

## CHAPTER 30

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# POPULATION DATA SUPPORTING THE ASSESSMENTS

- 1 This chapter provides details of the main data series used in the Commission's calculations. Specifically, it contains details of:
  - estimated resident population by State and year;
  - estimated resident population by remoteness;
  - State population by age;
  - State population by socio-economic status;
  - State population by cultural and linguistic status; and
  - how data relating to different time periods have been used.

### **Estimated resident population (ERP)**

- 2 In this review, ERP at 31 December, in the middle of each assessment year, has been used as the measure of State populations to calculate per capita averages. This is because:
  - the concept of mean resident population (MRP), used in past reviews, is no longer supported by the ABS — it ceased publishing those figures in 2001 because improved collection methods reduced its concerns about volatility in the ERP estimates;
  - using ERP simplifies our assessments and makes our calculations more comparable with those undertaken by others; and
  - replacing MRP with ERP does not have a material impact on the GST distribution.
- 3 In distributing the GST among the States, the Commonwealth applies the relativities recommended by the Commission to State populations as at December, in the middle of the financial year. These December populations are determined by the ABS. Table 30-1 shows the State ERPs for each assessment year and the December 2009 and 2010 figures used in our illustrative distributions of the GST for 2009-10 and 2010-11 respectively.

**Table 30-1 Estimated resident populations and projections, by State, at 31 December**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
2005-06	6 786.4	5 085.5	4 043.8	2 037.3	1 559.4	488.5	332.4	208.4	20 541.7
2006-07	6 858.6	5 170.6	4 139.7	2 084.7	1 576.5	491.8	337.1	212.3	20 871.3
2007-08	6 943.9	5 262.4	4 242.8	2 138.1	1 593.5	495.4	342.1	217.4	21 235.5
2008-09	7 041.4	5 364.8	4 349.5	2 204.0	1 612.0	500.3	347.8	221.7	21 641.6
2009-10 (a)	7 130.7	5 460.5	4 453.9	2 262.0	1 630.1	505.0	353.1	226.4	22 021.7
2010-11 (a)	7 214.6	5 551.2	4 555.1	2 317.5	1 646.9	509.5	358.3	231.1	22 384.1
	%	%	%	%	%	%	%	%	%
2005-06	33.04	24.76	19.69	9.92	7.59	2.38	1.62	1.01	100.00
2006-07	32.86	24.77	19.83	9.99	7.55	2.36	1.62	1.02	100.00
2007-08	32.70	24.78	19.98	10.07	7.50	2.33	1.61	1.02	100.00
2008-09	32.54	24.79	20.10	10.18	7.45	2.31	1.61	1.02	100.00
2009-10 (a)	32.38	24.80	20.22	10.27	7.40	2.29	1.60	1.03	100.00
2010-11 (a)	32.23	24.80	20.35	10.35	7.36	2.28	1.60	1.03	100.00

(a) Projected populations for Mid-Year Economic and Fiscal Outlook, 2009-10, December 2009, provided by the Australian Treasury.

Source: ABS Estimated resident population, Australian Demographic Statistics, Jun 2009, Cat. No. 3101.0.

### Disaggregated data

- Many of our assessments use State population data disaggregated according to different characteristics, such as age, sex, Indigenous status and where they live. In previous reviews, the Commission estimated many of those dissections on the basis of the most recent Census as adjusted for under-enumeration and non responses.
- In this review, the reduction in the level of disaggregation we require and the use of ERP data means we have been able to use data produced by the ABS on State ERP at 30 June of each year disaggregated by age, sex and geography (which can be based on the State-based Accessibility and Remoteness Index of Australia (SARIA) and/or the Socio-Economic Indexes for Areas (SEIFA)). This has the advantages of being more reliable and providing data that are updated annually. The ABS does not provide these data disaggregated by Indigenous status.

### Indigenous data

- Table 30-2 provides details of ABS estimates and projections of Indigenous population in June 2006, 2007 and 2008. Despite the on-going concerns of Queensland, Western Australia and the Northern Territory that the method used by the ABS to derive these data understated their Indigenous populations, we have used the ABS numbers. We examined the method used by the ABS to adjust for Indigenous under-enumeration and State views about it. We have accepted the advice of the ABS that the method produced the best estimates possible, giving a nationally consistent dataset on the Indigenous population for that year, based on 2006 Census data.

