

GOVERNMENT SECONDARY SCHOOL EDUCATION

- 1 This working paper describes how the Commission estimates what each State would need to spend to provide the average level of government secondary education services to its residents. The development of the assessment method is discussed in Volume 4 of the 2004 Review Working Papers.

GOVERNMENT SECONDARY EDUCATION SERVICES

- 2 All States provide government secondary school education services. These services are generally provided to children aged from about 12 to about 17, but States differ in the ages of children in secondary education.
- 3 The Government Secondary School Education category covers expenses incurred in providing education services in government secondary schools. The category includes:
- expenses on education programs for children enrolled in secondary grades in government schools; and
 - central administration and other overhead costs that relate to secondary education.
- 4 Australian and State governments spent \$9.3 billion (\$447.34 per capita) on government secondary school education in 2006-07. State Governments financed 90.1 per cent of this amount and the Australian Government 9.9 per cent. The Commission treats Australian Government funding as specific purpose funding and includes it in category expenses.
- 5 The Australian Government Specific Purpose Payments (SPPs) included in the category were parts of the Government Schools, Australian Technical Colleges, the Targeted and Joint Programs Government Schools and the Indigenous Education Strategic Initiatives – Government SPPs.

WHY EXPENSES ON GOVERNMENT SECONDARY EDUCATION SERVICES DIFFER

- 6 The per capita amount spent by each State on government secondary education services varies considerably. The Commission seeks to understand why these figures vary. If the sole source

of variation between States is different government policies, then the differences do not impact on State GST shares. If the variation is due to circumstances beyond a States' control, then the differences will be reflected in State GST shares. Table 1 shows Government Secondary School Education actual expenses per capita for each State and the national average.

Table 1 Government Secondary School Education, actual expenses per capita, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
2002-03	394.26	351.77	315.74	367.34	342.63	396.66	447.50	463.88	363.80
2003-04	424.34	368.23	329.79	392.95	369.83	417.03	493.75	485.34	386.51
2004-05	439.21	378.14	346.22	422.47	432.43	411.41	512.72	579.43	405.71
2005-06	457.51	403.77	361.62	451.62	465.54	374.82	519.59	643.07	426.26
2006-07	470.02	435.85	381.02	475.17	464.26	499.11	516.04	659.09	447.34

Source: Derived from Government Finance Statistics (GFS) data collated by the ABS using CGC coding rules (and adjustments).

Box 1: The Commission's concept of average

The Australian average expense per capita is calculated as the total expenses incurred by all States divided by total State population. This is a population weighted average. Population weighting gives equal weight to each Australian's experience. Since more Australians experience the New South Wales level of service, it carries more weight in the calculation of the average. 33 per cent of Australians reside in New South Wales and 1 per cent reside in the Northern Territory. Population weighting gives the experience of New South Wales (\$470.02 per capita in 2006-07) 33 times the weight of the experience of the Northern Territory (\$659.09 per capita). This approach means the average expense per capita is generally much closer to the New South Wales expense per capita than the Northern Territory expense per capita.

The concept of using this average also applies to the assessment of factors. If the Commission were trying to estimate the cost of providing services to Indigenous people living in remote areas, it would give most weight to the Northern Territory's experience (38 per cent of remote Indigenous people live in the Territory) and least to Tasmania (less than 0.2 per cent), Victoria and the ACT (0 per cent).

- 7 Differences in State expenses per capita are likely to reflect differences in:
 - the cost of resources provided to each student;
 - the number of resources provided to each student; and
 - the number of government secondary students in State populations.

- 8 Table 2 shows a measure of the cost of resources (expenses per teacher), a measure of the number of resources provided (teachers per student) and the number of government secondary students per capita. It shows, for example, that Victoria provides secondary education services at less than the average cost per capita, despite providing more than average number of resources and having more than the average number of students per capita.

- 9 However, numbers of teachers and numbers of government secondary students are influenced by State policies. So, it would be inappropriate for the Commission to accept actual numbers of teachers and students as the measure of what States would need to spend to provide the average level of service.

Table 2 Government Secondary School Education, possible drivers of state expense per capita, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
(a) General indicators									
Expenses (\$m)	2 903.3	2 019.3	1 402.1	906.2	670.7	219.4	158.6	126.0	8 405.6
Teaching staff (FTE)	24 599	18 875	12 940	6 462	4 816	1 986	806	1 341	71 826
Students (FT)	304 941	223 346	166 667	80 325	57 030	25 168	15 893	8 600	881 970
Population ('000)	6 856	5 168	4 136	2 082	1 577	492	337	213	20 859
(b) Ratios									
Expense per capita (\$)	423.49	390.77	339.03	435.23	425.40	446.29	471.19	592.01	402.98
Expense per teacher (\$)	118 027	106 983	108 353	140 229	139 267	110 483	196 829	93 946	117 028
Teachers per '000 student	81	85	78	80	84	79	51	156	81
Students per '000 persons	44	43	40	39	36	51	47	40	42
(c) Comparison of State ratio to average ratio									
	%	%	%	%	%	%	%	%	%
Expense per capita	5.1	-3.0	-15.9	8.0	5.6	10.7	16.9	46.9	0.0
Expense per teacher	0.9	-8.6	-7.4	19.8	19.0	-5.6	68.2	-19.7	0.0
Teachers per student	-0.9	3.8	-4.7	-1.2	3.7	-3.1	-37.7	91.5	0.0
Students per capita	5.2	2.2	-4.7	-8.8	-14.5	21.1	11.6	-4.4	0.0

Note: Year 7 students in NSW, VIC, TAS and ACT are part of secondary schools. QLD, WA, SA and NT year 7 students are part of primary schools and are not included in this table. See Figure 1 for more detail.

Source: Productivity Commission, Report on Government Services 2008, Part B Education, Chapter 4, Schools Education. ABS GFS data and population data for 2005-06.

- 10 Table 3 provides information on some of the characteristics of each State's government secondary education sector. Table 4 shows States' shares of secondary school age population (population aged 12 to 17), schools, enrolments and staff.

Table 3 Government Secondary School Education, general indicators, 2006

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Population aged									
12 to 17	555 452	413 323	355 681	177 214	124 587	41 596	26 749	19 923	1 714 525
Schools (a)	370	263	181	98	73	39	21	11	1 056
Full Time Enrolments									
All students	304 941	223 346	166 667	80 325	57 030	25 168	15 893	8 600	881 970
Indigenous	13 821	2 647	11 141	5 821	2 155	1 961	339	3 004	40 889
Staff (FTE)									
Out of school staff (b)	1 847	1 273	1 916	1 572	1 071	443	341	448	8 911
Teaching staff	24 599	18 875	12 940	6 462	4 816	1 986	806	1 341	71 826
Non-teaching staff	6 747	4 989	4 461	2 533	1 805	780	327	349	21 990
Average size									
School size	824	849	921	820	781	645	757	782	835
Class size	12.4	11.8	12.9	12.4	11.8	12.7	19.7	6.4	12.3

(a) Secondary schools only, does not include primary/secondary combined schools or special schools.

(b) Out of school staff for government schools. Staff are not allocated to primary or secondary sector.

Note: Year 7 students in NSW, VIC, TAS and ACT are part of secondary schools. QLD, WA, SA and NT year 7 students are part of primary schools and are not included in this table. See Figure 1 for more detail.

Source: Productivity Commission, Report on Government Services 2008, Part B Education, Chapter 4 Schools Education. ABS, Schools Australia 2006.

Table 4 Government Secondary School Education, shares of indicators, 2006

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	%	%	%	%	%	%	%
Population aged 12 to 17	32.4	24.1	20.7	10.3	7.3	2.4	1.6	1.2
Schools	35.0	24.9	17.1	9.3	6.9	3.7	2.0	1.0
Full Time Enrolments								
All students	34.6	25.3	18.9	9.1	6.5	2.9	1.8	1.0
Indigenous	33.8	6.5	27.2	14.2	5.3	4.8	0.8	7.3
Staff (FTE)								
Out of school staff	20.7	14.3	21.5	17.6	12.0	5.0	3.8	5.0
Teaching staff	34.2	26.3	18.0	9.0	6.7	2.8	1.1	1.9
Non-teaching staff	30.7	22.7	20.3	11.5	8.2	3.5	1.5	1.6

Note: Year 7 students in NSW, VIC, TAS and ACT are part of secondary schools. QLD, WA, SA and NT year 7 students are part of primary schools and are not included in this table. See Figure 1 for more detail.

Source: Productivity Commission, Report on Government Services 2008, Part B Education, Chapter 4 Schools Education. ABS, Schools Australia 2006.

11 State's expense per capita are affected by:

- the structure of school education;

- efficiency of service delivery;
- the number of enrolments; and
- the number of students in special needs groups.

12 The Commission seeks measures of need that are not influenced by State policies.

Structure of school education

13 The structure of school education varies across States. States divide school education into compulsory and non-compulsory components based on age, not grade. School education is compulsory in all States for children between 6 and 14 years of age. Figure 1 shows the structure of school education across Australia.

Figure 1 Structure of primary and secondary schooling, 2006

<i>Level</i>	<i>NSW, Vic, Tas, ACT</i>	<i>Qld, WA, SA, NT^a</i>
Year 12	SECONDARY	SECONDARY
Year 11		
Year 10		
Year 9		
Year 8		
Year 7		
Year 6	PRIMARY	PRIMARY
Year 5		
Year 4		
Year 3		
Year 2		
Year 1		
Pre-year 1	Kindergarten (NSW, ACT) Preparatory (Vic, Tas)	Preparatory (Qld) ^b Pre-primary (WA) Reception (SA) ^c Transition (NT) ^d

- (a) In some places in the NT, secondary schooling begins at Year 7.
- (b) In QLD a preparatory year of schooling for pre-Year 1 (which will replace the part-time preschool program) is being progressively phased in prior to 2007 when a half cohort of students will commence to align with the change to the compulsory school starting age in 2008.
- (c) SA has an intake for each term.
- (d) The NT has an intake for terms 1 to 3 of its 4 terms.

Source: Productivity Commission, Report on Government Services 2008, Part B Education, Chapter 4 Schools Education, page 4.6.

14 A State’s decision on whether Year 7 is placed within primary or secondary schools and the school leaving age are examples of policy decisions that affect the cost of providing government secondary education services. The Commission’s calculations are based on the average structure of schooling.

- 15 At the beginning of August 2006, there were 1 056 government secondary schools in Australia. Queensland had the highest proportion of large secondary schools, those with 1 000 or more students, (34.3 per cent).¹
- 16 Settlement patterns and the age distribution of the population are examples of circumstances which affect the distribution of schools by size and level and which are beyond the control of an individual State government.

Efficiency of service delivery

- 17 A State may provide government secondary education services more or less efficiently than the average for all States. This is another policy decision that affects the cost of providing government secondary education services.

