Document on Creating Population-based Consistent Geography over 1981-2011

ARC Discovery project *the demographic consequences of migration to, from and within Australia*

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In the ARC project *the Demographic Consequences of Migration to, from and within Australia*, we came across issues on changing geographic boundaries between 1981 and 2011 census years. This document records the rationale and strategy we used to produce a population-based consistent geographical classification between 1981 and 2011. 47 harmonised geographic areas are created and presented in the Appendix.

To obtain sub-state population statistics, we requested data on Statistical Division (SD) level from the Australian Bureau of Statistics (ABS). SD is the largest sub-state geographic unit in Australian Standard Geographical Classification (ASGC), which was used by ABS to collect and disseminate geographically classified statistics between 1984 and 2011 (ABS, 2018a). However, boundaries of SDs changed annually, and ASGC has been replaced by Australian Statistical Geography Standard (ASGS) from 2011 onward (ABS, 2018b).

To create a consistent geographic classification for our demographic accounting and modelling, intercensal SD boundary changes between 1984 and 2011 have been examined and harmonized. Assumptions are made and recorded for uncorrected geographic boundary changes between 1981 and 2011. The following section i outlines the geographic data and documents we used in the examination-harmonization process. Section ii lists the step-wise examination procedure we used to quantify SD boundary changes. Section iii records the assumptions and limitations of our strategy. Section iv exemplified our assumptions and adjustment using two cases of Darwin and Melbourne. The final set of 47 harmonised geographic areas are listed and mapped in the Appendix.

i. ASGC Data and Reports

1. SD name lists for each census year between 1981 and 2011 are sourced from customized ABS 1981-2011 census data tables. The lists are also available from ASGC reports (ABS, 1996, 2001, 2006 and 2011) for 1991, 1996, 2001, 2006 and 2011 census years and census files (ABS, 1988 and 1997) for 1981 and 1986 census years.
2. All SD boundary changes are recorded in a series of ASGC reports obtained from ABS (1992, 1996, 2001, 2006 and 2011) online sources. Each SD boundary change is relevant to boundary changes to at least one Statistical Local Area (SLA), which is a sub-SD level geographic unit in the ASGC framework. The series of ASGC reports document changes of SLA areas within the affected SD area between each pair of census years, i.e. changes between 1986 and 1991, 1991 and 1996, 1996 and 2001, 2001 and 2006, and 2006 and 2011.

3. SD maps for each census year between 1981 and 2011 are obtained from ABS online documents. Maps for 1996-2011 quinquennial censuses are available from ASGC reports (ABS, 1996, 2001, 2006, 2011). Maps for 1981 and 1986 censuses are available from other ABS census publications (ABS, 1983, 1988).
4. Population size by birthplace, decomposed to the Australian-born and the overseas-born, at SLA level are obtained from ABS online sources. The 2006 and 2011 census statistics are obtained from ABS.Stat (http://stat.abs.gov.au/). The 1996 and 2001 census statistics are obtained from ABS *Community Profile* (http://www.abs.gov.au/websitedbs/censushome.nsf/home/communityprofiles). The 1986 and 1991 census statistics are obtained from census publications by age, sex and SLA (ABS, 1988) or small areas (ABS, 1993).

ii. Examination Procedure

1. SD lists are compared between each two quinquennial censuses: 1981 and 1986, 1986 and 1991, 1991 and 1996, 1996 and 2001, 2001 and 2006, and 2006 and 2011;
2. For each pair of census SD lists, boundary changes and relevant SLAs names are extracted from ASGC reports. If the SD boundary change is recorded as *minor boundary adjustment* or *unincorporated area*, we ignore the SD boundary change. Otherwise, we recorded the change and relevant SLA(s) in an excel file named "1981-2011 SD changes.xlsx" (available on request).
3. For each of the relevant SLA recorded in step 2, find the size of local Australian-born population and local overseas-born population from data sourced from i.4 and calculate the proportions.
4. Mark SLAs with more than 5,000 overseas-born residents or with more than 20% overseas-born residents. Since our project is mostly interested in oversea-born population changes, unmarked SLAs are assumed to have negligible effect on local demographic components.
5. For SDs whose boundary changes are relevant to more than one SLAs, calculate the total change-related SLAs' overseas-born population size. If there were more than 5,000 overseas-born residents or more than 20% overseas-born residents across all change-related SLAs, mark all change-related SLAs. Note, not all populations in the SD is considered, but only populations of those SLAs relevant to the SD's boundary change.
6. Combine SDs if their boundary changes are affected by SLAs marked in step 4 and 5. If a SD is affected by more than one marked SLAs, which means there were significant boundary changes between this SD and at least two other SDs, then combine all affected SDs.
7. Repeat step 2-6 for each pair of quinquennial census year SD lists between 1986 and 2011. Different approach is applied to 1981-1986 geographic boundary change because ASGC was introduced in 1984. Lacking information on geography changes between 1981 and 1986, SD lists of 1981 and 1986 are compared. If a SD name stayed the same between 1981 and 1986, the SD boundary is assumed to be unchanged. As a result, all geographic areas are considered as unchanged between these two census years.

8. If one SD needed to be combined with different SDs in different intercensal period, combine all affected SDs.

iii. Assumptions and Limitations

1. Exceptions in examination procedure step 6 are made for SDs around capital area is there are more than 1 surrounding SD involved in capital area's historical boundary changes. The reason is that sizes of overseas-born residents in the marked SLAs are much smaller than the capital area's overseas-born population. Besides, we will lose interregional migration features from and to metropolitan areas if combining capital area SDs with surrounding SDs. Table 1 lists the decisions we made for five capital areas. For the rest three capital areas, Adelaide is combined with outer Adelaide, Great Hobart is combined with Southern, Canberra is combined with ACT-bal (Appendix table).

Table 1. Decisions on boundary changes around five capital areas

capital area	Intercensal period	decision
Sydney and surrounding SDs	2006-2011	ignore boundary changes
Melbourne and surrounding SDs	1986-1991, 1991-1996, 2001-2006	ignore boundary changes (see iv. Examples and Adjustments)
Moreton (Combined with Brisbane) and Wide Bay-Burnett	1996-2001	ignore boundary changes
Darwin and surrounding areas	1996-2001	adjust the population size (see iv. Examples and Adjustments)
Perth and surrounding SDs	2001-2006, 2006-2011	ignore boundary changes

However, ignoring boundary changes may result in irregular population trends for some areas. For areas with relatively small population size or significant boundary adjustments, overtime jumps in population size may be a result of boundary changes rather than actual population changes. Two examples are discussed in section iv. to demonstrate the boundary change effect on population size and the method we used to adjust for such effect.

