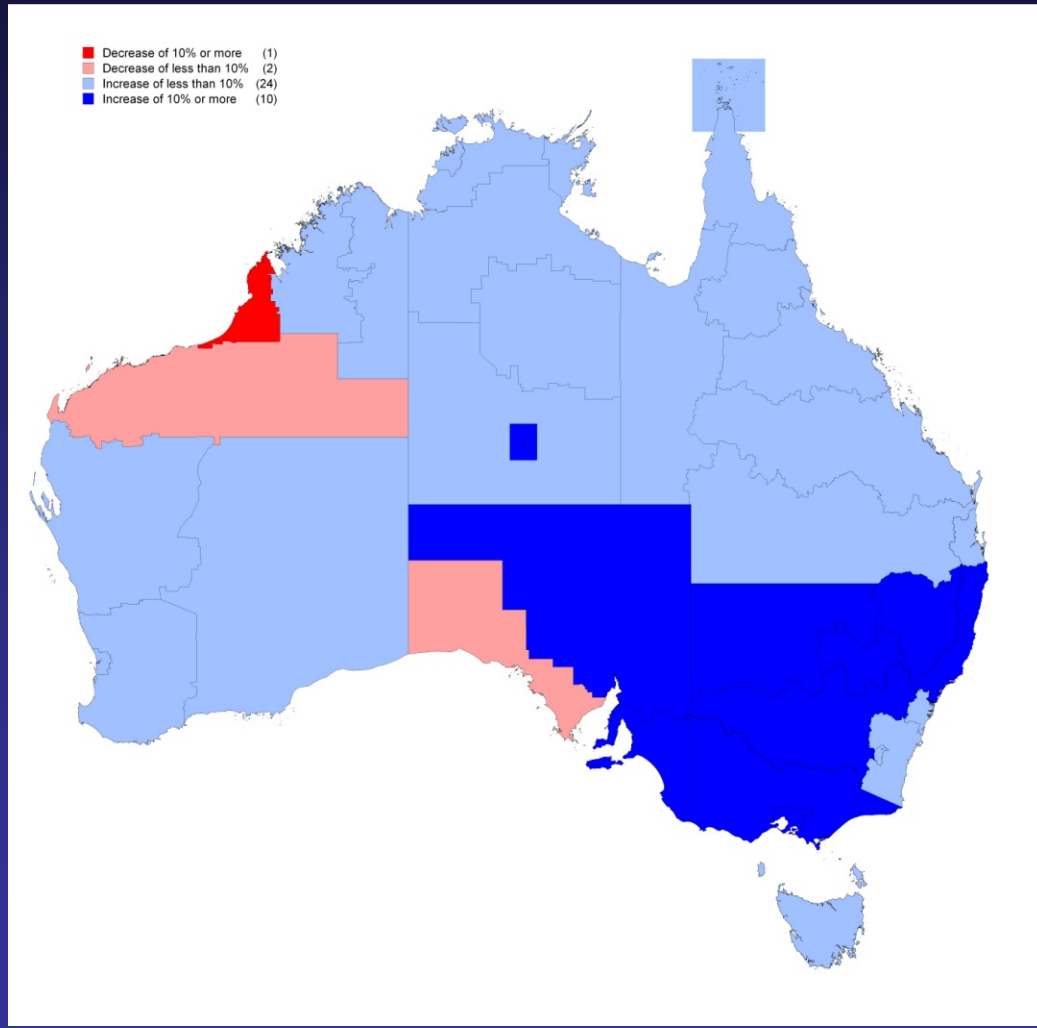
2006 Indigenous Region structure

Per cent of population Indigenous

Per cent in 2006

Change from 2001

Less than 2.5% (7)
From 2.5% to 10% (12)
From 10% to 50% (9)
From 50% to 100% (9)