Number of enrolments

- 18 At the beginning of August 2006, there were 881 970 full time government secondary school enrolments in Australia.²
- 19 The proportion of children aged 12 to 17 in the total population and the proportion of those attending government secondary schools vary between the States. They are a further example of circumstances that affect the number of enrolments in government secondary schools and which are beyond the control of an individual State government. These differences are shown in Table 5.

Table 5 Proportion of population aged 12 to 17 and proportion of secondary students in government schools, 2006

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
Population	8.2	8.1	8.8	8.7	8.0	8.5	8.1	9.5	8.3
Govt. Students	62.4	59.4	63.4	60.1	61.3	68.6	55.6	69.4	61.6

Source: Productivity Commission, Report on Government Services 2008, Part B Education, Chapter 4 Schools Education. ABS, 2006 Census.

Number of students in special needs groups

- 20 Certain groups of students in school education have special needs. It costs more to provide services to these students. In its report, the Productivity Commission identified the following special needs groups³:
- Indigenous students;

¹ Productivity Commission, Report on Government Services 2008, Part B Education Chapter 4 Schools Education, tables 4A.1 and 4A.14.

² Productivity Commission, Report on Government Services 2008, Part B Education Chapter 4 Schools Education, table 4A.1.

³ Productivity Commission, Report on Government Services 2008, Part B Education Chapter 4 Schools Education, p. 4.9

- students from language backgrounds other than English (LBOTE);
 - students with disabilities;
 - geographically remote students; and
 - students from families of low socio-economic status.
- 21 The proportion of students in each special needs group is another example of circumstances that affect the cost of providing government secondary education services and which are beyond the control of an individual State government.

ASSESSING STATES' COSTS OF PROVIDING GOVERNMENT SECONDARY EDUCATION SERVICES

The equalisation task

- 22 The Commission aims to identify why it costs some States more to provide government secondary school education services. It uses this information to estimate what it would cost each State to provide government secondary school education services using the average policy and practice of all States. This estimate is called a State's *assessed expense*.
- 23 The process the Commission follows is twofold. First, it starts with the average expense that captures the average policies, efficiency and circumstances of all States. Second, it attempts to quantify how a State varies from the average in some underlying characteristic (for example, the proportion of its student population attending government schools) and what effect such a variation could have on its total expenses. Bringing them together shows how much a State could be expected to vary from the average, solely because of its innate characteristics. The resultant estimate is its assessed expense. This section discusses how the Commission identifies these characteristics, the following sections discuss how it measures them.
- 24 The Commission identifies the major disabilities that cause States to have different expenses per capita and estimates their financial impact on either:
- assessed service use; or
 - assessed unit costs.

Assessed service use

- 25 For government secondary education services, the disabilities which affect assessed service use are:
- the proportion of people of secondary school age;
 - the proportion of secondary students attending government schools;
 - the proportion of students in special needs groups. For example, Indigenous students, students with low English fluency and students who live in remote areas generally cost more per student than the general student population;

- the proportion of students who are in Years 11 and 12; and
- the number of students who are residents of New South Wales but attending ACT schools.

Assessed unit costs

26 For government secondary education services, the disabilities which affect assessed unit costs are:

- the small size of some schools. Small towns have small schools which incur diseconomies of small scale;
- the cost of geographically remote schools. Schools located in remote areas have higher costs associated with their remoteness (travel, freight, staff relocation etc);
- the cost of bringing supplies in from outside the State;
- the size of the education sector. There is a minimum cost associated with setting up a school education system; and
- the unit cost of inputs. States face differing costs in relation to the price of labour, accommodation consumables and electricity.

27 While some of these disabilities, such as the price of labour and electricity costs, may be partially affected by government policies, the Commission attempts to take account of only that part of the influence that is beyond the control of States.

OVERVIEW OF THE METHOD FOR DETERMINING ASSESSED EXPENSES

28 The box below provides a brief step by step overview of the framework the Commission uses to determine each States' assessed expenses for government secondary education.

Box 2: Assessment framework

Step 1: Derive the average expense per capita

This is done by dividing the total expenses incurred by all States by total State population. This figure captures the average financial impact of the policies, practices and particular State circumstances that impact on the cost of delivering the service across the nation.

Step 2: Identify different types of expenses

The Commission examines the service to determine whether parts of the total expense are affected by different disabilities. If the differences are material, the expense is divided into component parts to ensure that the various disabilities are accurately matched with the expenses they affect. The different expense types identified are referred to as components. To identify components, the Commission analyses information and data on the nature of the service (that is, what States do and how they do it), States' policies concerning the service and submissions. The proportion of total expense attributable to a particular component is referred to as the component weight. The Commission uses GFS data, State public accounts, annual reports and other data to estimate these proportions.

Step 3: Identify the disabilities for each component

The Commission identifies the disabilities that affect each component and the extent to which they are beyond the control of States. To identify disabilities, the Commission analyses information and data on the nature of the service (that is, what States do and how they do it), States' policies concerning the service, submissions and other publications.

Step 4: Measure the size of each influence

The Commission estimates the relative financial impact of each influence on each State's cost of providing the service, but only to the extent it is beyond the control of States. The relative impact is measured by relating the State's experience to the average experience. The relative impacts are presented as factors. A factor measures the percentage increase (or decrease) that the influence has on a State's cost of providing the service. There is at least one factor assessment for each component. In most cases there is more than one.

Step 5: Derive component factors

The factors calculated for each cost component are combined together to derive a component factor. If the Commission considers that one factor compounds with another, it multiplies them. If the Commission considers that two factors are independent of one another, it adds them.

Step 6: Derive category factors

The component factors are weighted to reflect the importance of the component in the category. This is done by multiplying each component factor by its component weight. The category factor is calculated by adding the weighted component factors together. The category factor represents the Commission's estimate of the combined financial impact of all the disabilities on a State's cost of providing the service.

Step 7: Derive assessed expense per capita

Each State's assessed expense per capita is calculated by applying its category factor to the average expense per capita. A State's assessed expense per capita is the Commission's estimate of how much it would cost the State (per capita) to provide the average level of service.

The difference between a State's assessed expense per capita and the average expense per capita is a measure of the financial impact of circumstances beyond its control. The difference between its assessed expense per capita and its actual expense per capita is a measure of the financial impact of circumstances within its control.

DERIVING COMPONENTS AND COMPONENT WEIGHTS

- 29 The Commission examines the service to decide whether parts of the total expense are affected by different disabilities. If the differences are material, the expense is divided into component parts to ensure that the various disabilities are accurately matched with the expenses they affect. The different expense types identified are referred to as *components*. The proportion of total expense attributable to a particular component is referred to as the *component weight*.
- 30 The Commission identified three components for government secondary education and calculated the proportion of expenses that each cost component contributed to total government secondary education costs. The components and component weights are presented in Table 6.

Table 6 Components and component weights, 2006-07

	\$m	%
Fixed Costs	35.855	0.38
Isolation	11.646	0.12
Schools	9 283.534	99.49
Total	9 331.035	100.00

Source: CGC Assessment System

- 31 The component weights for fixed costs and isolation were calculated directly. For 2006-07, fixed costs were calculated at \$35.9 million and isolation costs at \$11.6 million.⁴ The corresponding component weights are calculated by dividing these amounts by total category expenses. The schools component weight was calculated as the residual amount.
- 32 The Commission identifies the disabilities affecting each component. They are, in the Commission’s assessment, the reasons why States spend more (or less) than the average expense per capita to provide the average level of service. The Commission presents these disabilities as factors.

Box 3: Commission factors

A factor is the Commission’s estimate of the relative financial impact a particular influence has on a State’s cost of providing a service. Factors are only calculated for the part of the influence that is beyond the control of States.

A factor value of 1 means the Commission considers the State could provide the average level of service by spending the average expense per capita. A factor value of more than 1 means the Commission considers the State will have to spend more than the average expense per capita to provide the average level of service. A factor value of less than 1 means the Commission considers the State can provide the average level of service by spending less than the average expense per capita.

- 33 Table 7 lists each component and associated factors for government secondary education services.
- 34 An explanation of the reasoning behind each factor assessment in the Government Secondary School Education category and the method of assessment is presented below.

DERIVING THE FIXED COST COMPONENT FACTOR

- 35 The Commission considers the amount of fixed costs required to be spent by each State is influenced by administrative scale and differences in the price of labour, accommodation and electricity.

⁴ The Administrative Scale and Isolation sections of Volume 4 of these working papers describe how the Commission determines the size of the administrative scale and isolation costs.

Administrative scale factor

36 The administrative scale factor is assessed to recognise the unavoidable cost each State incurs to provide central administrative services to plan, regulate, and subsidise education services, regardless of the size of its population. Each State is assessed to require a similar level of administration.

Table 7 Components and factors, 2008 Update

Component	Component weight	Factors	Influence measured by factor
Fixed costs	0.38%	Administrative scale	Recognises the unavoidable costs each State incurred to provide the policy and administrative infrastructure necessary to provide the minimum unavoidable service, regardless of the size of the task.
		Fixed costs input costs	Recognises the differences between States in the prices of head office labour, accommodation, and electricity used in providing services.
Schools	99.49%	Socio-demographic composition	Recognises the differences between States in the proportion of their population attending government secondary schools. Cost weights are applied to recognise the higher costs of providing services to students with particular characteristics (for example, Indigeneity, low socio-economic status, low English fluency, living in geographically remote locations).
		Service delivery scale	Recognises that additional costs are incurred by schools in small urban centres and in the provision of distance education services.
		Schools input costs	Recognises the differences between States in the prices of labour, accommodation, and electricity used in providing services.
		Grade cost	Recognises the additional costs of providing services to students in Years 11 and 12. Students in Years 11 and 12 were cost weighted by 1.2.
		Cross-border	Recognises the ACT's provision of services to students who are New South Wales residents.
		Dispersion	Recognises the differences in per capita costs of service provision associated with the spread of population.
		Input costs	Assessed by the general method with a weighting of 70% for the price of labour, 2% for accommodation and 0.5% for electricity.
Isolation	0.12%	Isolation	Recognises the additional costs incurred by the States, attributable to the distance of the State from other State capitals and sources of supply.

37 The disabilities for administrative scale factors are assessed by a common method. The method is discussed in Volume 2 of the 2004 Review working papers under the section for common factors.

- 38 For 2006-07, the levels of unavoidable fixed cost assessed for this category is \$4.445 million for each State. Another \$0.298 million is assessed for the Northern Territory because its high proportion of indigenous students necessitates dual planning and administrative structures. For this category, the ACT is assessed to have the same assessed difference (needs) as the six States.
- 39 Table 8 shows the amount assessed for each State and the per capita equivalent. It also shows the administrative scale factor that is calculated by dividing each States' per capita amount by the average per capita amount.