**Table 30-2 Indigenous population estimates and projections, by State**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Indigenous population									
June 2006	152.7	33.5	144.9	71.0	28.1	18.4	4.3	64.0	516.8
June 2007	155.7	34.3	148.6	72.2	28.6	18.8	4.4	65.1	527.8
June 2008	158.7	35.1	152.5	73.5	29.2	19.2	4.5	66.3	539.0
	%	%	%	%	%	%	%	%	%
Proportion of Indigenous population									
June 2006	29.54	6.49	28.03	13.73	5.43	3.56	0.83	12.38	100.00
June 2007	29.49	6.50	28.16	13.69	5.42	3.56	0.83	12.34	100.00
June 2008	29.45	6.51	28.29	13.64	5.41	3.57	0.83	12.30	100.00
	%	%	%	%	%	%	%	%	%
Percentage point change 2006 to 2008	-0.09	0.02	0.26	-0.09	-0.01	0.00	0.00	-0.09	0.00

Source: ABS Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021, Cat. No. 3238.0.

- 7 Indigenous data for subsequent years were imputed by the Commission. This was done by using ABS Indigenous population projections to estimate the total number of Indigenous persons at 30 June each year by age State. These were distributed across the other disaggregated variables (SARIA, SEIFA and sex) in proportion to total population growth for these groups since 2006. The estimated number of Indigenous persons in each disaggregated population group was then subtracted from the group's total population to give the number of non-Indigenous people.

### Service populations

- 8 Some States argued that tourists, itinerant and fly-in-fly-out worker populations and mobile Indigenous populations affect service delivery requirements and do so differently for different services. We acknowledge this case but were not able to identify or measure the effects. The ABS noted that no reliable method of estimating service populations has been developed nationally or internationally because service populations are not discrete or mutually exclusive. Nor could States provide data on how different service populations affect State service provision requirements and State budgets.
- 9 We therefore did not adopt a service population concept in our assessments. We used ERP data as the basis of our estimates of potential service use.

### State population dissected by location

- 10 Many of the Commission's assessments recognise that the costs States incur in providing a given service are affected by where people live. The Commission uses the State-based Accessibility and Remoteness Index of Australia (SARIA)<sup>1</sup> to classify where people live and

<sup>1</sup> Developed to Commission specifications by the National Centre for Social Applications of Geographical Information systems (GISCA), The University of Adelaide.

to measure the population in each region. That index determines the remoteness and accessibility of areas on the basis of their distance from the State capital city and other centres of various sizes within the State. It differs from the Accessibility and Remoteness Index (ARIA) because it recognises that all State capital cities are the major focus of service delivery in a State and are therefore highly accessible<sup>2</sup> and that services are generally not provided by State governments to residents of other States<sup>3</sup>. Table 30-3 provides details of State Estimated resident populations for June 2008 dissected by SARIA region.

**Table 30-3 Estimated resident populations by location and State, 30 June 2008**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Population by location									
Highly Accessible	4 558.3	3 993.0	2 572.0	1 634.2	1 169.0	169.1	345.1	103.1	14 543.7
Accessible	1 627.3	1 084.4	951.3	241.2	223.1	291.5	0.5	17.6	4 436.9
Moderately Accessible	717.5	230.8	628.9	161.0	172.0	34.2	0.0	14.1	1 958.5
Remote	66.0	5.6	87.8	39.6	28.7	0.1	0.0	36.9	264.7
Very Remote	15.0	0.0	53.9	95.2	10.6	2.6	0.0	48.2	225.6
<b>Total</b>	<b>6 984.2</b>	<b>5 313.8</b>	<b>4 293.9</b>	<b>2 171.2</b>	<b>1 603.4</b>	<b>497.5</b>	<b>345.6</b>	<b>219.8</b>	<b>21 429.4</b>
	%	%	%	%	%	%	%	%	%
Proportion of population by location									
Highly Accessible	65.27	75.14	59.90	75.27	72.91	33.99	99.86	46.89	67.87
Accessible	23.30	20.41	22.15	11.11	13.91	58.59	0.14	8.00	20.70
Moderately Accessible	10.27	4.34	14.65	7.42	10.72	6.87	0.00	6.40	9.14
Remote	0.95	0.11	2.05	1.82	1.79	0.03	0.00	16.79	1.24
Very Remote	0.22	0.00	1.25	4.39	0.66	0.53	0.00	21.93	1.05
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
	%	%	%	%	%	%	%	%	%
Percentage point change between 2006 and 2008									
Highly Accessible	0.18	0.23	0.13	0.10	0.04	-0.20	0.01	0.16	0.16
Accessible	0.00	-0.15	-0.05	0.15	0.11	0.26	-0.01	0.43	-0.05
Moderately Accessible	-0.14	-0.08	0.04	-0.16	-0.12	-0.05	0.00	-0.15	-0.08
Remote	-0.03	0.00	-0.07	-0.08	-0.02	0.00	0.00	-0.29	-0.03
Very Remote	-0.01	0.00	-0.05	-0.01	-0.02	0.00	0.00	-0.15	-0.01
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Note: Based on State-based Accessibility and Remoteness Index of Australia developed for the Commission by National Centre for Social Applications of Geographical Information systems (GISCA).