Decrease of 10% or more (1)
Decrease of less than 10% (2)
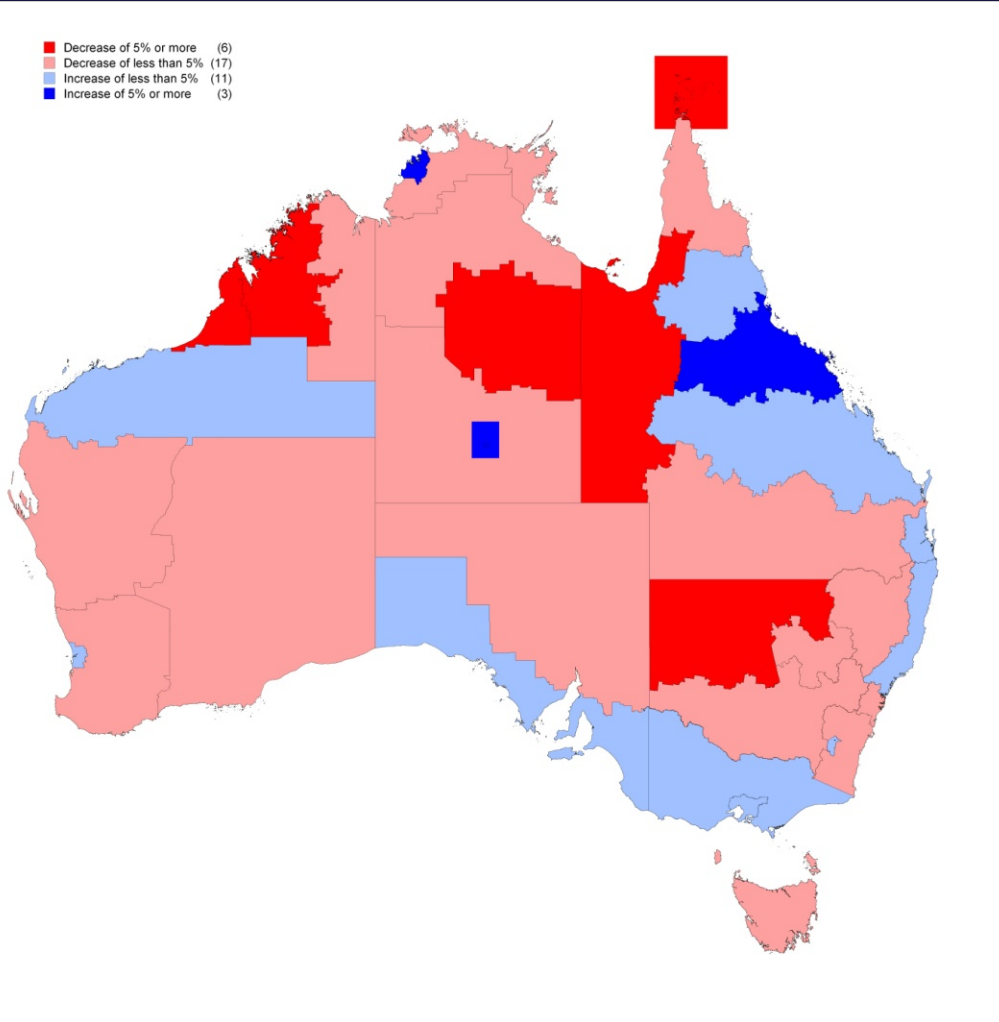Increase of less than 10% (24)
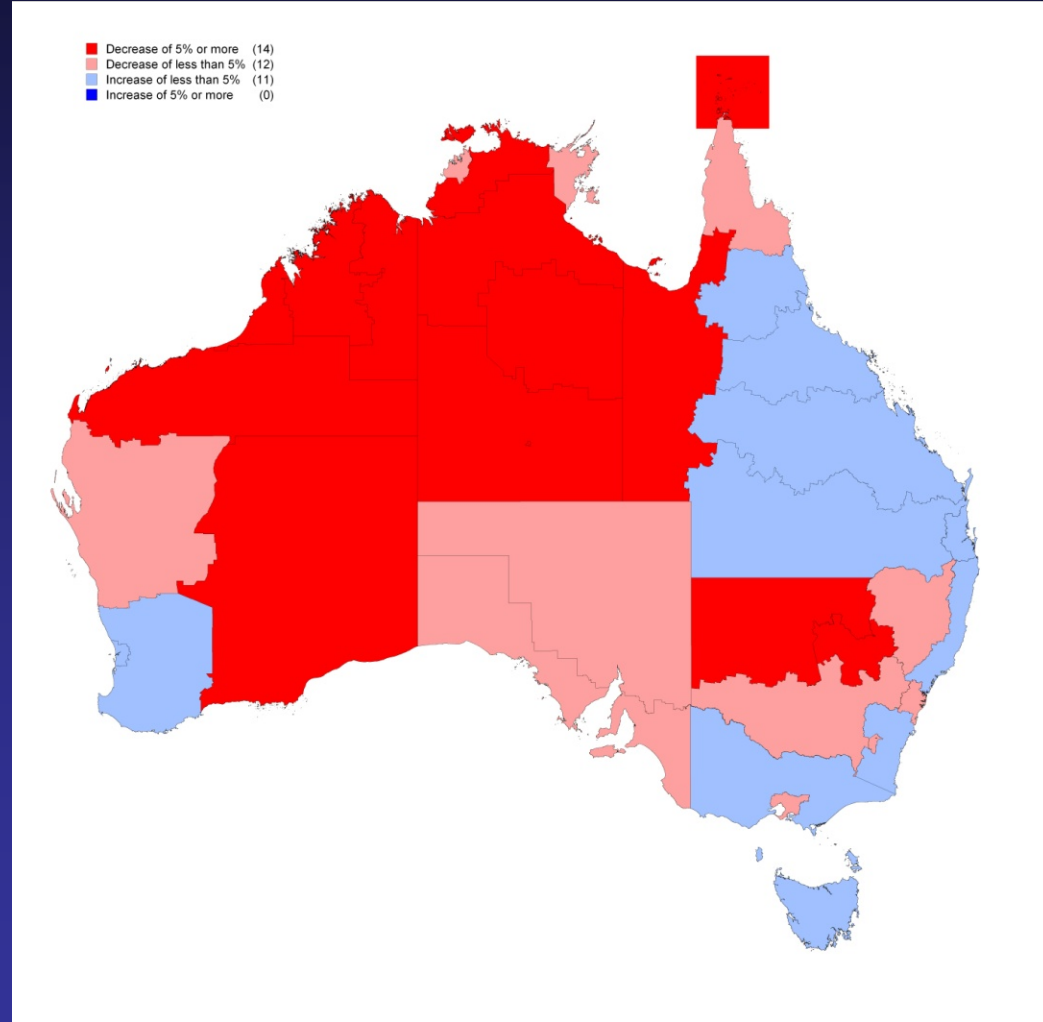Increase of 10% or more (10)