Table 8 Government Secondary School Education, calculation of administrative scale factor, 2006-07

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Fixed cost amount	\$m	4.445	4.445	4.445	4.445	4.445	4.445	4.445	4.445	35.557
Dual policy amount	\$m	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.298	0.298
Fixed costs	\$m	4.445	4.445	4.445	4.445	4.445	4.445	4.445	4.742	35.855
Population	m	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
Fixed costs per capita	\$pc	0.65	0.86	1.07	2.13	2.82	9.04	13.20	22.29	1.72
Factor		0.37715	0.50037	0.62523	1.24190	1.64000	5.25924	7.67972	12.96474	1.00000

Source: CGC Assessment System

- 40 The administrative scale factor is revised annually by adjusting the unavoidable fixed cost to reflect changes in the labour price (80 per cent weight) and consumer price index (20 per cent weight).

Fixed costs input costs factor

- 41 The input costs factor is assessed to recognise interstate differences, beyond the control of States, in the price of labour, accommodation and electricity used in providing administrative services.
- 42 The disabilities for the input costs factors are assessed by a common method. The method is discussed in Volume 2 of the 2004 Review working papers under the section for common factors.
- 43 The input costs factor depends on the proportion of fixed costs expenses deemed to relate to the price of labour, accommodation expenses and electricity expenses. For this component, these are 80% for the price of labour, 2% for accommodations and 0.5% for electricity. Table 9 shows:
- the price differentials for labour (wages), accommodation and electricity assessed by the Commission. For example, the average price of labour in New South Wales is, for reasons beyond its control, 3.0 per cent higher than average;
 - the proportion of fixed costs expenses which relate to the price of labour, accommodation and electricity expenses;

- a total price differential — obtained by weighting each price differential by the proportion of the fixed costs expenses it influences; and
- the 2006-07 fixed costs input costs factor — which is one plus the total price differential.

Table 9 Derivation of fixed costs input costs factor, 2006-07

	Prop'n	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	%	%	%	%	%	%	%	%
Wages	80.0	3.0	-0.5	-2.7	-1.4	-2.2	-4.1	2.5	2.5
Accommodation	2.0	5.0	-19.6	29.4	13.2	-34.2	-41.6	-1.1	-35.8
Electricity	0.5	-1.9	-1.9	-1.9	13.6	2.6	-40.3	-1.9	90.1
Balance of expenses	17.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total price ^(a)	100.0	2.5	-0.8	-1.6	-0.8	-2.4	-4.3	1.9	1.8
Factor		1.02528	0.99212	0.98387	0.99199	0.97579	0.95664	1.01939	1.01769

Source: CGC Assessment System

(a) May not add due to rounding.

Box 4: Weighting factors

The Commission weights a factor when it is to be applied to all of a component expense but it only affects part of that expense.

As an example, the fixed costs input costs factor is to be applied to all of the administrative scale expenses, but it only affects the the price of labour (80 per cent), accommodation (2 per cent) and electricity (1/2 per cent) parts of these expenses. So, the Commission weights each subfactor according to the share of expenses it affects.

The formula is:

$$\text{Weighted factor} = \sum_i \text{Weight}_i * \text{subfactor}_i + (100\% - \sum_i \text{Weight}_i) * \text{EPC factor}$$

Where: i = the number of subfactors. For example, labour, accommodation and electricity
 Weight_i = the share of expenses affected by the relevant subfactor

$(100\% - \sum_i \text{Weight}_i)$ = the share of expenses not affected by any of the subfactors.

For the fixed costs input costs factor, the formula is:

$$\text{Weighted factor} = 80\% * \text{labour subfactor} + 2\% * \text{accommodation subfactor} + 0.5\% * \text{electricity subfactor} + 17.5\% * \text{EPC factor}$$

Weighting factors according to the proportion of expenses they affect is important. Weighting factors allows the Commission to combine them. After weighting, a percentage increase in one factor has the same impact on expenses as the same percentage increase in any other factor.

- 44 The input cost factor is revised annually to allow for changes in the prices of labour, accommodation and electricity.

Fixed costs component factor

- 45 The fixed costs component factor is calculated using the formula:

$$\text{Fixed costs component factor} = [\text{administrative scale} * \text{fixed costs input costs}]$$

- 46 The Commission combines these factors multiplicatively because it recognises that States will vary around their administrative scale assessment due to differences in the assessed unit cost. For example, Table 9 shows price differences added 2.5 per cent to New South Wales costs, so it would cost New South Wales 2.5 per cent more than its administrative scale assessment (\$4.45 million) to finance the minimum structures required to provide State services.
- 47 Table 10 shows the derivation of the component factor. It shows that it is the same as a component factor obtained by multiplying the administrative scale and fixed costs input costs factor.
- 48 The component factor is calculated by:
- estimating the impact of differences in the assessed unit cost between States on the fixed costs assessed in Table 8;
 - adding this impact to States' fixed costs;
 - dividing each State's total fixed costs by its population; and
 - calculating the component factor by dividing each States' per capita figure by the average per capita figure.

Table 10 Government Secondary School Education, calculation of fixed costs component factor, 2006-07

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Fixed costs amount (from Table 8)										
Amount	\$m	4.445	4.445	4.445	4.445	4.445	4.445	4.445	4.742	35.855
B. Differences in price of inputs (from Table 9)										
Difference	%	2.5	-0.8	-1.6	-0.8	-2.4	-4.3	1.9	1.8	0.0
C. Impact of price differences (A * B)										
Amount	\$m	0.112	-0.035	-0.072	-0.036	-0.108	-0.193	0.086	0.084	0.000
D. Total fixed costs (A + C)										
Amount	\$m	4.557	4.410	4.373	4.409	4.337	4.252	4.531	4.826	35.855
Population	m	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
E. Total fixed costs per capita										
Expenses per capita	\$pc	0.66	0.85	1.06	2.12	2.75	8.65	13.46	22.68	1.72
F. Factor (E / E _{Aust})										
Factor		0.38669	0.49643	0.61514	1.23195	1.60029	5.03121	7.82864	13.19405	1.00000

Source: CGC Assessment System

Note The component factor shown here is the component factor after it has been scaled to ensure total assessed expenses equals average expenses (see Box 7). The component factor shown in Table 36 is the component factor prior to scaling.

DERIVING THE SCHOOLS COMPONENT FACTOR

- 49 The Commission considers each States' level of schools costs to be influenced by the number of people attending its government secondary schools and differences in:
- the costs of providing services to particular groups of students (including Years 11 and 12);
 - the price of labour, accommodation and electricity;
 - the costs associated with the geographical dispersion of a State's population;
 - the costs of providing small schools in sparsely populated areas; and
 - the cost to the ACT of providing services to students who are New South Wales residents.

Socio-demographic composition factor

- 50 With the availability of 2006 Census data, these have now been included in the calculation of this factor for the years 2004 05 through 2006 07, while 2001 Census data have continued to be used in the calculations for the earlier assessment years.
- 51 A socio-demographic composition (SDC) factor is assessed to take account of State differences in:
- the use of services. The use of services is measured by adjusting actual enrolments to remove the influence of State policies; and
 - the unit cost of providing services to students in special needs groups. The special needs groups are Indigenous students, Indigenous students living in remote areas, students from a low socio-economic background, students with low English fluency and students who are Humanitarian Refugees.

Adjusting ABS enrolment data

- 52 The ABS's definition of secondary school enrolments differs from the Commission's definition. An adjustment is made to ABS actual enrolment data for the Northern Territory. The ABS classifies Northern Territory students in the former 'mission schools' as non-government students. The Commission classifies them as government students because they are fully funded by the Northern Territory Government.

Use of services

- 53 The compulsory years of schooling are assumed to be 6 to 14. Since all States apply a common policy of compulsory schooling for children in this age range, actual enrolments can be used as the measure of use.
- 54 This is not the case with the non-compulsory years of schooling. Actual enrolments in these years are influenced by State policies. The Commission adjusts the actual enrolments to reflect average policy. The State policies operating in this area are:

- the structure of schooling; and
- retention policies to keep students at school after the compulsory years of schooling.

55 A separate adjustment is made for children aged 15 and over from diplomatic families. This adjustment ensures that their use of services is attributed to the ACT.

Box 5: Socio-demographic composition factor

Step 1: Adjust ABS actual enrolments to make them comparable for funding purposes

The number of enrolments for each State is obtained from the ABS. The enrolments are adjusted to obtain comparable numbers of government secondary school enrolments that each State must fund.

Step 2: Remove the influence of State policies on the structure of schooling

State policies on the placement of Year 7 in the primary or secondary sector affect the actual enrolments of Year 7 students in secondary education. Replace actual Year 7 enrolments with notional Year 7 enrolments to reflect the average policy on the placement of Year 7.

Step 3: Add in diplomatic children aged 15 and over

The ACT provides secondary education services to children aged 15 and over from diplomatic families. Children aged 15 and over from diplomatic families are not included in the assessment step above because overseas diplomats are not included in the Census data used to calculate notional enrolments in Step 2. This ensures the cost associated with the provision of services to these students remains with the ACT.

Step 4: Remove the influence of State retention policies

State policies on the age at which children can leave schooling and their policies aimed at keeping students in school after the compulsory ages of schooling affect the actual post compulsory age enrolments. Replace actual enrolments aged 15 and over with notional enrolments aged 15 and over to remove the influence of State policies.

Step 5: Allow for the additional costs of providing services to particular student groups

It costs more to provide schooling to some students. The Commission takes into account the additional costs of providing schooling to Indigenous students, students from low socio-economic backgrounds, students living in geographically remote areas, students with low fluency in English, students who are Humanitarian Refugees and the costs of vandalism in very large urban areas.

56 *The structure of schooling.* Actual enrolments in secondary schools are affected by whether States place Year 7 in their primary sector or their secondary sector. The Commission applies the average policy by assuming each State has the average proportion of Year 7 students in its secondary schools. It did this by:

- calculating the average proportion of Year 7 students in secondary schools;
- estimating each State's notional Year 7 students in secondary schools by applying the average proportion to its actual number of Year 7 students; and
- apportioning each State's Year 7 enrolments between the government and non-government sectors using each State's actual proportion of Year 8 students in government schools⁵.

⁵ The Year 8 proportions are used in preference to the Year 7 proportions. The Commission accepts that a major decision point for parents in the choice between government and non-government education occurs when the child is about to commence secondary school. The Commission accepts the actual proportion of Year 7 enrolments in government schools is affected by the placement of Year 7 within the school structure.

57 This calculation for 2006-07 is shown in Table 11. The adjustment:

- increases the secondary school enrolments for States which place Year 7 in primary schools, because it replaces their nil actual enrolments with a notional enrolment; and
- reduces the secondary school enrolments for States that place Year 7 in secondary schools, because it replaces their actual enrolments with a lower notional enrolment.