2. Where only part of a SLA was involved in SD boundary changes, the way we measure local overseas-born population size is not very accurate. In examination procedure step 3-5, the overseas-born population size of each SLA accounts for the overseas-born residents in the whole SLA regardless of whether the whole SLA or only part of a SLA was involved in SD boundary change. It is because that ASGC reports only documented changes in the size of a SD area rather

than changes in the size of a SD's population. As a result, one cannot tell exactly how many people have been affected by SD boundary changes. We therefore assumed in examination procedure step 4-5 that the number of overseas-born residents being affected by SD boundary changes always equals the overseas-born population in the whole SLA. It could be problematic when only a small proportion of SLA area was involved in SD boundary change, but we accounted for the total overseas-born population in the SLA to decide the significance of SD boundary change. However, without quantifiable information from ASGC reports, this is the best we could do.

3. The ASGC was introduced in 1984, and there is no ASGC report on 1981-1986 sub-state geographic boundary changes. As a result, most SD-level boundary changes between 1981 and 1986 are completely missing due to insufficient records for this intercensal period.

iv. Examples and Adjustments

1. Darwin

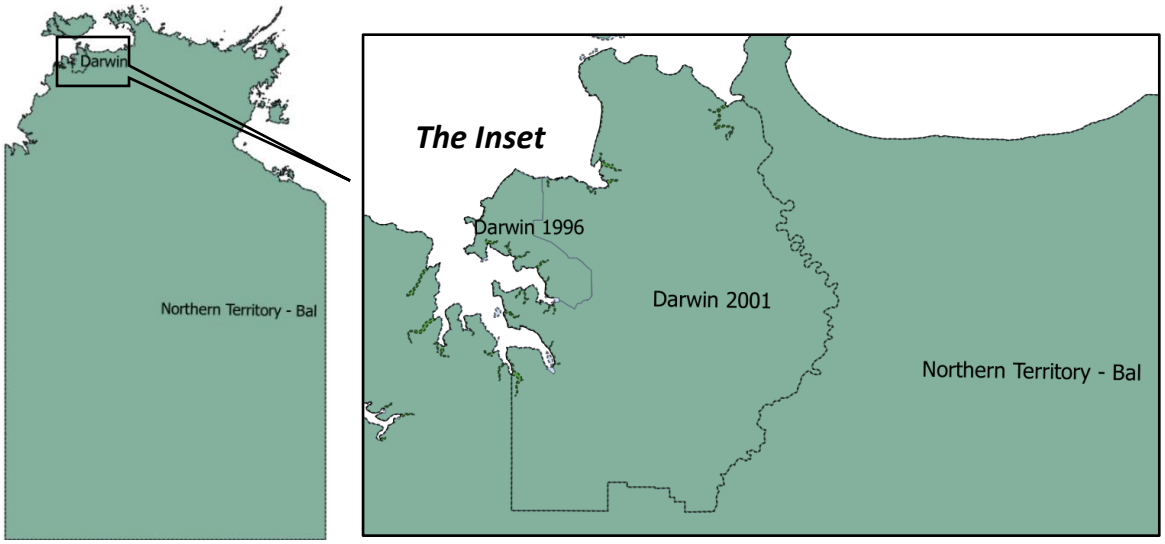
Between 1996 and 2001, two SLAs, Litchfield (S) – Pt A and Litchfield (S) - Pt B, were recategorized from Northern Territory – Balance (thereinafter Northern Territory - Bal) to Darwin. Map 1 (inset) shows the boundary change between 1996 and 2001 as a result of the recategorization of these two SLAs. In Table 2, we present the population sizes of Litchfield (S) – Pt A and Litchfield (S) - Pt B. The Australian-born population sizes of these two SLAs were 10,496 in 1996, accounting for 18.5% of Darwin's total Australian-born population and 13.1% of Northern Territory – Bal's total Australian-born population in 1996. For the overseas-born, total population size of the two affect SLAs was 2,092 in 1996, accounting for 12.1% overseas-born population in Darwin and 22.4% in Northern Territory – Bal.

Table 2. Population sizes of Statistical Local Areas recategorized from Northern Territory – Bal to Darwin between 1996 and 2001 census years

1996 SD the SLA belonged to	2001 SD the SLA belonged to	SLA name	Population size 1996			Population size 2001		
			overseas-born	Australian-born	% overseas-born	overseas-born	Australian-born	% overseas-born
Northern Territory – Bal	Darwin	Litchfield (S) - Pt A	186	945	16%	270	1,753	13%
		Litchfield (S) - Pt B	1,906	9,551	17%	2,140	10,516	17%

Population sizes of Darwin and Northern Territory – Bal are relatively small. Therefore, the effect of boundary change was significant. Figure 1 (left) and Figure 2 (left) show how the number and proportion of Australian-born population jumped in Darwin and dropped in Northern Territory - Bal between 1996 and 2001. The Australian-born population in Darwin increased by 15,775 between 1996 and 2001, where that in Northern Territory – Bal declined by 8,163 during the same intercensal

period. Half of Darwin's Australian-born population change cannot be directly attributed to 1996-2001 boundary change, though it could be associated with boundary-change-caused interregional migration. To a lesser extent, the boundary change effect was evident in the overseas-born population numbers and proportions (Figure 1 right and Figure 2 right).



Map 1. Boundary changes between Darwin and Northern Territory – Bal Statistical Divisions, 1996-2001

Notes: (1) left - the whole Northern Territory; right -Darwin region and the surrounding areas;

(2) 1996 Darwin SD boundary is the grey solid line; and 2001 Darwin SD boundary is the black dot line. The difference between 1996 and 2001 Darwin SD boundary is the areas of Litchfield (S) – Pt A and Litchfield (S) - Pt B SLAs.

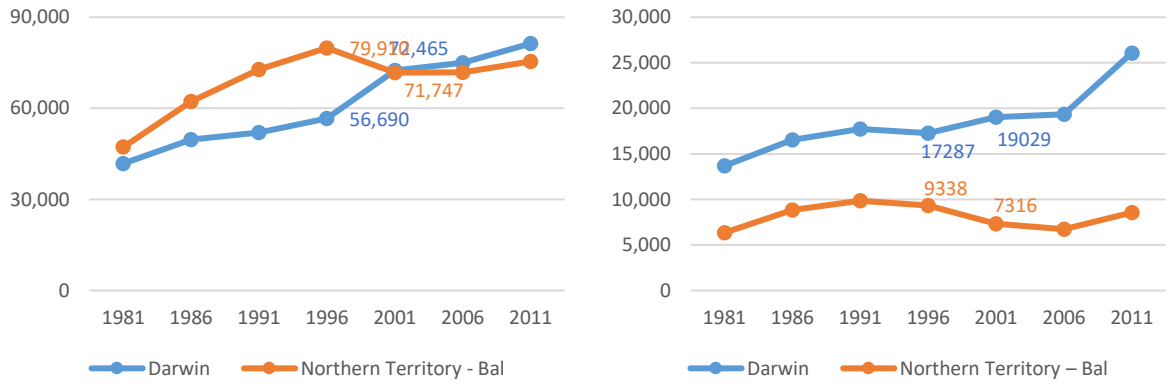


Figure 1. The effect of boundary changes on the numbers of the Australian-born population (left) and the overseas-born population (right) in Darwin and Northern Territory – Bal, 1981-2011