Net migration – 2001 to 2006

Indigenous

Non-Indigenous

Change in socio-economic outcomes - Overview

- Regional analysis of socio-economic outcomes important because:
  - Identifies areas where policy could/should be targeted
  - Highlights different aspects of diversity across the population
- Furthermore, looking at change in outcomes enables:
  - A broad evaluation of policy and programs
  - Some insight to be gained into relationship between variables at an area level
- Both sets of analysis useful for regional organisations

- Census most useful data source to look at change in outcomes as:
  - Has large enough sample to disaggregate to fine levels of geography
  - Has reasonably consistent set of questions between Censuses
- However, it has a number of drawbacks for socio-economic analysis:
  - Limited set of variables that may not be relevant across populations/regions
  - Undercount and non-response means data may not be representative

Change in socio-economic outcomes - Variables

|	
Employment and income	Income by employment status Unemployment, labour force participation and employment to population ratios Full-time and private sector employment Occupation and industry – Dissimilarity indices
Education and child/youth outcomes	Year 12 completion Post-school qualifications Education attendance, including preschool, school and post-school Children in single parent/low education/low employment households Youth employment and unemployment
Housing	Number of people per dwelling and housing utilisation Home ownership
Summary indices	Index of relative socio-economic outcomes Gender related development Index – Relative and absolute indices

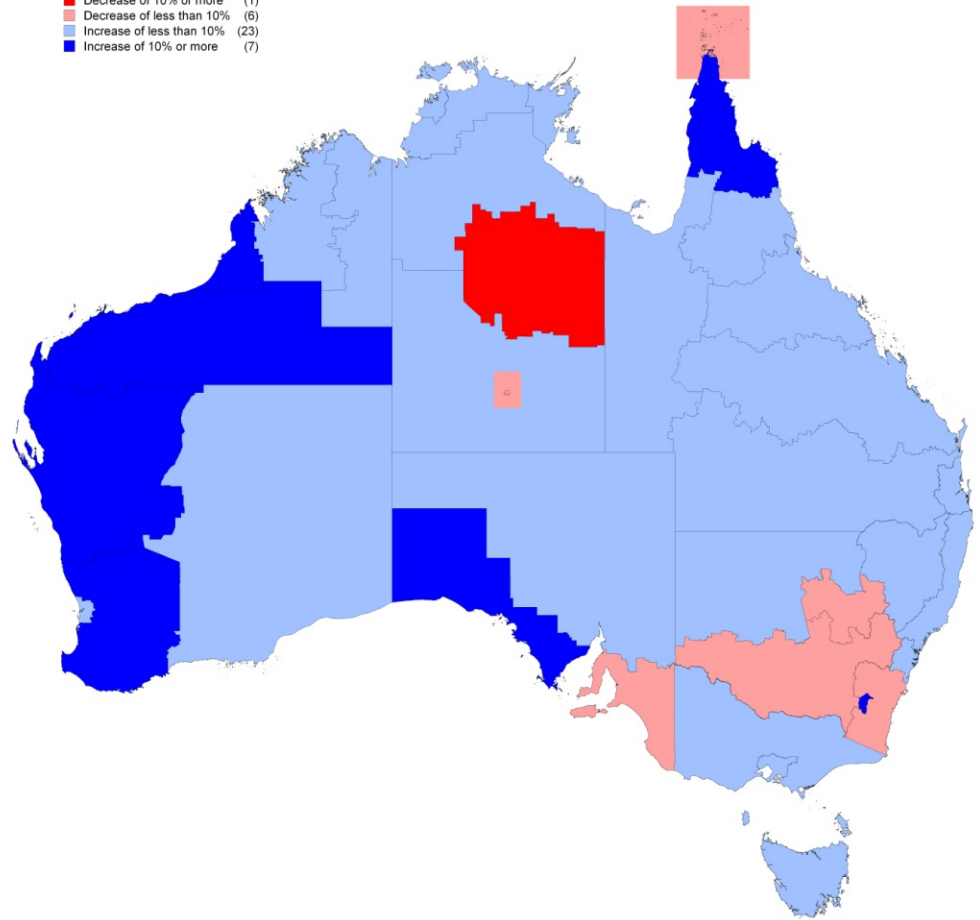# Change in employment and income – Indigenous Australians