Table 11 Calculation of adjustment for school structure, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Actual enrolments Year 7									
(i) Primary									
Government	0	0	41 229	20 048	12 976	0	0	2 285	76 537
Non-government	0	0	16 180	8 539	6 591	0	0	685	31 993
(ii) Secondary									
A. Government	54 711	39 254	0	0	0	4 646	2 510	0	101 121
B. Non-government	33 175	27 224	0	0	0	2 193	2 378	0	64 969
C. Total	87 886	66 478	57 408	28 586	19 567	6 839	4 888	2 969	274 619
D. Average proportion of enrolments in secondary schools $(A_{Aust}+B_{Aust})/C_{Aust}$									60.5%
E. Notional Year 7 enrolments in secondary schools (C*D)									
Number	53 153	40 206	34 720	17 289	11 834	4 136	2 956	1 796	166 089
Actual Year 8 enrolments									
F. Government	55 068	39 767	36 843	17 038	11 957	4 672	2 492	1 977	169 812
Non-Government	32 809	26 897	20 855	11 858	7 572	2 171	2 359	937	105 456
G. Total	87 877	66 663	57 698	28 895	19 529	6 842	4 851	2 914	275 268
H. Proportion of of Year 8 enrolments in government sector (F/G)									
Proportion	62.7%	59.7%	63.9%	59.0%	61.2%	68.3%	51.4%	67.9%	61.7%
I. Apportion notional Year 7 enrolments between sectors (E*H)									
Government	33 308	23 984	22 171	10 194	7 246	2 824	1 518	1 218	102 463
Non-Government	19 845	16 222	12 550	7 095	4 588	1 312	1 437	577	63 626
Total	53 153	40 206	34 720	17 289	11 834	4 136	2 956	1 796	166 089
J Difference between notional and actual enrolments (I-A)									
Government	- 21 403	- 15 270	22 171	10 194	7 246	- 1 822	- 991	1 218	1 343
Non-Government	- 13 330	- 11 002	12 550	7 095	4 588	- 880	- 941	577	- 1 343
Total	- 34 732	- 26 272	34 720	17 289	11 834	- 2 703	- 1 932	1 796	0

- 58 ***Diplomatic children in non-compulsory years of schooling.*** Children aged 15 and over from diplomatic families use secondary schools in the ACT. This adjustment ensures their use of secondary education services is attributed to the ACT.
- 59 For the ACT, the actual number of diplomatic children aged 15 and over is added to its notional enrolment figures for both government and non-government⁶ schools. The 2006-07 numbers are 83 for government secondary schools and 58 for non-government secondary schools.
- 60 ***Retention policies.*** Actual enrolments aged 15 and over are influenced by State policies (for example, the compulsory ages of schooling, the earliest age at which a student can leave school and policies aimed at attracting students to stay and complete Year 12). To identify the average policy, the Commission undertook research into the influence State non-policy and policy variables had on school attendance. The non-policy variables included: family income; educational achievement of parents; ethnicity; Indigeniety; remoteness; full-time employment and the school sector. The policy variables included: secondary colleges, VET-in-schools, outside VET and the proportion of part-time students.
- 61 A regression model was used to investigate the effects of each variable on the rate of participation in post-compulsory schooling for two age groups, 15 to 17 years old and 18 to 20 years old. The investigation found that there were considerable differences in the behaviour of both groups. The model showed that the participation rates of 15 to 17 year olds were more influenced by the non-policy variables, whereas the participation rates of 18 to 20 year olds were more influenced by policy variables.
- 62 The model was used to predict the number of students attending school in each age group. The combined number was the Commission's estimate of the number of 15 to 20 year old students who would attend secondary school if each State followed the average policy.
- 63 The Commission applies the average policy by:
- estimating each State's notional enrolments aged 15 years and over. The total number of notional enrolments aged 15 and over were distributed across States based on their shares of the predicted number of students; and
 - apportioning each States' notional number of enrolments aged 15 and over between its government and non-government schools according to each State's actual proportion of students aged 15 years and over in government schools.
- 64 This calculation for 2006-07 is shown in Table 12.

⁶ Children aged 15 and over from diplomatic families use secondary schools in the ACT. To ensure their use of these services is attributed to the ACT, they are not included in the enrolment or population data used to standardise enrolments for children aged 15 and over. They are added to the ACT's assessed enrolment figures. This adjustment attributes their use of services to the ACT.

Table 12 Calculation of notional enrolment for post compulsory age students, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Actual enrolments 15 and over									
A. Government	146 819	117 363	82 556	38 462	33 714	13 388	8 856	5 043	446 199
B. Non-government	92 711	82 390	50 203	26 205	21 715	6 052	6 227	1 675	287 177
C. Total	239 529	199 753	132 758	64 667	55 429	19 440	15 083	6 718	733 377
D. Percentage of student 15 years and over in government schools (A / C)									
D. Percentage	61.3%	58.8%	62.2%	59.5%	60.8%	68.9%	58.7%	75.1%	60.8%
Predicted number of post compulsory students in government and non-government schools									
E. Number	239 970	178 458	133 531	72 486	55 083	17 299	13 703	6 395	716 925
F. Proportion	33.5%	24.9%	18.6%	10.1%	7.7%	2.4%	1.9%	0.9%	100.0%
Assessed enrolment 15 and over govt and non-govt ($F_{State} * C_{Aust}$)									
G. Number	245 477	182 553	136 596	74 149	56 347	17 696	14 017	6 542	733 377
H. Apportion notional enrolments between sectors (D * G)									
Government	150 464	107 257	84 942	44 102	34 272	12 187	8 230	4 911	446 365
Non-government	95 013	75 296	51 654	30 048	22 075	5 509	5 787	1 631	287 012
Total	245 477	182 553	136 596	74 149	56 347	17 696	14 017	6 542	733 377
Difference between notional and actual enrolments (G - A)									
Government	3 646	- 10 106	2 386	5 640	559	- 1 201	- 626	- 132	166
Non-government	2 302	- 7 094	1 451	3 843	360	- 543	- 440	- 44	- 166
Total	5 948	- 17 200	3 838	9 482	918	- 1 744	- 1 066	- 176	0

Source: CGC Assessment System

65 Table 13 below summarises the changes made to actual enrolments for each policy influence for 2005-06. The notional enrolment figures in this table are actual enrolments adjusted to remove the effects of:

- differences in definition, placing enrolments on a comparable basis; and
- differences in State policies.

Table 13 Government Secondary School Education, actual and notional enrolments, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Actual enrolments									
Year 7	54 711	39 254	0	0	0	4 646	2 510	0	101 121
Compulsory years of schooling	103 951	67 246	85 871	41 330	23 562	7 072	4 387	3 939	337 355
Diplomatic students 15 and over	0	0	0	0	0	0	83	0	83
Age 15 and over	146 819	117 363	82 556	38 462	33 714	13 388	8 856	5 043	446 199
Total	305 480	223 863	168 426	79 792	57 275	25 106	15 835	8 982	884 758
B. Notional enrolments									
Year 7	33 308	23 984	22 171	10 194	7 246	2 824	1 518	1 218	102 463
Compulsory years of schooling	103 951	67 246	85 871	41 330	23 562	7 072	4 387	3 939	337 355
Diplomatic students 15 and over	0	0	0	0	0	0	83	0	83
Age 15 and over	150 464	107 257	84 942	44 102	34 272	12 187	8 230	4 911	446 365
Total	287 723	198 487	192 983	95 625	65 079	22 082	14 218	10 068	886 266
C. Differences (B - A)									
Year 7	-21 403	-15 270	22 171	10 194	7 246	-1 822	- 991	1 218	1 343
Compulsory years of schooling	0	0	0	0	0	0	0	0	0
Diplomatic students 15 and over	0	0	0	0	0	0	0	0	0
Age 15 and over	3 646	-10 106	2 386	5 640	559	-1 201	- 626	- 132	166
Total	-17 757	-25 376	24 557	15 834	7 804	-3 023	-1 617	1 086	1 508

Source: CGC Assessment System

66 Table 14 and Table 15 show actual and notional government secondary enrolments for the 2008 Update.

Table 14 Government Secondary School Education, actual enrolments, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2002-03	304 622	217 725	157 475	81 092	57 681	25 130	16 324	8 388	868 435
2003-04	304 473	219 474	160 275	79 992	57 357	24 975	16 164	8 621	871 328
2004-05	303 904	220 978	162 560	79 376	57 111	25 020	16 000	8 877	873 823
2005-06	304 415	222 614	165 193	79 766	57 086	25 220	15 930	9 005	879 228
2006-07	305 480	223 863	168 426	79 792	57 275	25 106	15 835	8 982	884 758

Table 15 Government Secondary School Education, notional enrolments, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2002-03	284 824	194 533	182 501	96 873	66 236	21 949	14 270	9 620	870 806
2003-04	284 902	195 099	185 716	95 878	65 705	21 915	14 311	9 867	873 394
2004-05	284 452	196 349	188 159	95 047	65 254	21 960	14 232	9 998	875 452
2005-06	285 651	197 534	190 640	95 370	65 087	22 091	14 223	10 076	880 672
2006-07	287 723	198 487	192 983	95 625	65 079	22 082	14 218	10 068	886 266

Unit cost of supplying services

67 Certain groups of students in school education have special needs. It costs more to provide schooling to these students. The Commission takes into account the additional costs of providing schooling to:

- Indigenous students;
- Indigenous students living in geographically remote areas;
- students from families with low socio-economic backgrounds;
- students with low fluency in English; and
- students who are Humanitarian Refugees.

68 The Commission also takes into account the additional costs arising from urban influences due to vandalism of schools in very large urban centres.

69 The Commission measures this influence in two steps. The first deals with students who are in special needs groups other than those who are Humanitarian Refugees, the second deals with students who are Humanitarian Refugees.

70 ***Students other than Humanitarian Refugees.*** The Commission developed cost weights to recognise the additional average cost of providing services to students in special needs groups. The costs weights were derived from State information on the extra resources devoted to particular groups of students. States provided this information in response to the Commission's special data collections, in submissions and through workplace discussions. Table 16 shows the cost weights assessed by the Commission.

- 71 The cost weights imply, for example, that an Indigenous student living in a remote area with low socio-demographic status and low fluency in English costs 1.7 times the cost of a non-Indigenous student living in a non-remote area who does not have low socio-demographic status and is fluent in English.

Table 16 Socio-demographic composition cost weights for Government Secondary School Education, 2008 Update

	Low English Fluency	Fluent in English
Indigenous persons - remote		
Low socio-demographic status	1.70	1.50
Other	1.45	1.30
Indigenous persons - non-remote		
Low socio-demographic status	1.35	1.25
Other	1.20	1.10
Non-Indigenous persons - remote		
Low socio-demographic status	1.25	1.15
Other	1.10	1.00

Source: 2004 Review working papers, volume 4, Table 12, p68.

- 72 The urban influences cost weights are 1 per cent for Sydney and Melbourne, ½ per cent for Brisbane, Perth and Adelaide and 0 per cent for all other areas.
- 73 The Commission calculates the additional cost of supplying services to particular students by:
- apportioning the notional enrolments from Table 15 into 20 groups⁷;
 - applying a cost weight to the notional enrolments in each group; and
 - totalling the cost weighted enrolments by aggregating across groups.

⁷ The Commission separates enrolments into groups. The number of groups is dependent on the number of characteristics of interest to the Commission. In this assessment there were 20 groups: 2 Indigenous x 2 socio-demographic composition x 2 English proficiency x 2 location plus an additional 4 remote Indigenous groups.