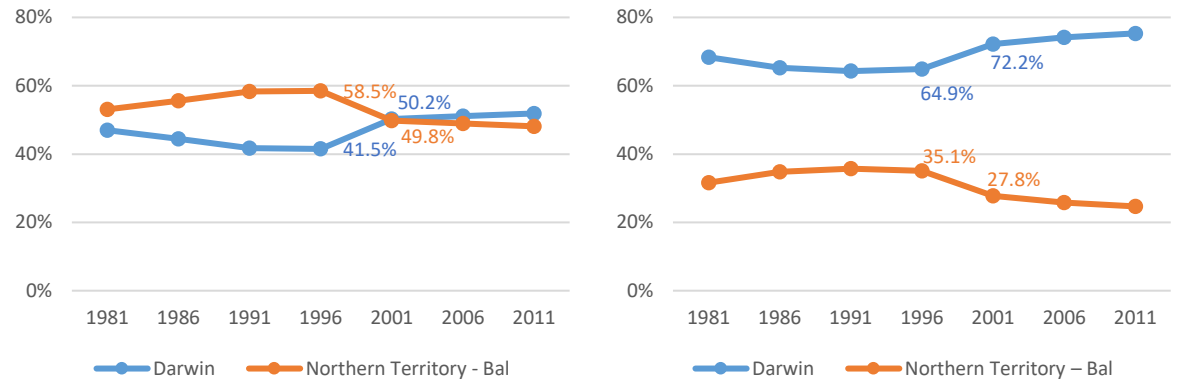


Figure 2. The effect of boundary changes on proportions of the Australian-born population (left) and the overseas-born population (right) in Darwin and Northern Territory – Bal, 1981-2011

Table 3. Adjustment on population size: Darwin and Northern Territory – Bal, 1981-96

A. Observed and backcasted population of the two 1996-2001 recategorized SLAs

SLA name	**1981**	**1986**	**1991**	**1996**	**2001**
Litchfield (S) - Pt A	0*	0*	562	1,131**	2,023**
Litchfield (S) - Pt B	1,607*	4,511*	6,847	11,457**	12,656**

* backcasted SLA population size

** added up from Table 2

B. Add and deduct the two SLAs' populations from Darwin and Northern Territory – Bal

Year	**Before adjustment**				**After adjustment**			
	population		**% of NT population**		**population**		**% of NT population**	
	Darwin	***NT - Bal***	**Darwin**	***NT - Bal***	**Darwin**	***NT - Bal***	**Darwin**	***NT - Bal***
1981	55,501	53,577	50.9	49.1	57,108	51,970	52.4	47.6
1986	66,292	71,081	48.3	51.7	70,803	66,570	51.5	48.5
1991	69,784	82,615	45.8	54.2	77,193	75,206	50.7	49.3
1996	73,977	89,248	45.3	54.7	86,565	76,660	53.0	47.0
2001	91,494	79,063	53.6	46.4	91,494	79,063	53.6	46.4
2006	94,313	78,588	54.5	45.5	94,313	78,588	54.5	45.5
2011	107,416	83,990	56.1	43.9	107,416	83,990	56.1	43.9

To minimize the boundary change effect given Northern Territory's small population sizes, we backcasted[1] the population of Litchfield (S) - Pt A and B to 1981 and 1986, assuming they belonged to Darwin since 1981[2]. The estimated and observed historical SLA population are added to Darwin's total population and deducted from Northern Territory – Bal's. Meanwhile, to simplify the interregional migration calculation, we also assume no interregional migration between these two SLAs and the rest of Northern Territory before 1996, i.e. we made no revision to inter-SD migration statistics given such historical boundary change. Table 3 presents a stepwise procedure of our back-forecasting. Note that any negative estimation is considered as zero.