Employment to population ratios

■	Decrease of 10% or more	(0)
■	Decrease of less than 10%	(3)
□	No change	(0)
■	Increase of less than 10%	(17)
■	Increase of 10% or more	(17)

Median income of those employed (2006$)
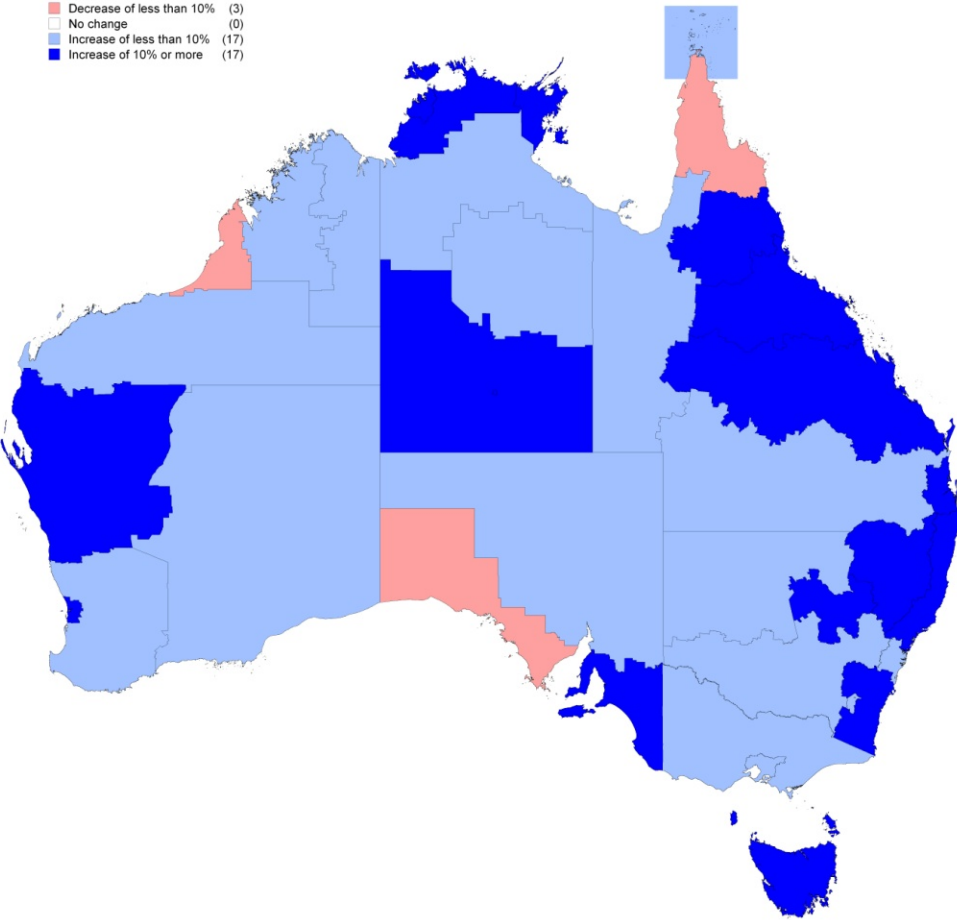
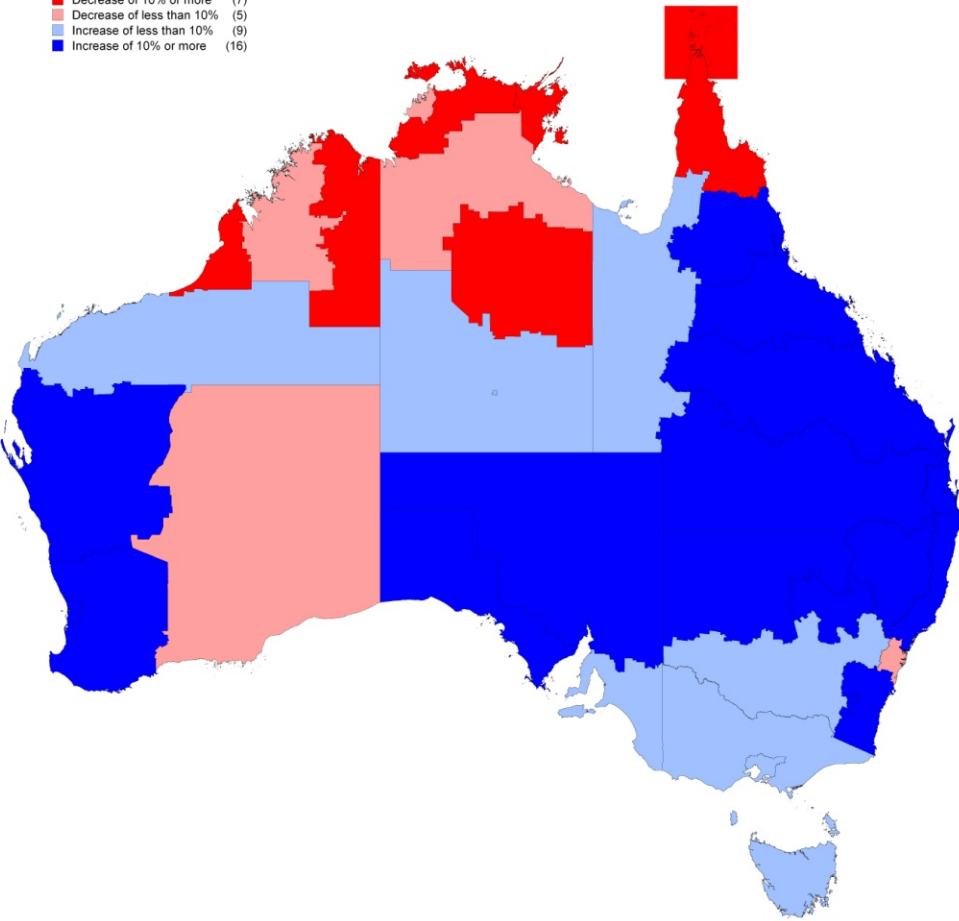|		
■	Decrease of 10% or more	(1)
■	Decrease of less than 10%	(6)
■	Increase of less than 10%	(23)
■	Increase of 10% or more	(7)