Table 17 Proportion of persons by characteristic, 2006 Census

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Indigenous persons								
(a) major metro								
High socio-demographic and fluent	0.5	0.2	0.9	1.1	0.7	0.0	0.0	0.0
High socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low socio-demographic and fluent	0.6	0.2	0.7	1.2	1.0	0.0	0.0	0.0
Low socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
(a) non-remote								
High socio-demographic and fluent	1.5	0.3	2.3	1.1	0.5	3.7	1.2	6.2
High socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low socio-demographic and fluent	1.5	0.4	1.9	1.3	0.7	2.9	1.0	6.6
Low socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(c) remote								
High socio-demographic and fluent	0.1	0.0	0.7	1.0	0.2	0.1	0.0	10.0
High socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Low socio-demographic and fluent	0.2	0.0	0.5	1.1	0.1	0.1	0.0	11.2
Low socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Non-Indigenous persons								
(a) non-remote								
High socio-demographic and fluent	65.7	68.9	64.8	63.3	63.0	61.8	76.4	40.4
High socio-demographic and low fluency	0.4	0.4	0.2	0.4	0.3	0.1	0.5	0.1
Low socio-demographic and fluent	27.6	28.9	25.3	24.4	29.5	30.6	20.3	12.1
Low socio-demographic and low fluency	0.5	0.5	0.2	0.3	0.6	0.3	0.6	0.2
(b) remote								
High socio-demographic and fluent	0.9	0.1	1.7	3.5	2.1	0.3	0.0	8.2
High socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low socio-demographic and fluent	0.5	0.1	0.8	1.2	0.9	0.1	0.0	2.2
Low socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: CGC Assessment System

Table 18 Apportioned notional enrolments using 2006 Census data, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Indigenous persons								
(a) major metro								
High socio-demographic and fluent	0.5	0.2	0.9	1.1	0.7	0.0	0.0	0.0
High socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low socio-demographic and fluent	0.6	0.2	0.7	1.2	1.0	0.0	0.0	0.0
Low socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
(a) non-remote								
High socio-demographic and fluent	1.5	0.3	2.3	1.1	0.5	3.7	1.2	6.2
High socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low socio-demographic and fluent	1.5	0.4	1.9	1.3	0.7	2.9	1.0	6.6
Low socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(c) remote								
High socio-demographic and fluent	0.1	0.0	0.7	1.0	0.2	0.1	0.0	10.0
High socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
Low socio-demographic and fluent	0.2	0.0	0.5	1.1	0.1	0.1	0.0	11.2
Low socio-demographic and low fluency	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Non-Indigenous persons								
(a) Major Metro								
High socio-demographic and fluent	33.1	42.8	26.5	41.3	39.9	0.0	0.0	0.0
High socio-demographic and low fluency	0.4	0.3	0.1	0.3	0.3	0.0	0.0	0.0
Low socio-demographic and fluent	13.4	17.6	9.6	14.5	19.4	0.0	0.0	0.0
Low socio-demographic and low fluency	0.5	0.5	0.2	0.3	0.6	0.0	0.0	0.0
(b) remainder								
High socio-demographic and fluent	33.4	26.2	40.0	25.4	25.3	62.1	76.4	48.7
High socio-demographic and low fluency	0.0	0.0	0.1	0.1	0.0	0.1	0.5	0.2
Low socio-demographic and fluent	14.7	11.4	16.4	11.1	11.0	30.7	20.3	14.3
Low socio-demographic and low fluency	0.0	0.0	0.1	0.0	0.0	0.3	0.6	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: CGC Assessment System

Table 19 Cost weights by characteristic, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Indigenous persons								
(a) major metropolitan								
High socio-demographic and fluent	1.1100	1.1100	1.1050	1.1050	1.1050	1.1000	1.1000	1.1000
High socio-demographic and low fluency	1.2100	1.2100	1.2050	1.2050	1.2050	1.2000	1.2000	1.2000
Low socio-demographic and fluent	1.2600	1.2600	1.2550	1.2550	1.2550	1.2500	1.2500	1.2500
Low socio-demographic and low fluency	1.3600	1.3600	1.3550	1.3550	1.3550	1.3500	1.3500	1.3500
(b) non-remote								
High socio-demographic and fluent	1.1000	1.1000	1.1000	1.1000	1.1000	1.1000	1.1000	1.1000
High socio-demographic and low fluency	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000	1.2000
Low socio-demographic and fluent	1.2500	1.2500	1.2500	1.2500	1.2500	1.2500	1.2500	1.2500
Low socio-demographic and low fluency	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500
(c) remote								
High socio-demographic and fluent	1.3000	1.3000	1.3000	1.3000	1.3000	1.3000	1.3000	1.3000
High socio-demographic and low fluency	1.4500	1.4500	1.4500	1.4500	1.4500	1.4500	1.4500	1.4500
Low socio-demographic and fluent	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000	1.5000
Low socio-demographic and low fluency	1.7000	1.7000	1.7000	1.7000	1.7000	1.7000	1.7000	1.7000
Non-Indigenous persons								
(a) major metropolitan								
High socio-demographic and fluent	1.0100	1.0100	1.0050	1.0050	1.0050	1.0000	1.0000	1.0000
High socio-demographic and low fluency	1.1100	1.1100	1.1050	1.1050	1.1050	1.1000	1.1000	1.1000
Low socio-demographic and fluent	1.1600	1.1600	1.1550	1.1550	1.1550	1.1500	1.1500	1.1500
Low socio-demographic and low fluency	1.2600	1.2600	1.2550	1.2550	1.2550	1.2500	1.2500	1.2500
(b) rest of State								
High socio-demographic and fluent	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
High socio-demographic and low fluency	1.1000	1.1000	1.1000	1.1000	1.1000	1.1000	1.1000	1.1000
Low socio-demographic and fluent	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500	1.1500
Low socio-demographic and low fluency	1.2500	1.2500	1.2500	1.2500	1.2500	1.2500	1.2500	1.2500

Source: CGC Assessment System

Table 20 Cost weighted notional enrolments, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Indigenous persons								
(a) major metropolitan								
High socio-demographic and fluent	1 691	538	1 986	1 213	520	0	0	0
High socio-demographic and low fluency	0	0	0	0	17	0	0	0
Low socio-demographic and fluent	2 189	573	1 632	1 412	816	0	0	0
Low socio-demographic and low fluency	0	0	9	0	49	0	0	0
(b) non-remote								
High socio-demographic and fluent	4 697	738	4 801	1 200	381	900	192	681
High socio-demographic and low fluency	0	0	4	0	0	0	0	0
Low socio-demographic and fluent	5 572	927	4 663	1 560	581	814	179	830
Low socio-demographic and low fluency	22	0	31	0	0	4	0	5
(c) remote								
High socio-demographic and fluent	455	0	1 679	1 231	178	16	0	1 311
High socio-demographic and low fluency	0	0	31	0	11	0	0	166
Low socio-demographic and fluent	684	3	1 342	1 577	137	20	0	1 690
Low socio-demographic and low fluency	0	0	39	42	16	0	0	244
Non-Indigenous persons								
(a) major metropolitan								
High socio-demographic and fluent	96 207	85 803	51 431	39 709	26 113	0	0	0
High socio-demographic and low fluency	1 228	748	292	333	184	0	0	0
Low socio-demographic and fluent	44 715	40 447	21 433	16 044	14 602	0	0	0
Low socio-demographic and low fluency	1 722	1 261	399	405	491	0	0	0
(b) rest of State								
High socio-demographic and fluent	96 200	51 950	77 216	24 301	16 438	13 722	10 861	4 902
High socio-demographic and low fluency	129	72	125	65	25	21	73	19
Low socio-demographic and fluent	48 536	25 920	36 497	12 252	8 267	7 798	3 325	1 655
Low socio-demographic and low fluency	143	102	184	0	26	78	101	38
Total	304 191	209 083	203 794	101 344	68 850	23 373	14 731	11 541

Source: CGC Assessment System

- 74 The notional enrolment figures at the bottom of this table are actual enrolments adjusted to:
- remove the effects of differences in definition, placing enrolments on a comparable basis;
 - remove the effects of differences in State policies; and
 - allow for the cost of providing services to particular student groups (excluding students who are Humanitarian Refugees).
- 75 Table 21 calculates each State's share of the 2006-07 notional enrolments. As diplomats and their children are not included in Census data, they are not part of the cost weighting process. Children from diplomatic families are added separately.

Table 21 States' shares of notional enrolments, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Notional enrolments									
Enrolments	304 191	209 083	203 794	101 344	68 850	23 373	14 731	11 541	936 906
B. Students from diplomatic families (aged 15 years and over)									
Enrolments ^(a)	0	0	0	0	0	0	18	0	18
C. Total Notional enrolments (A + B)									
Enrolments	304 191	209 083	203 794	101 344	68 850	23 373	14 749	11 541	936 924
State share (C / C _{Aust})	32.5	22.3	21.8	10.8	7.3	2.5	1.6	1.2	100.0

Source: CGC Assessment System and Department of Foreign Affairs and Trade, Unpublished Data.

(a) Students from diplomatic families who have low English fluency.

- 76 Table 22 shows the total notional enrolments for all years of the 2008 Update.

Table 22 Government Secondary School Education, notional enrolments, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2002-03	298 554	203 269	192 242	101 902	69 563	23 191	14 668	10 765	914 155
2003-04	298 636	203 861	195 628	100 855	69 006	23 155	14 710	11 042	916 893
2004-05	300 733	206 831	198 699	100 731	69 035	23 244	14 764	11 459	925 497
2005-06	302 000	208 079	201 319	101 073	68 859	23 382	14 755	11 550	931 017
2006-07	304 191	209 083	203 794	101 344	68 850	23 373	14 749	11 541	936 924

Source: CGC Assessment System

- 77 **Students who are Humanitarian Refugees.** An assessment is also made for the additional cost of providing services to students who are Humanitarian Refugees. Data are not available on how many government secondary students are Humanitarian Refugees.
- 78 In 2006-07, there were 97 060 Humanitarian Refugees in the general population. The proportion of government secondary students calculated to be Humanitarian Refugees was

0.0196 per cent. The Commission applies a cost weight of 5 to this group⁸, so the Humanitarian Refugee proportion of notional students is considered to be 0.098 per cent (0.0196 * 5) or 919 students.

79 The Commission estimates the effect of Humanitarian Refugees on notional enrolments by:

- apportioning the 919 students using State's shares of Humanitarian Refugees;
- apportioning the remaining 936 005 (936 924 less 919-) using States' shares of total enrolments from Table 21.

80 The Commission estimates State's shares of Humanitarian Refugees by:

- applying the proportion of each State's population who are at government secondary schools to its number of Humanitarian Refugees; and
- calculating each State's share of the resultant figures.