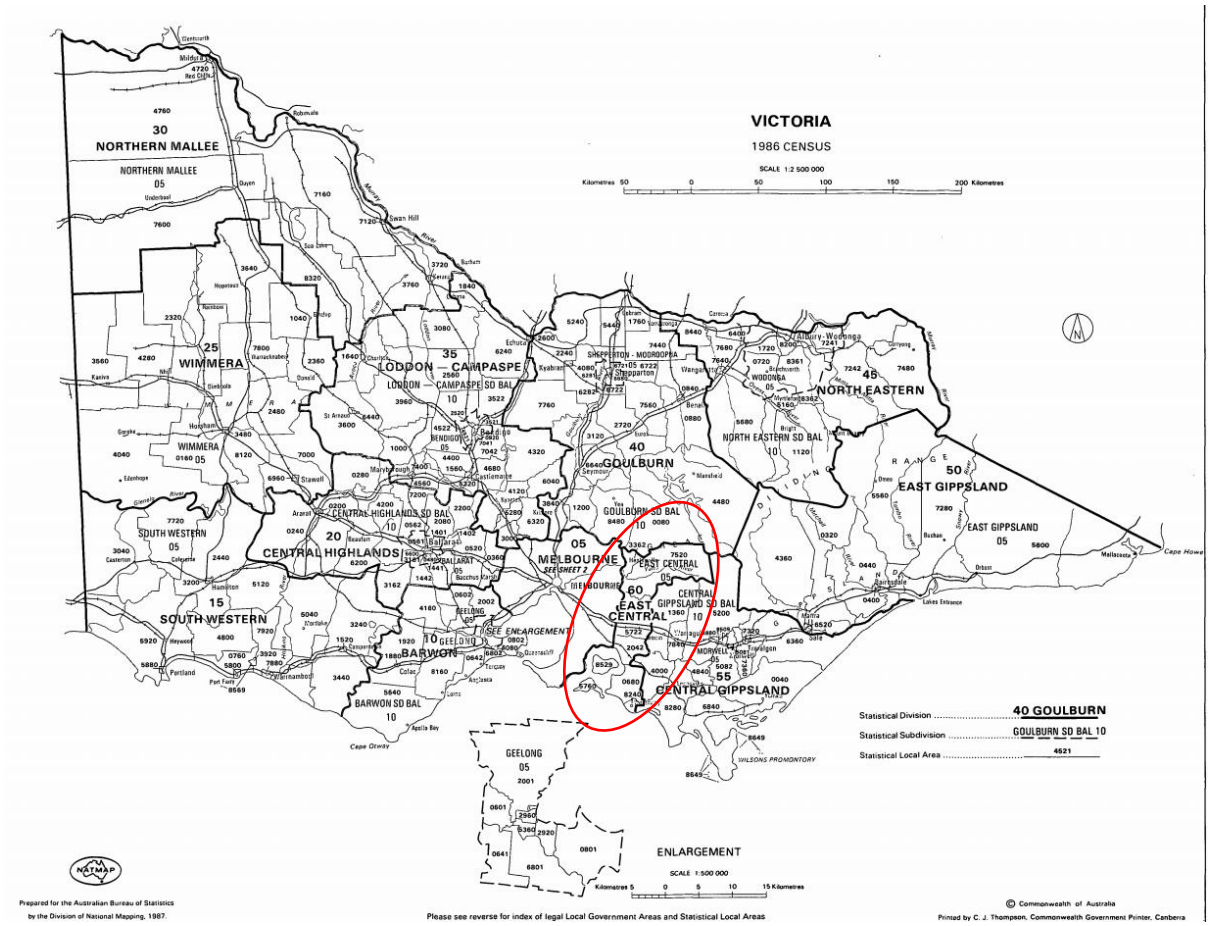
2. Melbourne

Areas surrounding Melbourne experienced significant boundary changes between 1986 and 1991. Map 2 and Map 3 show that the area of East Central SD in 1981 and 1986. Map 4 shows that in 1991, part of the old East Central SD was included in Melbourne SD, while the other part of the area was amalgamated with Gippsland (renamed from Central Gippsland in the 1980s). In detail, Cranbourne (S) - Pt B, Healesville (S) - Pt B, Pakenham (S) - Pt B and Upper Yarra (S) - Pt A were moved from East Central to Melbourne , while Bass (S), Phillip Island (S), Upper Yarra (S) – Pt B, Wonthaggi (B) and French Island were moved from East Central to Gippsland during the 1986-1991 intercensal period (ABS, 1992: p123). Geographic boundary changes could possible cause significant jump (or drop) in the population sizes of relevant areas, particularly in areas around Melbourne. We want to minimize the boundary change effect on sub-state population change, but do not want to combine Melbourne with its surrounding SDs - losing the features of interregional migration between this important metropolitan area and its neighbourhoods. We therefore decided to include all East Central SD into Melbourne SD between 1981 and 1986. The following paragraphs examines changes in the population sizes of Melbourne, East Central, Gippsland and other Victoria SDs.

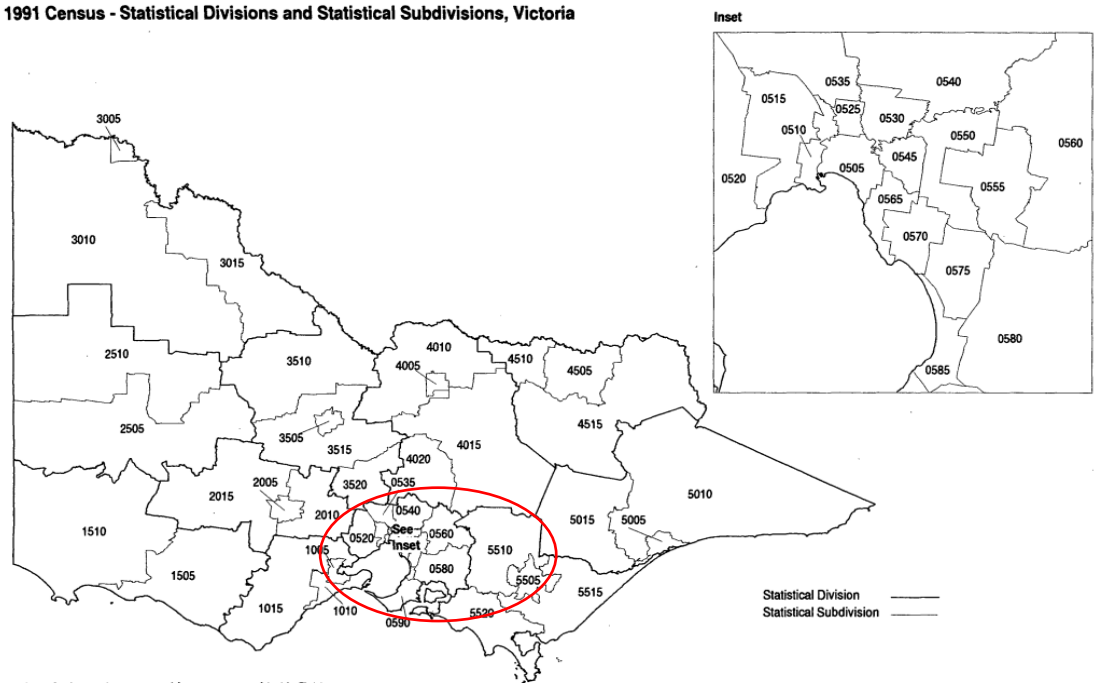
[1] Note that "Litchfield Shire was gazetted on 06.09.(19)85" and were formed from part of Outer Darwin (Litchfield (S) - Pt A) and from part of Vernon (Litchfield (S) - Pt B) (ABS, 1992: p156). None of the two SLAs had local population recorded separately from Outer DAin pre-1991 censuses. We used linear extrapolation and *trend* formula in Excel to backcast. Three data points from 1991, 1996 and 2001 censuses are uses.

[2] Litchfield (S) - Pt A belonged to Darwin before 1986. It was moved to Darwin to Northern Territory – Bal between 1986 and 1991, and moved back to Darwin between 1996 and 2001.

Map 2. Geographic boundaries of Victoria's Statistical Divisions (East Central circled red), 1981



Map 3. Geographic boundaries of Victoria's Statistical Divisions (East Central circled red), 1986



Map 4. Geographic boundaries of Victoria Statistical Divisions (Melbourne and Gippsland circled red), 1991

Population size of the recategorized SLAs are listed in Table 4. The total population sizes of SLAs recategorized from East Central to Melbourne and to Gippsland were 34,485 and 14,529, respectively. The majority (over 70%) of East Central's population had been recategorized to Melbourne. To avoid combining Melbourne and Gippsland using the method outlines in ii. Examination Procedure steps 5-6, we assumed that the whole East Central SD was moved to Melbourne.

Table 4. Population size of Statistical Local Areas recategorized from East Central to Melbourne and to Gippsland between 1986 and 1991

1986 SD the SLA belonged to	1991 SD the SLA belonged to	SLA name	Population size 1986	Population size 1991
East Central	Melbourne	Cranbourne (S) - Pt B	3,948	70,821*
		Healesville (S) - Pt B	1,186	11,755**
		Pakenham (S) - Pt B	16,132	27,619***
		Upper Yarra (S) - Pt A	13,219	14,491

Gippsland	Bass (S)	4,010	4,903
	Phillip Island (S)	4,101	4,994
	Upper Yarra (S) – Pt B	418	541
	Wonthaggi (B)	5,931	6,446
	French Island	69	59

** population size of Cranbourne (S) SLA, including Part A and Part B*

*** population size of Healesville (S) SLA, including Part A and Part B*

**** population size of Pakenham (S) SLA, including Part A and Part B*

Source: 2010.1 Census of Population and Housing, 1991 (ABS, 1993)

Adding the whole East Central population to Melbourne in 1981 and 1986 is likely to cause population jump in both Melbourne and Gippsland between 1981 and 1991. We justify this likelihood by presenting the number and proportion of Melbourne and Gippsland's Australian-born population changes by census year (Figure 3).