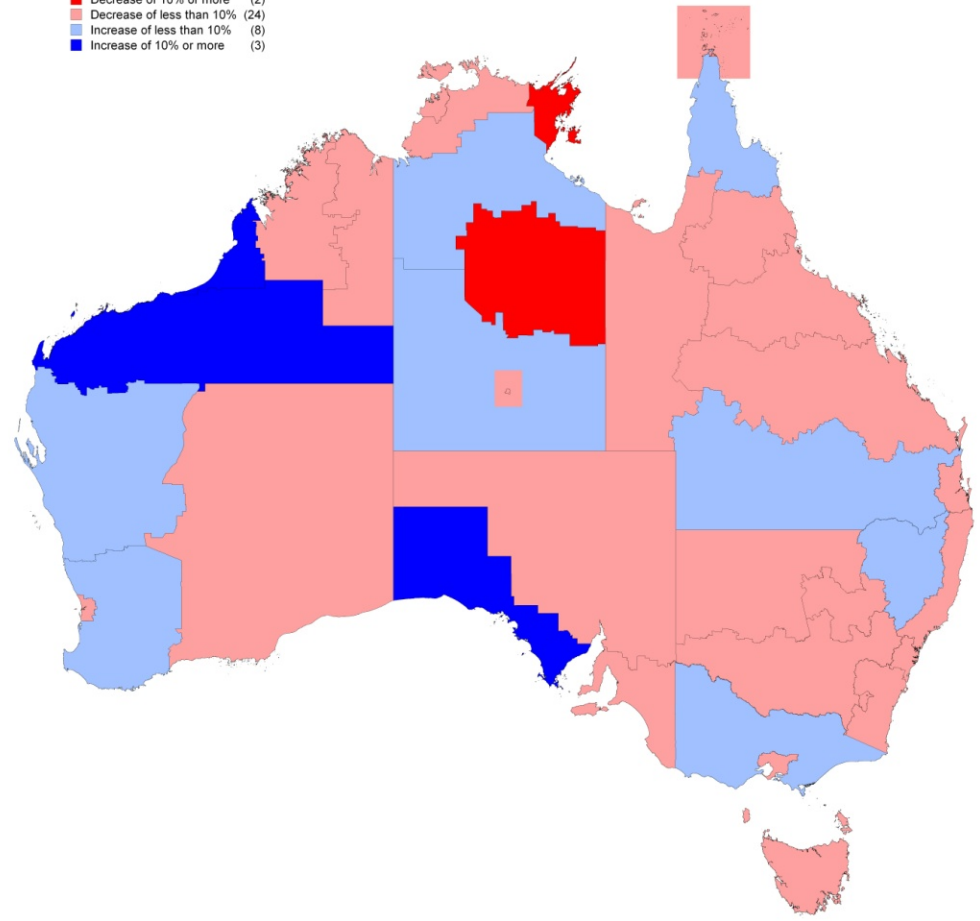# Change in employment and income – Indigenous to non-Indigenous ratio

Full-time, private sector employment

Median income of those employed ($2006)

Decrease of 10% or more (7)
Decrease of less than 10% (5)
Increase of less than 10% (9)
Increase of 10% or more (16)

Decrease of 10% or more (2)
Decrease of less than 10% (24)
Increase of less than 10% (8)
Increase of 10% or more (3)

# Ranking regions – Index of socio-economic outcomes

- Use Principal Components Analysis (PCA) to rank regions based on a summary of their measured socio-economic outcomes