81 Table 23 shows the calculation.

Table 23 Calculation of Humanitarian Refugee students, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Number of humanitarian refugees									
Number	33 167	29 404	9 960	11 229	9 255	2 207	938	900	97 060
B. Proportion of Census population in government secondary schools									
Proportion	4.5%	4.3%	4.1%	3.8%	3.7%	4.4%	4.2%	4.2%	4.2%
C. Potential number of government secondary students who are humanitarian refugees (A * B)									
Enrolments	1 479	1 259	407	430	343	97	39	37	4 092
State share	36.2	30.8	10.0	10.5	8.4	2.4	1.0	0.9	100.0

Source: CGC Assessment System and Department of Immigration and Citizenship, Unpublished Data.

82 The socio-demographic composition factor is calculated by:

- adding the number of government secondary students who are Humanitarian Refugees (919) to other students (936 005);
- dividing by each State's population; and
- dividing each States per capita figure by the average per capita figure.

83 Table 24 shows the derivation of the socio-demographic composition factor for 2006-07. The notional enrolment figures at the bottom of this table differ from those at the top — they include the impact of providing services to students who are Humanitarian Refugees. Thus, they are actual enrolments adjusted to:

- remove the effects of differences in definition, placing enrolments on a comparable basis;

⁸ This implies Humanitarian Refugees have a different cost profile from other students. The weight of 5 captures the additional cost of providing government secondary education services to students who are Humanitarian Refugees.

- remove the effects of differences in State policies; and
- allow for the cost of providing services to particular student groups (including students who are Humanitarian Refugees).

Table 24 Derivation of socio-demographic composition factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
A. Number of notional enrolments who are humanitarian refugees									
State share	36.2	30.8	10.0	10.5	8.4	2.4	1.0	0.9	100.0
Number	332	283	91	97	77	22	9	8	919
B. Number of notional enrolments who are not humanitarian refugees									
State share	32.5	22.3	21.8	10.8	7.3	2.5	1.6	1.2	100.0
Number	303 892	208 878	203 594	101 245	68 782	23 350	14 735	11 529	936 005
C. Total notional enrolments (A + B)									
Enrolments	304 224	209 160	203 685	101 341	68 859	23 372	14 744	11 538	936 924
D. Population									
Number	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
E. Notional enrolments per capita (C / D)									
Enrolments	0.04437	0.04048	0.04925	0.04867	0.04367	0.04754	0.04379	0.05422	0.04492
F. Factor (E / E_{Aust})									
Factor	0.98792	0.90112	1.09649	1.08363	0.97233	1.05833	0.97491	1.20706	1.00000

Source: CGC Assessment System

- 84 These notional enrolment figures are a measure of the differences in the assessed use (including the unit cost of supplying services to students with particular characteristics) of government secondary education services. The following sections focus on differences in the price of providing these services.
- 85 The socio-demographic composition factors are revised annually to allow for changes in actual enrolments and State populations. Table 25 shows the assessed factors for the 2008 Update.
- 86 With the availability of the 2006 Census data, these data have now been included in the calculation of the factor for the years 2004-05 through 2006-07, while 2001 Census data have continued to be used in calculating the factor for the earlier assessment years.

Table 25 Government Secondary School Education, socio-demographic composition factor, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
2002-03	0.97105	0.89861	1.10370	1.13734	0.98610	1.05612	0.97888	1.16756	1.00000
2003-04	0.97459	0.89852	1.10561	1.11902	0.98096	1.05189	0.98457	1.19989	1.00000
2004-05	0.97854	0.90288	1.09963	1.10322	0.97776	1.05013	0.98409	1.22850	1.00000
2005-06	0.98235	0.90277	1.09737	1.09471	0.97441	1.05690	0.98029	1.22154	1.00000
2006-07	0.98792	0.90112	1.09649	1.08363	0.97233	1.05833	0.97491	1.20706	1.00000

Source: CGC Assessment System

Service delivery scale factor

- 87 The service delivery scale factor reflects the diseconomies associated with the cost of providing small schools in sparsely populated areas. It allows for both:
- the higher costs per unit of service in small schools compared with large schools. These schools require above average staffing which leads to lower student-staff ratios; and
 - the impact of the different State settlement patterns on the numbers of small schools.
- 88 Service delivery scale was assessed by estimating the additional staffing required for schools in small urban centres judged to have less than 400 students attending government secondary schools and for provision of out of school tuition to rural students not living in or close to urban centres.
- 89 Staffing was used as a proxy for all in-school costs. Staffing data, both teaching and non-teaching, were sourced from the Commission's Education Special Data Collection. Average student-staff ratios for a range of school size groups were derived by dividing total students in the group by total staff in the group.
- 90 The groups were decided with the aid of a regression model that depicted changes in the student-staff ratios against secondary school size. Starting with the smallest schools, cut-off points for the groups were set at the points on the regression curve where student-staff ratios commenced to change. Six such cut-off points were noted. The sixth cut-off point (400 students) was unique, in that it denoted the transition to a constant rate of change in student-staff ratios.
- 91 These student-staff ratios are applied to notional numbers of government secondary students. Notional students are calculated using the population aged 12-17 located in or within 80 kilometres of an urban centre or urban locality (UCL). These notional students are apportioned between government and non-government schools.⁹ Population is used because it circumvents the influence of State policies on the number and location of schools and the

⁹ The proportion was based on the government to non-government school proportion at the statistical division level or statistical subdivision level.

80 kilometre distance¹⁰ is used because the Commission considered it to be the maximum distance secondary students were expected to travel to school. It assumed that distance education would be provided to students living more than 80 kilometres from a school.

Box 6: Service delivery scale

Step 1: Calculate the notional number of students in each urban centre and urban locality

The notional number of secondary school students in each urban centre or urban locality (UCL) can be calculated by applying the proportion of government students to the population aged 12 to 17.

Step 2: Assign a student-staff ratio to the number of students in each UCL

Each UCL can be assigned a student-staff ratio.

- (i) some parts of each State are deemed not to experience diseconomies of small size. The UCLs in these areas are assigned the average student-staff ratio for schools with more than 400 students;
- (ii) the remaining UCLs are assigned to one of six school sizes and receive the student-staff ratio for schools of that size. The lower the number of students the lower the student-staff ratio. The ratios are the national student-staff ratio for schools of that size; and
- (iii) students receiving distance education services are assigned a distance education student-staff ratio.

Step 3: Estimate the number of staff required for each school

The number of staff required for each school can be calculated by applying the assigned student-staff ratio to each school's notional enrolments. This is the number of staff required because some schools suffer from diseconomies of small size.

Step 4: Calculate the total number of notional staff for each State

For each State, the total number of staff required can be calculated by aggregating across all schools.

Step 5: Calculate the number of staff required if no school experienced diseconomies of small size

The total number of staff required if no school experienced diseconomies of small size can be calculated by applying the average student-staff ratio for schools deemed not to experience diseconomies of small size to the State's total enrolments.

Step 6: Calculate the service delivery scale factor

A State ratio can be calculated by dividing the total staff required when some schools suffer diseconomies of small size by the total staff required when no school suffers diseconomies of small size. The difference in these two figures is an estimate of the additional number of staff required because small schools are provided in sparsely populated areas, the ratio measures the percentage increase (or decrease) on the State's cost of providing the service because of the additional staff required. The service delivery scale factor is calculated by dividing the State ratio by the average ratio.

92 Each UCL is grouped by size and assigned a student-staff ratio:

- some parts of each State are deemed not to experience diseconomies of small size. The UCLs within those areas are assigned the average student-staff ratio for schools with 400 or more students;
- the remaining UCLs are assigned to one of the six school sizes depending on their number of notional students in the UCL. They receive the student-staff ratio for schools of that size; and

¹⁰ A sinuosity adjustment was made to adjust straight line distances to actual road distances.

- students receiving distance education are assigned the distance education student-staff ratio¹¹.

93 Table 26 shows average student-staff ratios for each school size group and for distance education.

Table 26 Average Student Staff Ratios by School Size, 2008 Update

School Size Group (Students)	0-15	15-30	30-55	55-80	80-120	120+	Distance Education
Average students per staff ratio	6.19	7.63	7.65	8.13	8.27	10.23	10.50

Source: CGC Assessment System

- 94 If no school in the State experienced diseconomies of small size, the number of staff the State would require can be calculated by applying the student-staff ratio derived for schools deemed not to experience diseconomies of scale (the student-staff ratio of 10.23) to its total notional students. This total is also the number of staff required when no allowance is made for diseconomies of small scale.
- 95 But the Commission accepts some schools experience diseconomies of scale. It calculates the number of staff required in each UCL by applying the assigned student-staff ratio to the UCL’s notional students. A total number of staff can be calculated by aggregating across all UCLs in the State. This total is the number of staff required when an allowance is made for diseconomies of small scale.
- 96 A ratio for each State is calculated by dividing the total number of staff required when an allowance is made for diseconomies of small scale and the total number of staff required when no allowance is made for diseconomies of small scale.

$$\text{SDS ratio for a State} = \frac{\text{Total number of staff required when an allowance is made for diseconomies of small scale}}{\text{Total number of staff required when no allowance is made for diseconomies of small scale}}$$

Calculating the service delivery scale (SDS) factor

97 The SDS factor is calculated by dividing a State’s ratio by the average ratio as shown in Table 27. The SDS factor is revised only in a review.

¹¹ The Commission identified geographical areas within which students were able to travel conveniently to school. The costs of providing services to students in the rest of the State (areas regarded as the rural balance) were assumed to be the same as the costs of providing distance education services. The actual numbers of enrolments in these areas were used to derive an average student-staff ratio for distance education. This information indicated the average student-staff ratio for secondary students receiving distance education was 10.5.

Table 27 Service delivery scale factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
A. Number of staff when an allowance is made for economies of small scale									
Number	29 872	21 699	15 344	8 383	6 296	2 822	1 616	964	86 995
B. Number of staff when no allowance is made for economies of small scale									
Number	29 468	21 392	15 017	8 153	6 072	2 650	1 616	894	85 263
C. Ratio (A / B)									
Ratio	1.01369	1.01434	1.02174	1.02816	1.03687	1.06507	1.00000	1.07756	1.02031
D. Factor (C / C_{Aust})									
Unscaled factor	0.99351	0.99415	1.00140	1.00769	1.01623	1.04387	0.98009	1.05611	1.00000
Scaled factor	0.99354	0.99417	1.00143	1.00772	1.01625	1.04390	0.98012	1.05614	1.00000

Source: CGC Assessment System

(a) Factors are scaled so that the sum of assessed expenses equals average expenses.

Box 7: Scaling factors

Some factor assessments cause total assessed expenses to move away from average expenses. To prevent gaps opening up in the assessments, the Commission scales these factors to ensure total assessed expenses equals average expenses. It also scales component factors.

The scaling procedure is to:

- (i) apply the factor to mean resident population;
- (ii) calculate the total weighted population by aggregating across States;
- (iii) divide total mean resident population by the total weighted population; and
- (iv) scale each State's factor using this ratio.