Since we included the whole East Central SD into Melbourne in 1981 and 1986, the population size of Melbourne and East Central SDs combined should be larger in the 1980s than in 1991 given there was no other demographic component change. However, the population size of Melbourne and East Central SDs combined was too large to evidence any boundary change effect – it steadily increased by 39,373 between 1986 and 1991 (Figure 3, left). However, the population proportion of Melbourne and East Central SDs combined to Victoria's state totals dropped by 1.14 % between 1986 and 1991 (Figure 3, right). In Figure 4 we examine the Australian-born population of East Gippsland/Gippsland region[3] to see whether the dropping percentage in Melbourne/East Central was relevant to boundary changes to Gippsland SD.

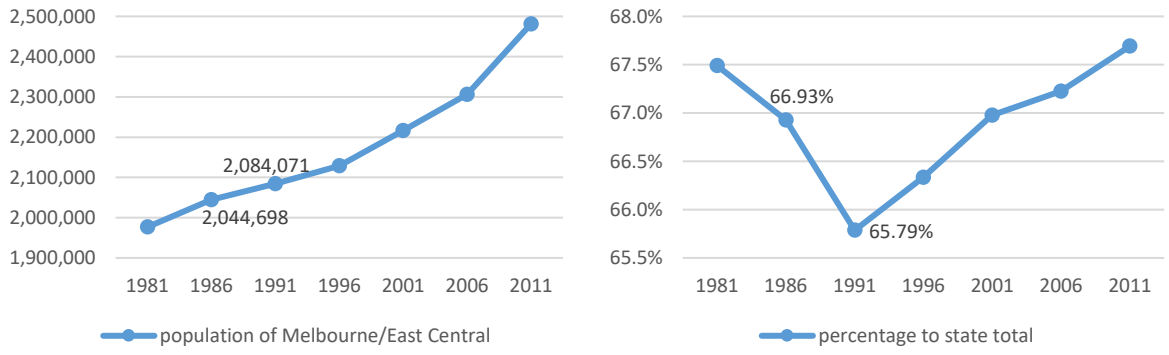


Figure 3. the Australian-born population (left) and state level proportion (right) of Melbourne and East Central SDs combined, 1981-2011

[3] East Gippsland SD and Gippsland SD are combined in to one region in our harmonized geographic classification due to geographic boundary changes in the 1990s.

As shown in Figure 4 (left), the population size of East Gippsland/Gippsland region increased by 23,182 between 1986 and 1991, and there was a noticeable difference between population size before and after 1991. A similar pattern is observed in the percentage figure (Figure 4, right): an increase from 5.72% to 6.24% between 1986 and 1991 and declines thereafter. Therefore, we concluded that the historical geographic boundary change amongst East Central, Melbourne and Gippsland SDs could possible affects the population sizes of our 47 harmonised geographic areas. Users should be cautious about such effect when adopting this harmonised geography list.

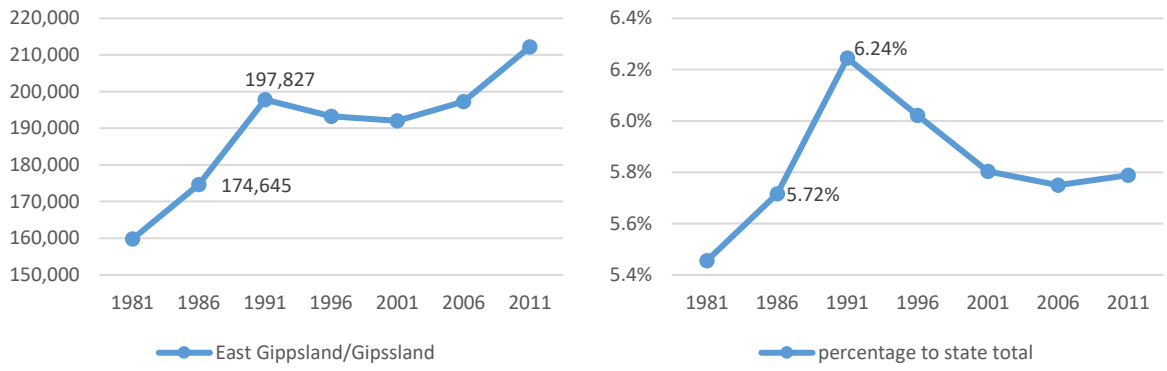


Figure 4. the Australian-born population (left) and state level proportion (right) of East Gippsland/Gippsland, 1981-2011

Note that the state population proportions of Melbourne and East Central combined dropped by 1.14% between 1986 and 1991, while that of East Gippsland/Gippsland increased by 0.53% (difference due to rounding). When combining the two bunches of SDs together, the proportion still dropped by 0.63%. Figure 5 presents the aggregated data of Melbourne and East Central combined amalgamating with East Gippsland/Gippsland SD. The drop, after removing the boundary change effect (i.e. after combing these SDs), was most likely caused by actual population growth in Central Highlands SD, where no boundary changed between 1986 and 1991.

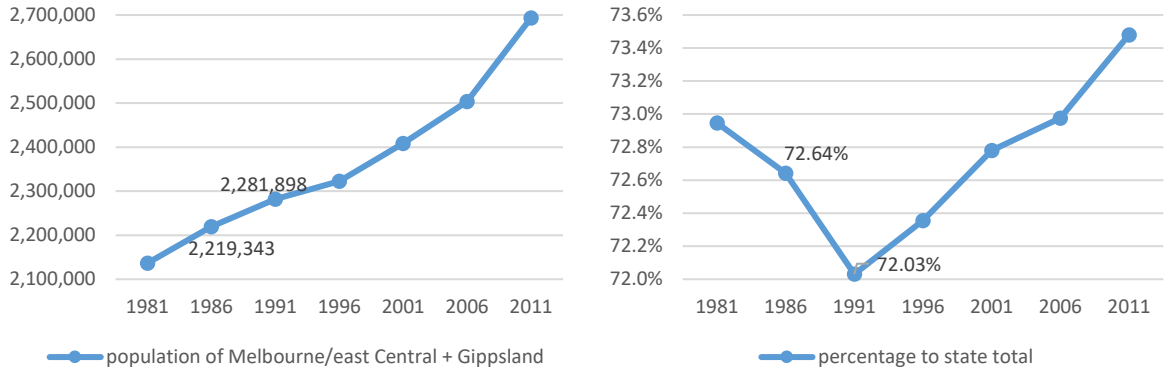


Figure 5. The state level proportion: Australian-born population of Melbourne/East Central plus East Gippsland/Gippsland, 1981-2011

Reference

ABS (1983) *2102.0 Census of Population and Housing, 1981*. Available from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2103.01981>

ABS (1988) *2102.0 Census of Population and Housing, 1986*. Available from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2102.01986?OpenDocument>

ABS (1992) *1991 Census Geographic Areas: Census of Population and Housing,* the Australian Bureau of Statistics: Canberra. Available from <*http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2101.01991?OpenDocument*>

ABS (1993) *2010.1 Census of Population and Housing, 1991.* Available from <*http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2101.01991?OpenDocument*>

ABS (1996) *Statistical Geography: Volume 1 Australian Standard Geographical Classification (ASGC)*, the Australian Government Publishing Service: Canberra. Available from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1216.01996?OpenDocument>