- 5-step process
  - Identify concept that is being summarised
  - Choose the variables from the Census that best capture that concept
  - Construct correlation matrix of variables at the regional level
  - Undertake PCA and select number of components to retain
  - Rank regions based on component(s)

- Two sets of variables used
  - Variables that are used to construct the index (available in 2001 and 2006)
  - Variables that may be correlated with index (available for 2006 only)
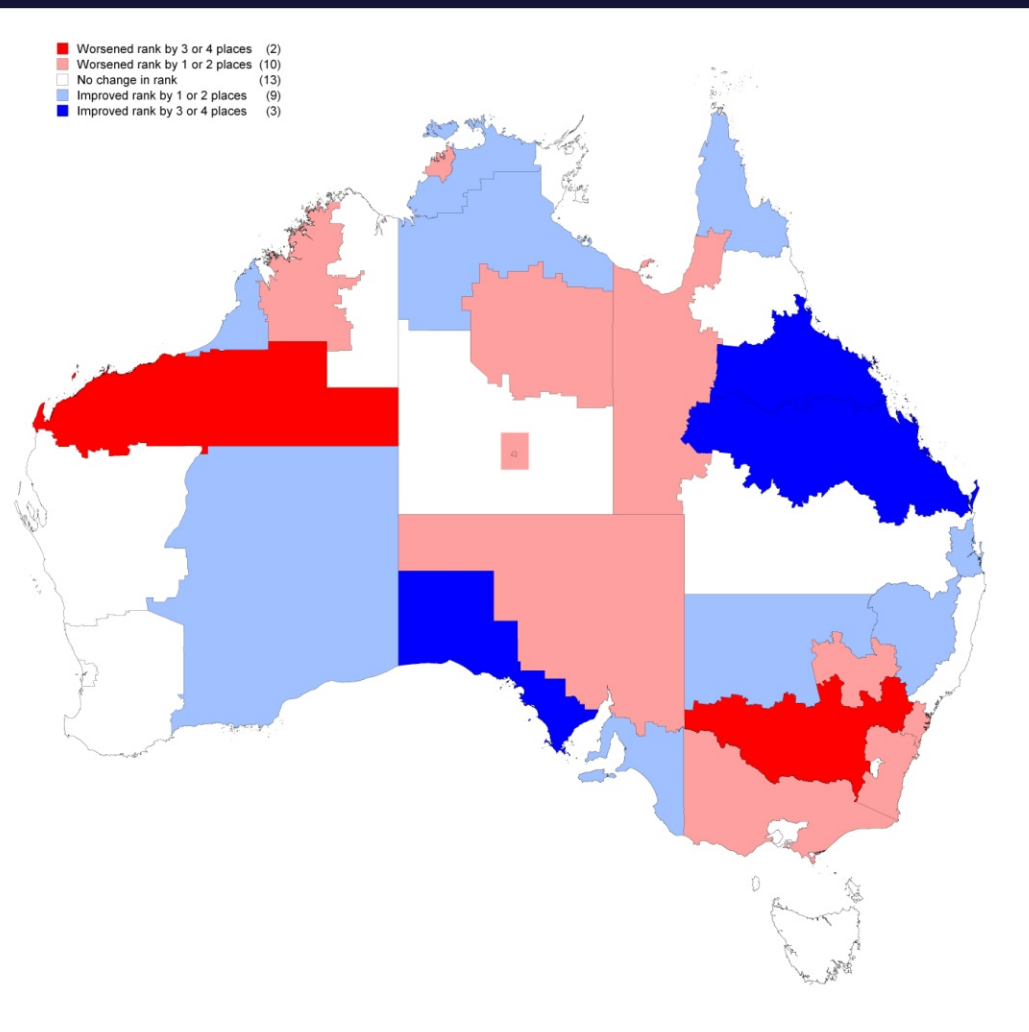
Ranking regions – PCA results

| Variable	Score
Employment to population ratio	0.21
Manager or professional to population ratio	0.31
Full-time, private sector employment to population ratio	0.35
Year 12 completion	0.33
Qualifications	0.37
Education attendance of 15 to 24 year olds	0.36
Individual income above half-median group	0.36
In household that is owned or being purchased	0.34
In household with at least one bedroom per person	0.35