Grade cost

- 98 The grade cost factor was designed to recognise the additional per student cost of providing education services to students in Year 11 and 12. It is generally accepted Year 11 and 12 students have higher unit costs than other secondary students.
- 99 Grade cost was assessed by applying the per student cost weight to the number of Year 11 and 12 students in each State. The factor was based on the ratio of a States' weighted Year 11 and 12 students to its total number of government secondary school students.

Box 8: Grade cost

Step 1: Calculate the notional number of Years 11 and 12 students in each State

Each State's notional number of Year 11 and 12 students can be calculated by apportioning the total number of Year 11 and 12 students according to its share of total notional students aged 15 and over.

Step 2: Calculate the additional cost of providing services to Year 11 and 12 students

The additional cost of Year 11 and 12 students can be measured by applying a per student cost weight to the number of notional Year 11 and 12 students in each State.

Step 3: Calculate the grade cost factor

A State ratio can be calculated by adding its cost weighted Year 11 and 12 students to its total secondary students and dividing by its total secondary students. This ratio measures the percentage increase (or decrease) on a States cost of providing the service because of its number of Year 11 and 12 students. The grade cost factor was calculated by dividing the State ratio by the average ratio.

- 100 The number of Year 11 and 12 students in each State was calculated by apportioning the total number of Year 11 and 12 students across States according to their shares of students aged 15 and over (adjusted for State policy). Students aged 15 and over were used because this is the age range for most Year 11 and 12 students. The adjusted figures were used because they removed the influence of State retention policies, which can impact the number of students aged 15 and over in each State.
- 101 An estimate of the additional cost of Year 11 and 12 students was obtained by applying an additional 0.20 cost weight to the number of Year 11 and 12 students in each State. The cost weight was based on judgment, with reference to information provided by States.
- 102 The impact of the additional cost on a State's total cost of providing the service was calculated by adding each State's cost weighted Year 11 and 12 students to its total notional government secondary enrolments and dividing by its total notional government secondary enrolments. Table 28 shows that the higher assessed unit cost of providing services to Year 11 and 12 students increased New South Wales' overall expenses by 6.1 per cent. The average increase for all States was 5.8 per cent.

Table 28 Calculation of grade cost factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Total number of Year 11 and 12 enrolments									
A. Enrolments									258 936
Notional enrolments aged 15 and over (including students from diplomatic families)									
Enrolments	150 464	107 257	84 942	44 102	34 272	12 187	8 313	4 911	446 448
B. Share (%)	33.7	24.0	19.0	9.9	7.7	2.7	1.9	1.1	100.0
Number of Year 11 and 12 enrolments in each State (B * A_{Aust})									
C. Enrolments	87 268	62 208	49 266	25 579	19 878	7 068	4 821	2 848	258 936
Additional cost of Year 11 and 12 in student equivalents (C * D_{Aust})									
D. Cost weight									0.2
E. Student equivalents	17 454	12 442	9 853	5 116	3 976	1 414	964	570	51 787
Number of notional enrolments in government secondary schools									
F. Enrolments	287 723	198 487	192 983	95 625	65 079	22 082	14 218	10 068	886 266
Impact of additional cost of providing services to Year 11 and Year 12 students ([F + E] / G)									
G. Ratio	1.06066	1.06268	1.05106	1.05350	1.06109	1.06402	1.06782	1.05658	1.05843
Grade cost factor (G / G_{Aust})									
Unscaled factor	1.00211	1.00401	0.99303	0.99534	1.00251	1.00528	1.00887	0.99825	1.00000
Scaled factor	1.00183	1.00374	0.99275	0.99506	1.00223	1.00500	1.00859	0.99797	1.00000

Source: CGC Assessment System

(a) Factors are scaled so that the sum of assessed expenses equals average expenses.

Cross border

- 103 Cross border factors were assessed for New South Wales and the ACT to recognise the costs imposed on the ACT of providing places in its school system for students aged 15 and over who were residents of New South Wales.
- 104 Cross border factors were not assessed for students aged 14 and under because they were part of the compulsory years of schooling and actual enrolments were used for this group. These factors were not assessed for the other States because the net flow of students aged 15 and over between them was considered to be a very small proportion of their total student populations.

Box 9: Cross border

Step 1: Calculate the number of students aged 15 years and over in the ACT

The number of students aged 15 and over for the ACT can be derived by applying the average participation rate for students aged 15 and over to the ACT's population.

Step 2: Calculate the proportion of ACT students aged 15 and over who are from diplomatic families or residents of New South Wales

The proportion of 15 year olds who are from diplomatic families or residents of New South Wales can be calculated by:

- (i) calculating the proportion for students aged 14; and
- (ii) applying the proportion to students aged 15 and over.

The proportion for students aged 14 was set equal to the ACT's above average participation rate for 14 year olds.

Step 3: Calculate the number of cross border students for New South Wales and the ACT

The number of ACT students aged 15 and over from diplomatic families or residents of New South Wales can be calculated by applying the 14 year old proportion to the number of students 15 year old and over.

The numbers who were residents of New South Wales can be calculated by subtracting the number of students who were from diplomatic families.

The result is the number of cross border students in the ACT. The number of cross border students in New South Wales is set equal to the negative of this number.

Step 4: Calculate the cross border factor

A State ratio can be calculated by adding a State's number of cross border students to its number of students and then dividing by its number of students. This ratio measures the percentage increase (or decrease) on the State's cost of providing the service because the ACT provided places in its school system for students (aged 15 and over) who were residents of New South Wales.

The cross border factor is calculated by dividing each State's ratio by the average ratio.

- 105 The cross border factor is based on the proportion of ACT students aged 14 who were from diplomatic families or residents of New South Wales. The Commission assumed the same proportion applied to students aged 15 and over. The number who are residents of New South Wales (that is, cross border students) can be obtained by subtracting the number of students aged 15 and over from diplomatic families. Data were supplied by the ACT.
- 106 The Commission used 14 year old students because they were not influenced by State policies. They were the last age range for compulsory schooling, which is the common policy of all States.
- 107 The proportion of ACT students aged 14 from diplomatic families or residents of New South Wales was derived by:
- calculating the 14 year old participation rates for each State and the average for the States as a whole; and
 - comparing the ACT participation rate to the average participation rate.
- 108 Table 29 shows the calculation. The Commission accepted that the ACT's above average participation rate was due to its provision of services to students from diplomatic families or residents of New South Wales. The table shows that, for 2006-07, these students increased

the ACT's 14 year old student population by 14.62 per cent. The Commission assumed that the same impact for students aged 15 and over.

Table 29 Calculation of proportion of ACT students aged 14 who were from diplomatic families or residents of New South Wales, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Number of students aged 14									
Students	89 826	67 360	57 240	28 610	20 477	6 841	4 898	2 821	278 071
B. Number of 14 year olds									
Population	92 190	68 271	59 447	29 287	20 661	6 859	4 335	3 356	284 406
C. 14 year old participation rates (B / A)									
Participation rates	0.9744	0.9867	0.9629	0.9769	0.9911	0.9974	1.1298	0.8404	0.9777
D. Proportion of students aged 14 who were from diplomatic families or residents of NSW (C_{Act} / C_{Aust})									
							1.1555		

109 The notional number of ACT students aged 15 and over was obtained using the average participation rate for students aged 15 and over. The average participation rate was calculated by dividing the total number of students aged 15 and over by the total population aged 15 to 17.¹² The notional number of ACT students aged 15 and over was derived by applying the average participation rate to the ACT population aged 15 to 17.

110 The number of ACT students aged 15 and over who were from diplomatic families or residents of New South Wales was calculated by assuming they increased the ACT's 15 year and over student population by 14.62 per cent. The number of students who were residents of New South Wales was derived by subtracting the number who were children of diplomatic families. This data were provided by the ACT.

111 The ACT's cross border factor was calculated by adding these students to its number of students in secondary schools and dividing by the number of students in secondary schools. Table 30 shows the calculation of the factor.

¹² As the number of students aged over 17 was small, the Commission restricted the population range to 15 to 17.

Table 30 Calculation of cross border factor, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Number of students aged 15 years old and over									
Enrolments	239 529	199 753	132 758	64 667	55 429	19 440	15 224	6 718	733 518
B. Students from diplomatic families aged 15 years old and above									
Population	0	0	0	0	0	0	141	0	141
C. Population aged 15 to 17									
Participation rates	280 240	208 840	178 104	89 488	63 211	20 802	13 707	9 921	864 313
D. 15 years old participation rates $([A + B] / C)$									
Participation rates	0.8547	0.9565	0.7454	0.7226	0.8769	0.9345	1.1210	0.6771	0.8488
E. Notional number of ACT students 15 to 17 years old $(D_{Aust} * C_{ACT})$									
Enrolments							11 635		
F. ACT's higher participation rate (based on 14 year olds)									
Number							1.1555		
G. Notional number of cross border and diplomatic children in ACT aged 15 to 17 years $([F_{Aust} - 1] * E_{ACT})$									
Number							1 809		
H. Number of students from Diplomatic Families who are aged 15 and over (B_{ACT})									
Number							141		
I. Number of cross border students aged 15 and over $(G_{ACT} - H_{ACT})$									
Enrolments							1 668		
J. Adjust for the number of cross border students in secondary schools									
Enrolments	- 1 668						1 668		
Number of students in secondary schools									
K. Total	460 990	334 746	304 863	160 499	106 450	32 331	25 593	14 032	1 439 504
Adjusted total (J+K)									
L. Total	459 322	334 746	304 863	160 499	106 450	32 331	27 261	14 032	1 439 504
Calculate raw factor (L / K)									
Factor	0.99638	1.00000	1.00000	1.00000	1.00000	1.00000	1.06518	1.00000	1.00000

Source: CGC Assessment System

Schools input costs factor

112 The input costs factor is assessed to recognise interstate differences, beyond the control of States, in the price of labour, accommodation and electricity used in providing services for central and regional administrative services. The disabilities for the input costs factor are assessed by a common method. The method is discussed in Volume 2 of the 2004 Review working papers under the section for common factors.

113 The input costs factor depends on the proportion of schools expenses deemed to relate to the price of labour, accommodation expenses and electricity expenses. For this component, these are 70% for the price of labour, 2% for accommodation and 0.5% for electricity. Table 31 shows:

- the price differentials for labour (wages), accommodation and electricity assessed by the Commission;
- the proportion of schools expenses which relate to the price of labour, accommodation and electricity expenses;
- a total price differential — obtained by weighting each price differential by the proportion of schools expenses it influences; and
- the 2006-07 schools input costs factor — which is one plus the total price differential.

Table 31 Derivation of schools input costs factor, 2006-07

	Prop'n	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	%	%	%	%	%	%	%	%
Wages	70.0	3.0	-0.5	-2.7	-1.4	-2.2	-4.1	2.5	2.5
Accommodation	2.0	5.0	-19.6	29.4	13.2	-34.2	-41.6	-1.1	-35.8
Electricity	0.5	-1.9	-1.9	-1.9	13.6	2.6	-40.3	-1.9	90.1
Balance of expenses	27.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total price (a)	100.0	2.2	-0.7	-1.3	-0.7	-2.2	-3.9	1.7	1.5
Factor		1.02223	0.99260	0.98661	0.99340	0.97798	0.96077	1.01693	1.01515

Source: CGC Assessment System

(a) May not add due to rounding.