ABS (1997) *Census of Population and Housing 1981: Collection District Master File, User's Guide for the Machine-Readable Data File (Revised Edition) (SSDA Census Series)*, Social Science Data Archives, Research School of Social Sciences, The Australian National University: Canberra. Available from <https://www.ada.edu.au/ADAData/census/c81cdmf.pdf>

ABS (2001) *Statistical Geography: Volume 1 Australian Standard Geographical Classification (ASGC)*, the Australian Bureau of Statistics: Canberra. Available from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1216.02001?OpenDocument>

ABS (2006) *Statistical Geography: Volume 1 Australian Standard Geographical Classification (ASGC)*, the Australian Bureau of Statistics: Canberra. Available from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/BD1B52D132D130E7CA2573630012F67B?opendocument>

ABS (2011) *1216.0 Australian Standard Geographical Classification (ASGC), July 2011*. Available from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1216.0July%202011?OpenDocument>

ABS (2018a) *Australian Standard Geographical Classification (ASGC)*. Available from < http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Standard+Geographical+Classification+(ASGC)>

ABS (2018b) *Australian Statistical Geography Standard (ASGS)*. Available from <http://www.abs.gov.au/websitedbs/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS)>

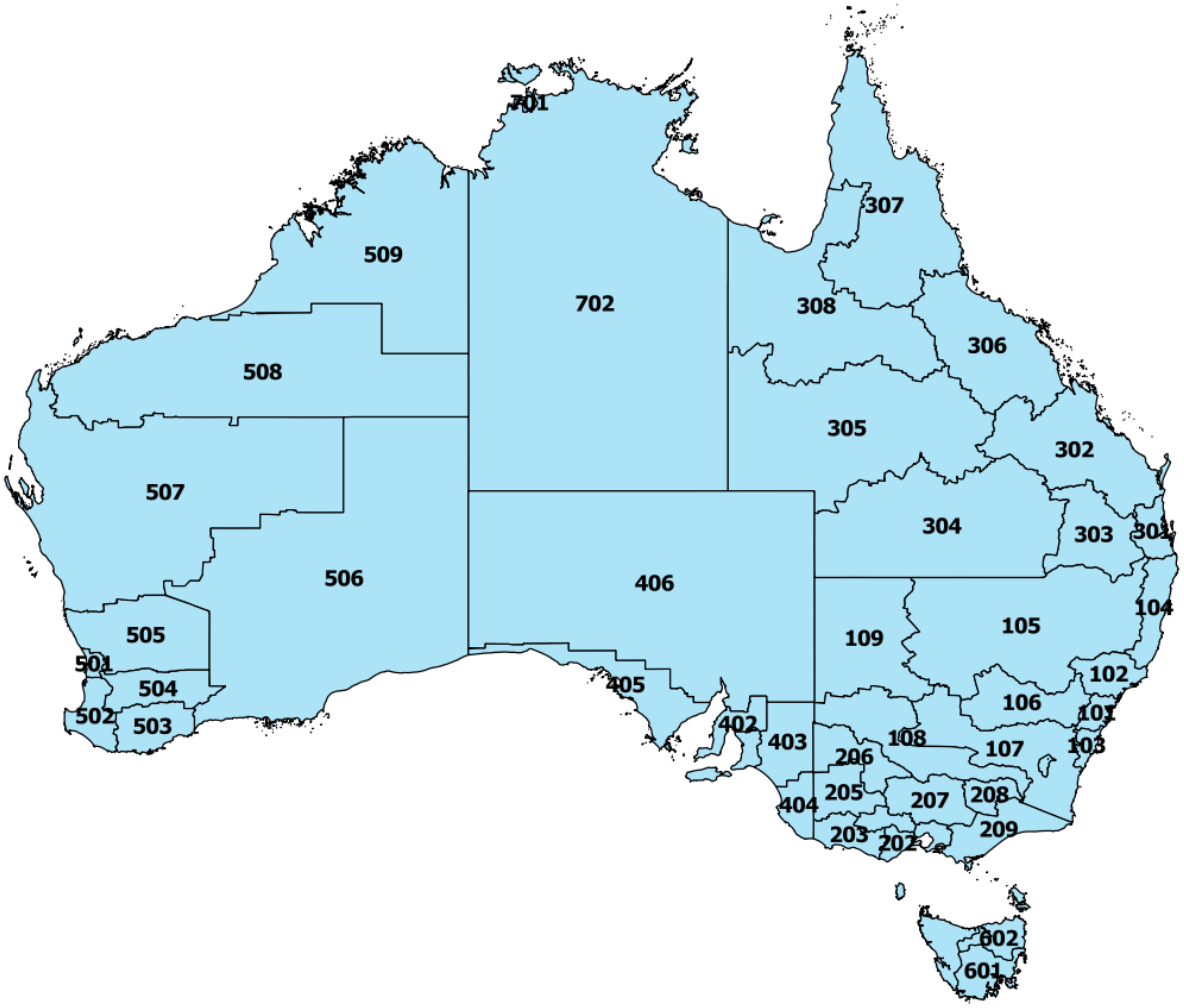
Appendix A: Look-up table for harmonised geographic areas between 1981 and 2011 census years

State	Harmonised geographic areas		Statistical Division		Changes
	code	name	code (1986-2011)	name	
NSW	101	Sydney	105	Sydney	M
NSW	102	Hunter	110	Hunter	M
NSW	103	Illawarra	115	Illawarra	U
NSW	104	Richmond-Tweed/Mid-North Coast	120, 125	Richmond-Tweed/Mid-North Coast	C
NSW	105	Northern/North Western	130, 135	Northern/North Western	C
NSW	106	Central West	140	Central West	M
NSW	107	South Eastern/Murrumbidgee	145, 150	South Eastern/Murrumbidgee	C
NSW	108	Murray	155	Murray	M
NSW	109	Far West	160	Far West	U
VIC	201	Melbourne/East Central	205, 260	Melbourne/East Central	C
VIC	202	Barwon	210	Barwon	M
VIC	203	Western District	215	Western District	M
VIC	204	Central Highlands	220	Central Highlands	M
VIC	205	Wimmera	225	Wimmera	M
VIC	206	Mallee	230	Mallee	M
VIC	207	Loddon/Goulburn	235, 240	Loddon (Loddon-Campaspe)/Goulburn	C
VIC	208	Ovens-Murray	245	Ovens-Murray	M
VIC	209	East Gippsland/Gippsland	250, 255	East Gippsland/Gippsland	C
QLD	301	South East Queensland	305, 310 (307, 309, 312)	Brisbane/Moreton (Gold Coast/Sunshine Coast/West Moreton)	C
QLD	302	Wide Bay-Burnett/Fitzroy	315, 330	Wide Bay-Burnett/Fitzroy	C
QLD	303	Darling Downs	320	Darling Downs	M
QLD	304	South West	325	South West	M
QLD	305	Central West	335	Central West	M
QLD	306	Mackay/Northern	340, 345	Mackay/Northern	M
QLD	307	Far North	350	Far North	M
QLD	308	North West	355	North West	M
SA	401	Adelaide/Outer Adelaide	405, 410	Adelaide/Outer Adelaide	C
SA	402	Yorke and Lower North	415	Yorke and Lower North	M
SA	403	Murray Lands	420	Murray Lands	M
SA	404	South East	425	South East	M
SA	405	Eyre	430	Eyre	U
SA	406	Northern	435	Northern	M
WA	501	Perth	505	Perth	M
WA	502	South West	510	South West	M
WA	503	Lower Great Southern	515	Lower Great Southern	M
WA	504	Upper Great Southern	520	Upper Great Southern	M
WA	505	Midlands	525	Midlands	M
WA	506	South Eastern	530	South Eastern	M
WA	507	Central	535	Central	M
WA	508	Pilbara	540	Pilbara	U
WA	509	Kimberley	545	Kimberley	U