Ranking regions into quartiles - 2001 to 2006

Indigenous - 2006
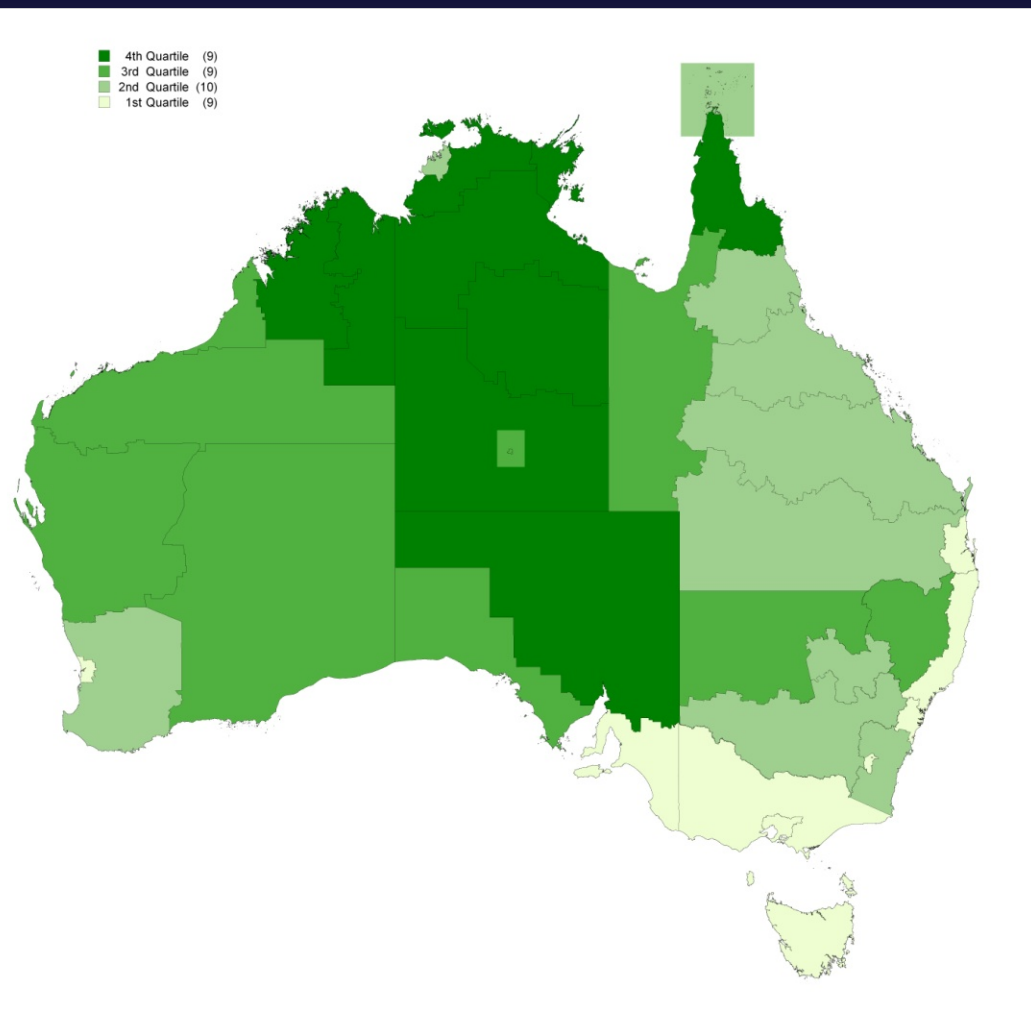
Indigenous difference – 2001 to 2006
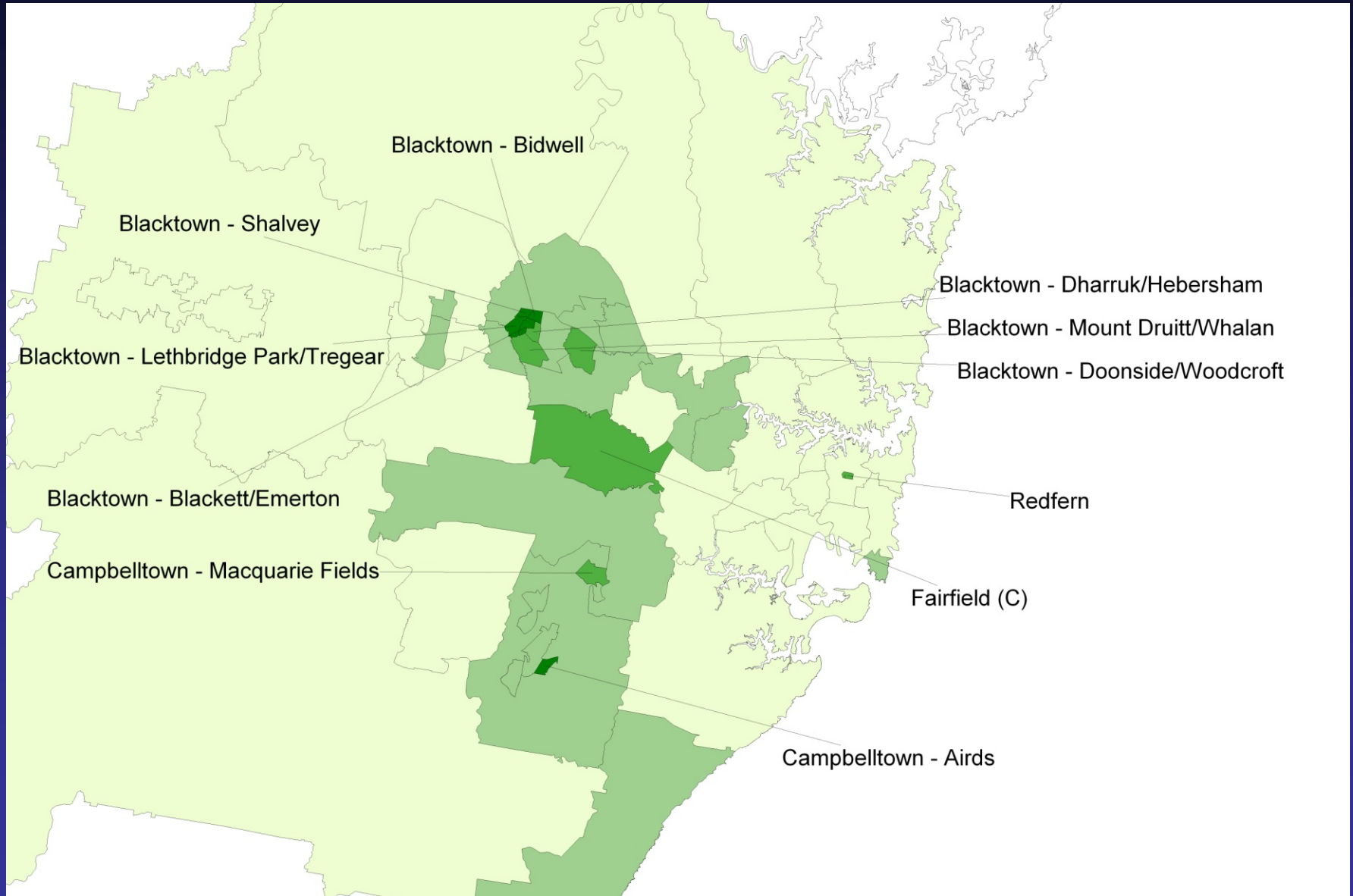
Summary –
Robustness and ongoing work