Source: ABS Estimated resident population, Australian Demographic Statistics, Jun 2009, Cat. No. 3101.0.

- 11 The Commission also uses the population located in urban centres/localities (UC/L) in a number of its assessments. That is because a measure of the urban and non-urban population or the share of a State's population in centres of differing sizes is relevant to how much States

<sup>2</sup> In the Admitted patients assessment, this assumption is relaxed for Darwin as explained in the Admitted patients chapter.

<sup>3</sup> In some assessments, we recognise that services provided by the ACT to residents of New South Wales do affect their fiscal capacities. See the Cross-border chapter.

need to spend on delivering services. Table 30-4 shows the differences between States in where their populations are located in terms of urban centre size.

**Table 30-4 Estimated resident population by urban centre/locality and State, June 2008**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
200 - 1000	141.8	92.1	103.5	58.1	50.2	33.4	0.4	21.7	501.2
1001 - 20 000	912.9	593.2	514.6	222.0	220.2	130.9	0.0	43.6	2 637.4
20 000 - 40 000	325.5	189.6	75.9	112.4	69.3	56.8	0.0	52.7	882.2
40 000+	5 022.1	4 004.1	3 084.3	1 596.2	1 102.9	174.0	344.0	73.8	15 401.4
Rural balance	581.9	434.9	515.6	182.5	160.7	102.3	1.2	28.1	2 007.2
<b>Total</b>	<b>6 984.2</b>	<b>5 313.8</b>	<b>4 293.9</b>	<b>2 171.2</b>	<b>1 603.4</b>	<b>497.5</b>	<b>345.6</b>	<b>219.8</b>	<b>21 429.4</b>
	%	%	%	%	%	%	%	%	%
200 - 1000	2.03	1.73	2.41	2.68	3.13	6.72	0.10	9.87	2.34
1001 - 20 000	13.07	11.16	11.99	10.22	13.74	26.32	0.00	19.83	12.31
20 000 - 40 000	4.66	3.57	1.77	5.18	4.32	11.42	0.00	23.98	4.12
40 000+	71.91	75.35	71.83	73.52	68.79	34.97	99.55	33.55	71.87
Rural balance	8.33	8.18	12.01	8.40	10.02	20.57	0.34	12.77	9.37
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
	%	%	%	%	%	%	%	%	%
Percentage point change between June 2006 and June 2008									
200 - 1000	-0.02	-0.03	-0.04	-0.06	-0.03	0.00	0.00	0.11	-0.03
1001 - 20 000	-0.15	0.00	0.06	0.13	0.06	0.23	0.00	0.02	-0.03
20 000 - 40 000	-0.01	0.03	-0.03	-0.01	0.04	0.00	0.00	0.45	0.00
40 000+	0.21	0.07	0.02	-0.37	0.00	-0.37	-0.04	-0.60	0.06
Rural balance	-0.03	-0.07	-0.01	0.30	-0.08	0.14	0.05	0.03	0.00
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Note: UC/Ls are classified according to their population in 2006. Population growth over a threshold does not result in reclassification.

Source: ABS Estimated resident population, Australian Demographic Statistics, Jun 2009, Cat. No. 3101.0.