TAS	601	Greater Hobart/Southern	605, 610	Greater Hobart/Southern	C
TAS	602	Northern	615	Northern	M
TAS	603	Mersey-Lyell	620	Mersey-Lyell	M
NT	701	Darwin	705	Darwin	M
NT	702	Northern Territory - Bal	710	Northern Territory - Bal	M
ACT	801	ACT	805, 810	Canberra/Australian Capital Territory - Bal	C

NOTE: M - minor boundary changes of the region, U - boundary of the region remained unchanged over time, C - the region is created from more than one Statistical Division

Appendix B: Map of harmonised geographic areas between 1981 and 2011 census years: Australia

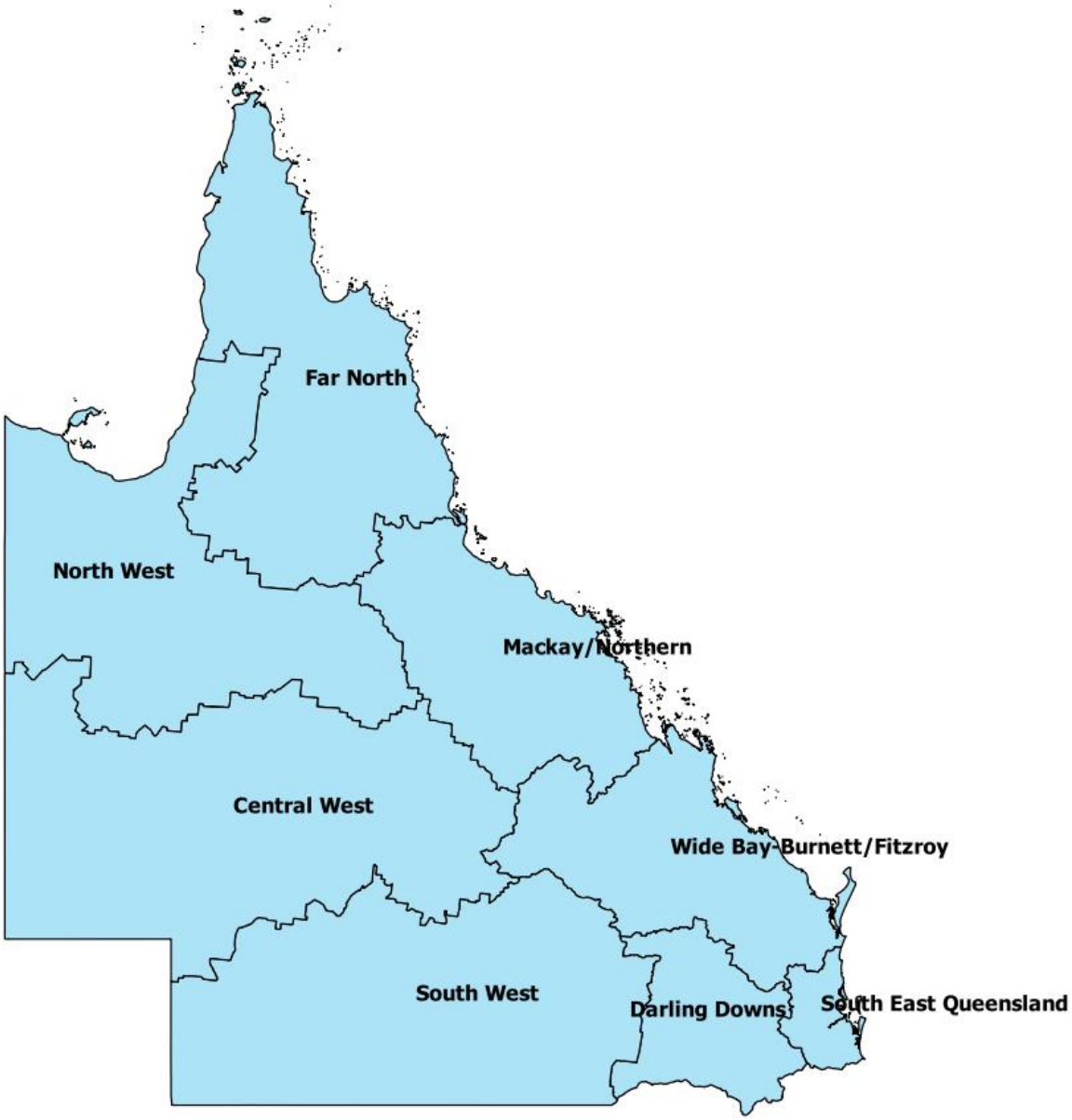


Note: region names are listed in Appendix A. Some regions are too small to number in the country-level map and are visible in state level maps.

Appendix C: Maps for harmonised geographic areas between 1981 and 2011 census years: New South Wales and the Australian Capital Territory