- Indicators for this analysis restricted by what is available on the Census
  - Census analysis needs to be augmented with other sources
  - Ultimately such analysis is most useful for national trends/comparisons
  - Analysis of specific regions best done through community case studies

- Substantial heterogeneity between regions
  - But also within regions, suggesting Indigenous Areas are a better scale for detailed analysis
  - AIGC is a considerable improvement over ASGC, however worth considering objective techniques to estimate boundaries

- PCA vs cluster analysis
  - PCA creates a summary index that allows regions to be ranked
  - Cluster analysis allows regions to be grouped based on their socio-economic outcomes as well as other demographic/geographic information

Summary –
Implications of the results

- Change in socio-economic outcomes not consistent across Australia
  - Some regions improving in absolute terms while others are getting worse
  - Change in non-Indigenous outcomes means that relative outcomes are falling further behind

- Scale of analysis is important
  - Indigenous Regions provide a more complete picture than by jurisdiction or broad remoteness category
  - However, substantial variation within some Indigenous Regions

- Implications for 'closing the gaps'
  - Resources need to be targeted to areas with greatest gap
  - Lessons need to be learnt from areas where gap is already closing
  - In a number of regions trying to hit a moving target
  - Can create a sense of 'policy failure' when in absolute terms things are improving

Ranking regions – PCA results

Component	Eigen-value
Component 1	6.85
Component 2	1.19
Component 3	0.43
Component 4	0.21
Component 5	0.12
Component 6	0.08
Component 7	0.05
Component 8	0.04
Component 9	0.02

Variable	Score
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Ranking regions into quartiles - Variation within regions

Region	Mean	SD	Region	Mean	SD	Region	Mean	SD
Queanbeyan	39.1	22.0	Brisbane	23.7	18.9	Perth	33.6	17.6
Bourke	69.8	12.1	Cairns	44.4	23.3	Broome	78.3	14.9
Coffs Harbour	41.2	19.9	Mt Isa	73.4	15.1	Kununurra	86.9	7.4
Sydney	30.7	25.9	Cape York	76.2	22.6	Narrogin	60.5	16.2
Tamworth	62.3	17.2	Rockhampton	39.3	19.9	South Hedland	71.4	22.6
Wagga Wagga	50.5	14.9	Roma	47.9	16.3	Derby	84.5	8.3
Dubbo	59.4	11.3	Torres Strait	54.6	17.3	Kalgoorlie	77.6	12.4
Melbourne	11.3	10.7	Townsville	45.5	22.2	Geraldton	69.7	8.3
Non-Met. Victoria	37.3	17.3	Adelaide	34.6	21.6	Alice Springs	68.1	42.9
Tasmania	23.7	15.6	Ceduna	70.6	4.9	Jabiru	89.5	7.8
ACT	3.6	0.8	Port Augusta	70.3	14.8	Katherine	88.1	12.2
						Apatula	94.4	3.6
						Nhulunbuy	92.4	6.1
						Tennant Creek	92.6	12.0
						Darwin	41.7	24.5

Large decrease

Large increase