## Age

- 12 Differences in the population by age are an important driver of differences in expenses across States. These differences are recognised in the socio-demographic composition factor assessed in many categories, including Admitted patients, Community and other health services and Justice services. (Data cross-classified by age and other variables, such as location or socio-economic status, are mainly used in calculations.) The age groups used are those most relevant to the service being assessed. Table 30-5 shows the differences in the age distributions of the States.

**Table 30-5 Estimated resident population by age and State, June 2008**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Population by age group									
0-4 years	439.6	337.9	287.7	143.0	94.3	32.1	22.4	18.1	1 375.1
5-14 years	892.2	659.6	576.9	284.8	195.6	65.0	41.7	34.2	2 750.1
15-64 years	4 689.5	3 598.2	2 902.9	1 484.9	1 067.8	325.7	246.9	156.3	14 472.3
65+ years	962.8	718.2	526.4	258.4	245.7	74.7	34.5	11.2	2 831.8
<b>Total</b>	<b>6 984.2</b>	<b>5 313.8</b>	<b>4 293.9</b>	<b>2 171.2</b>	<b>1 603.4</b>	<b>497.5</b>	<b>345.6</b>	<b>219.8</b>	<b>21 429.4</b>
	%	%	%	%	%	%	%	%	%
Proportion of population by age group									
0-4 years	6.29	6.36	6.70	6.59	5.88	6.45	6.50	8.23	6.42
5-14 years	12.77	12.41	13.43	13.12	12.20	13.07	12.07	15.56	12.83
15-64 years	67.14	67.71	67.61	68.39	66.60	65.47	71.46	71.12	67.53
65+ years	13.79	13.52	12.26	11.90	15.32	15.01	9.97	5.08	13.21
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
	%	%	%	%	%	%	%	%	%
Percentage point change between 2006 and 2008									
0-4 years	-0.10	0.18	0.14	0.26	0.15	0.29	0.30	-0.17	0.09
5-14 years	-0.39	-0.42	-0.41	-0.45	-0.39	-0.46	-0.50	-0.50	-0.41
15-64 years	0.21	0.09	0.09	0.05	0.01	-0.27	-0.23	0.21	0.11
65+ years	0.28	0.14	0.17	0.13	0.23	0.43	0.44	0.46	0.20
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Source: ABS Estimated resident population, Australian Demographic Statistics, Jun 2009, Cat. No. 3101.0.

### Socio-economic status

- 13 The Commission uses the ABS Socio-Economic Indexes for Areas (SEIFA), Index of Relative Socio-economic Disadvantages (IRSED) as its main measure of socio-economic status (SES). We used it in the Schools education, Admitted patients, Community and other health and Justice services assessments to identify the number of people living in low, middle and high SES regions<sup>4</sup> in each State. The ABS advised that it was appropriate to use the index in this way. Table 30-6 shows the proportion of State populations in SEIFA quintiles for June 2008.
- 14 The Commission has also used people on Commonwealth benefits and holders of health care cards as indicators of disadvantage in some assessments. The choice between the SEIFA and these measures depended on which best reflected the eligibility conditions for specific State services or which provided a better link to administrative data on service use or cost. People on Commonwealth benefits have been used in the Welfare and housing assessment as the basic indicator of need for services and Commonwealth beneficiaries and health care card holders have been used in the Services to communities assessment as the indicator of need for water and electricity concessions.

<sup>4</sup> Regions were defined at the smallest geographical area – Collection Districts.