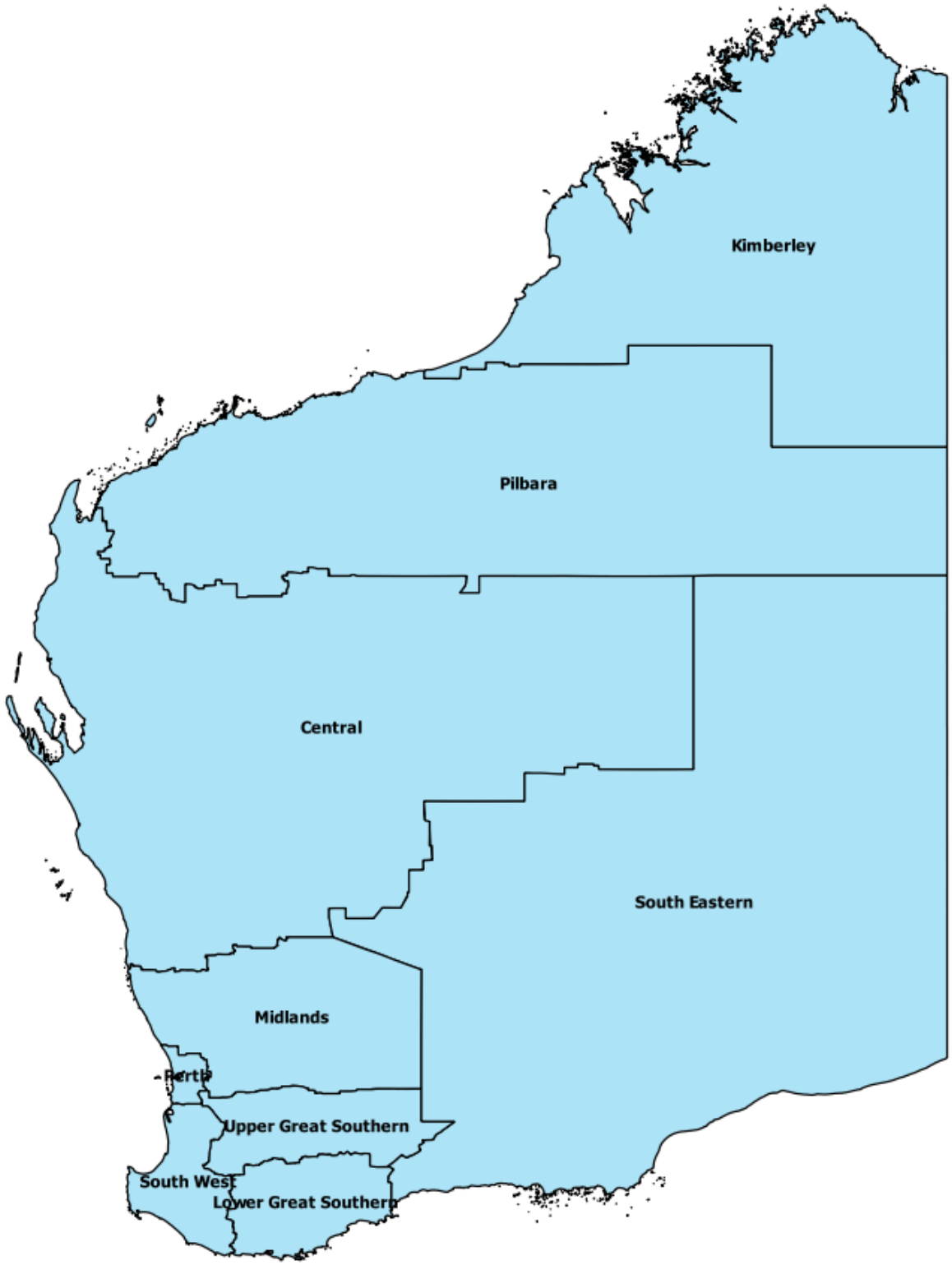
Appendix D: Maps for harmonised geographic areas between 1981 and 2011 census years: Victoria

Appendix E: Maps for harmonised geographic areas between 1981 and 2011 census years: Queensland

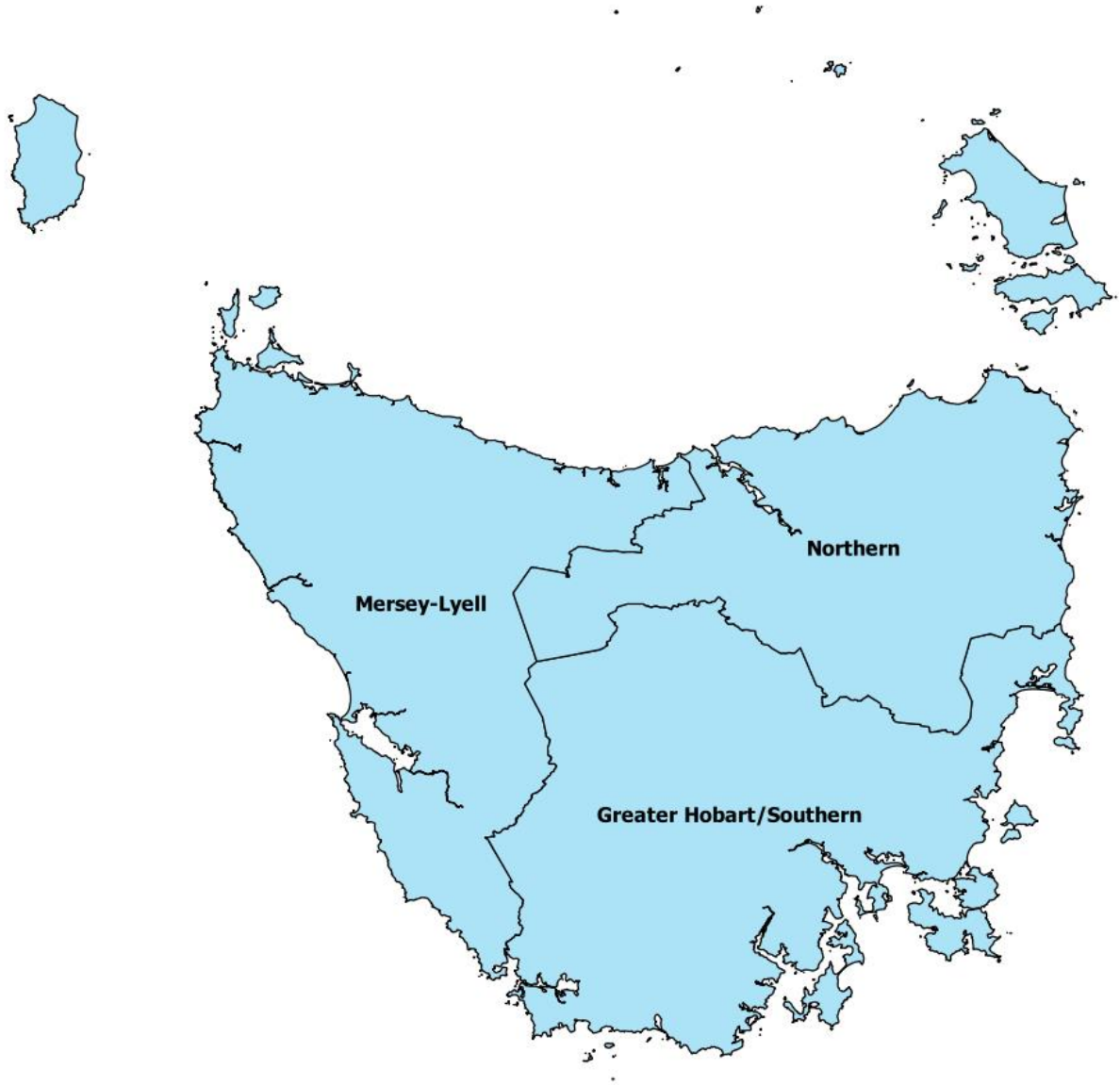


Appendix F: Maps for harmonised geographic areas between 1981 and 2011 census years: South Australia

Appendix G: Maps for harmonised geographic areas between 1981 and 2011 census years: Western Australia



Appendix H: Maps for harmonised geographic areas between 1981 and 2011 census years: Tasmania



Appendix I: Maps for harmonised geographic areas between 1981 and 2011 census years: Northern Territory