**Table 30-6 Estimated resident population by SEIFA quintiles and State, June 2008**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Population by SEIFA quintile									
Least disadvantaged	1 570.1	1 082.0	742.9	533.8	201.1	33.6	149.1	24.4	4 337.0
2nd least disadvantaged	1 227.7	1 204.6	877.6	473.3	305.9	69.0	108.7	34.1	4 301.0
Middle	1 237.7	1 137.3	960.8	417.3	298.3	102.8	55.8	44.9	4 255.0
2nd most disadvantaged	1 380.4	960.1	899.0	422.7	380.6	125.9	21.1	34.6	4 224.4
Most disadvantaged	1 568.2	929.7	813.7	324.1	417.4	166.2	10.8	81.7	4 311.9
<b>Total</b>	<b>6 984.2</b>	<b>5 313.8</b>	<b>4 293.9</b>	<b>2 171.2</b>	<b>1 603.4</b>	<b>497.5</b>	<b>345.6</b>	<b>219.8</b>	<b>21 429.4</b>
	%	%	%	%	%	%	%	%	%
Proportion of population by SEIFA quintile									
Least disadvantaged	22.48	20.36	17.30	24.58	12.54	6.76	43.16	11.09	20.24
2nd least disadvantaged	17.58	22.67	20.44	21.80	19.08	13.86	31.46	15.53	20.07
Middle	17.72	21.40	22.38	19.22	18.60	20.67	16.14	20.44	19.86
2nd most disadvantaged	19.76	18.07	20.94	19.47	23.74	25.31	6.10	15.76	19.71
Most disadvantaged	22.45	17.50	18.95	14.93	26.03	33.40	3.13	37.18	20.12
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>
	%	%	%	%	%	%	%	%	%
Percentage point change between 2006 and 2008									
Least disadvantaged	0.19	0.34	0.61	0.60	-0.03	0.06	0.66	0.30	0.35
2nd least disadvantaged	0.11	0.30	0.15	0.22	0.15	0.10	-0.47	0.25	0.19
Middle	0.03	-0.01	-0.11	-0.19	0.01	0.17	-0.49	-0.10	-0.02
2nd most disadvantaged	-0.09	-0.22	-0.20	-0.32	-0.01	0.04	-0.17	-0.23	-0.17
Most disadvantaged	-0.24	-0.42	-0.45	-0.31	-0.13	-0.37	0.46	-0.22	-0.35
<b>Total</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Note: SEIFA used is the Index of Relative Socio-economic Disadvantage.

Source: ABS Estimated resident population, Australian Demographic Statistics, Jun 2009, Cat. No. 3101.0.

### Cultural and linguistic diversity (CALD)

15 In this review, the Commission has recognised that low English fluency results in higher unit costs of service provision. We have also recognised that cultural background has an impact on use. The relevant population group with this characteristic has been measured in two ways, depending on the administrative data available. For Schools education and Post-secondary education, the proportion of the population with low English fluency (people who indicated that they did not speak English at home and that they did not speak English well or not at all) was used as the indicator of the extent to which unit cost differences affected each State. This group included Indigenous people. For Admitted patients, the proportion of State populations born in a non-English speaking country was the indicator of State differences. The data indicated differences in use and unit costs. Table 30-7 shows the proportion of State populations with each of these characteristics at June 2006. This information is not updated annually so the same proportions are used for all years.

**Table 30-7 Cultural and linguistic diversity population groups, June 2006**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Low English fluency	266.8	204.8	53.3	36.9	37.8	2.4	10.0	7.2	619.2
Non-English speaking country	1 048.2	776.8	245.7	185.1	135.3	13.5	36.5	12.4	2 453.5
	%	%	%	%	%	%	%	%	%
Low English fluency	3.91	3.99	1.30	1.79	2.41	0.49	3.01	3.39	2.99
Non-English speaking country	15.38	15.15	6.01	8.99	8.63	2.75	10.94	5.89	11.86

Source: ABS *Census of population and housing 2006*. Data benchmarked to June 2006, ERP.

### Data timing

- 16 Where financial year data were available, we used them in the assessment. For example, mining royalties' data tell the story about what was collected during the entire year.
- 17 Where financial year data were not available, we used data for the point in time closest to the middle of the relevant financial year. For example, school enrolments as at August 2008 were used for 2008-09. If the two available data points were equidistance from the middle of the financial year we used the later data to keep the assessments as simple as possible. For example, disaggregated population data were available for 30 June each year and we used 30 June 2008 rather than 30 June 2007 to represent 2007-08. Analysis showed this simplification did not materially affect individual assessments. For example, using point in time school enrolments data instead of the average of two data points resulted in a GST redistribution of less than \$3 for any State. However, because 30 June 2009 disaggregated data are not yet available, the 30 June 2008 data have also been used to represent 2008-09.
- 18 In the case of Post-secondary education, data on student contact hours were available only on a calendar year basis. In this case, the data for the 2008 year, rather than an average of 2008 and 2009 data were used to represent 2007-08. Because 2009 data were not available the 2008 data had been used for 2008-09.