114 The input costs factor is revised annually to allow for changes in the prices of labour, accommodation and electricity.

Dispersion factor

115 The dispersion factor is assessed to recognise differences in the per capita costs of service provision associated with the geographic dispersion of population. The dispersion factor reflects the combined differences in State expenses associated with telecommunication, freight, travel and other costs associated with providing services to dispersed localities. The disabilities for the dispersion factors are assessed by a common method. The method is discussed in Volume 2 of the 2004 Review working papers under the section for common factors.

116 Table 32 shows:

- the price differentials for each of the 11 types of expenses covered by the dispersion factor;
- the proportion of schools expenses which relate to each type of expense;

- a total price differential — obtained by weighting each price differential by the proportion of schools expenses it influences; and
- the 2006-07 schools dispersion factor — which is one plus the total price differential.

Table 32 Derivation of dispersion factor, 2006-07

Expense type	Prop'n	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	%	%	%	%	%	%	%	%
Voice technology	0.3	-1.3	-13.8	16.6	12.2	-8.9	-4.5	-61.3	138.7
Non-voice technology	0.4	-0.2	0.0	0.0	0.3	0.0	-0.1	0.5	0.7
General freight	0.1	3.8	-7.8	25.8	-0.9	-46.1	-5.1	-92.1	115.9
Air travel	0.1	9.8	-85.3	136.0	-9.8	-51.1	-99.5	-100.0	139.7
Inter-regional travel	0.4	9.5	-10.5	-10.3	-13.0	15.2	95.9	-84.3	45.1
Local travel	0.2	-3.0	-5.2	-3.0	22.0	-12.8	-32.7	-46.0	331.8
Remote removals	0.2	-56.4	-96.9	89.9	220.4	-20.7	-65.2	-100.0	964.6
Locality allowances	1.1	-58.5	-97.6	92.0	207.7	-41.9	-89.2	-100.0	1360.7
Repairs and maintenance	0.2	-69.7	-95.5	28.6	184.7	47.0	-38.1	-100.0	2281.6
Techology related repairs	0.5	-9.0	-1.4	20.4	12.0	-30.4	-21.0	-88.0	273.0
Techology related support	0.4	-4.6	-29.8	15.9	47.3	-0.9	-44.6	-76.1	379.0
Balance of expenses	96.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total price (a)	100.0	-1.0	-1.9	1.6	3.4	-0.7	-1.4	-3.2	26.1
Factor		0.99022	0.98141	1.01583	1.03413	0.99271	0.98622	0.96846	1.26061

(a) May not add due to rounding.

117 The dispersion factor is revised only in a review.

Schools component factor

118 The schools component factor represents the combined impact of assessed service use and assessed unit costs on schools expenses. It is calculated through the following formula:

$$\text{Schools component factor} = [\text{socio-demographic composition} * \text{service delivery scale} * \text{grade cost} * \text{cross border} * (\text{dispersion} + \text{input costs}-1)]$$

119 The socio-demographic composition factor captures the assessed service use and differences in the unit cost of providing services to students with particular characteristics. The Commission recognises that the costs of providing school services will vary between States because:

- the unit costs of providing small schools in small urban centres varies between States;
- the unit costs of inputs varies between States;
- the unit costs of service provision associated with the geographic dispersion of population varies between States;
- the number of New South Wales residents attending ACT schools varies; and

- the additional cost of providing services to Year 11 and 12 students varies.

120 Table 33 shows the derivation of a combined input costs and dispersion factor. The two factors influence different types of expenses and so do not interact. Consequently, these factors can be combined by addition.

Table 33 Derivation of combined input costs and dispersion factor, 2006-07

	Prop'n	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	%	%	%	%	%	%	%	%
Input costs sub-total	72.5	2.2	-0.7	-1.3	-0.7	-2.2	-3.9	1.7	1.5
Dispersion sub-total	4.0	-1.0	-1.9	1.6	3.4	-0.7	-1.4	-3.2	26.1
Balance	23.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total price ^(a)	100.0	1.2	-2.6	0.2	2.8	-2.9	-5.3	-1.5	27.6
Factor		1.01246	0.97402	1.00244	1.02753	0.97069	0.94699	0.98539	1.27576

Source: CGC Assessment System

(a) May not add due to rounding.

121 The Commission combines these influences by:

- using notional enrolments from Table 24 as an indicator of assessed service use;
- adjusting the assessed service use for differences in the costs of providing small schools in small urban centres vary between States;
- adjusting notional enrolments for the combined effect of differentials in the price of labour, accommodation and electricity and the costs of service provision associated with the geographic dispersion of population;
- dividing the adjusted notional enrolments by each State's population; and
- calculating the component factor by dividing each States' per capita figure by the average per capita figure.

122 Table 34 shows the derivation of the schools component factor for 2005-06. The dispersion and input costs factors are added and then combined with the socio-demographic composition and service delivery scale factors by multiplication.

Table 34 Calculation of schools component factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Assessed service use (notional enrolments from Table 22)									
A. Enrolments	301 621	207 477	203 172	100 591	68 362	23 331	14 609	11 264	930 428
B. Cross Border adjustment	0.99638	1.00000	1.00000	1.00000	1.00000	1.00000	1.06518	1.00000	1.00000
C. Adjusted enrolments (A * B)	300 530	207 477	203 172	100 591	68 362	23 331	15 562	11 264	930 288
Differences in prices and units costs									
D. Grade cost	0.2	0.4	-0.7	-0.5	0.2	0.5	0.9	-0.2	0.0
E. Small Schools	-0.6	-0.6	0.1	0.8	1.6	4.4	-2.0	5.6	0.0
F. Input costs and dispersion	1.2	-2.6	0.2	2.7	-2.9	-4.6	-1.5	27.6	0.0
G. Price of services (D * E * F)^(a)									
Total	0.8	-2.8	-0.4	3.0	-1.2	0.1	-2.6	34.4	0.0
H. Impact of differences in prices (C * G)									
Enrolments	2 268	- 5 859	- 730	3 033	- 788	19	- 406	3 879	1 416
I. Notional enrolments (C + H)									
Enrolments	302 798	201 618	202 442	103 624	67 574	23 350	15 155	15 143	931 705
J. Population									
Population (m)	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
K. Enrolments per capita (I / J)									
Enrolments per capita	0.04417	0.03902	0.04895	0.04977	0.04286	0.04749	0.04501	0.07116	0.04467
L. Factor (K / K_{Aust})									
Factor ^(b)	0.98879	0.87349	1.09590	1.11425	0.95952	1.06326	1.00774	1.59313	1.00000

Source: CGC Assessment System.

(a) Care is required when combining price impacts. Table 27 shows the small schools price impact for New South Wales is 0.99354 (that is its unit costs are 0.6% below average) and Table 33 shows its combined input costs and dispersion price impact is 1.01228 (that is, its unit costs are 1.6% above average). So, its total price impact is 0.6% = $((0.99354 * 1.01228) - 1) * 100$.

(b) This is the component factor after it has been scaled to ensure total assessed expenses equals average expenses (see Box 7). The component factor shown in Table 36 is the component factor prior to scaling.

DERIVING THE ISOLATION COMPONENT FACTOR

123 One factor is assessed for the isolation component.

Isolation factor

124 The isolation factor recognises the additional costs incurred by some States due to their distance from other State capitals and sources of supply. It is calculated by a general method.

The method is discussed in Volume 2 of the 2004 Review working papers under the section for common factors.

- 125 For 2006-07, the Commission assessed total isolation expenses of \$11.646 million. Table 35 shows the amount assessed for each State and the per capita equivalent. It also shows the isolation factor that is calculated by dividing each States' per capita amount by the average per capita amount.

Table 35 Calculation of isolation factor, 2006-07

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
Isolation amount	\$m	0.156	0.200	0.261	2.101	0.963	0.755	0.231	6.979	11.646
Population	m	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
Amount per capita	\$pc	0.02279	0.03862	0.06314	1.00926	0.61062	1.53578	0.68587	32.79751	0.55834
Factor		0.04081	0.06917	0.11309	1.80761	1.09363	2.75060	1.22840	58.74083	1.00000

Source: CGC Assessment System

- 126 **Isolation component factor.** As only one factor is assessed for this component, the isolation component factor is assessed using the formula:

$$\text{Isolation component factor} = [\text{isolation}]$$

- 127 The isolation factor is revised annually to reflect changes in isolation expenses.

CALCULATING CATEGORY FACTORS

- 128 Category factors measure the combined impact on a State of those circumstances that are beyond its control and the related impact on its cost of providing government secondary education services. Category factors are calculated by:

- weighting the component factors to reflect the importance of the component in the category. This is done by multiplying each component factor by its component weight; and
- adding the weighted component factors together.

- 129 Table 36 summarises the components, component weights and factors assessed for this category for 2006-07, the last year of the 2008 Update.

Table 36 Government Secondary School Education, derivation of category factor, 2008 Update, 2006-07

Factors	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Fixed costs (component weight = 0.38 %)								
Administrative scale	0.37715	0.50037	0.62523	1.24190	1.64000	5.25924	7.67972	12.96474
Input costs	1.02528	0.99212	0.98387	0.99199	0.97579	0.95664	1.01939	1.01769
Component factor	0.38669	0.49643	0.61514	1.23195	1.60029	5.03121	7.82864	13.19405
A Wgtd comp factor	0.00149	0.00192	0.00237	0.00476	0.00618	0.01942	0.03022	0.05093
Schools (component weight = 99.49 %)								
Socio-demographic composition	0.98792	0.90112	1.09649	1.08363	0.97233	1.05833	0.97491	1.20706
Service delivery scale	0.99354	0.99417	1.00143	1.00772	1.01625	1.04390	0.98012	1.05614
Grade costs	1.00183	1.00374	0.99275	0.99506	1.00223	1.00500	1.00859	0.99797
Cross border	0.99638	1.00000	1.00000	1.00000	1.00000	1.00000	1.06518	1.00000
Dispersion	0.99022	0.98141	1.01583	1.03413	0.99271	0.98622	0.96846	1.26061
Input costs	1.02223	0.99260	0.98661	0.99340	0.97798	0.96077	1.01693	1.01515
Component factor	0.99197	0.87585	1.09275	1.11652	0.96131	1.05144	1.01156	1.62306
B Wgtd comp factor	0.98548	0.87012	1.08561	1.10922	0.95503	1.04457	1.00495	1.61245
Isolation (component weight = 0.12 %)								
Isolation	0.04081	0.06917	0.11309	1.80761	1.09363	2.75060	1.22840	58.74083
Component factor	0.04081	0.06917	0.11309	1.80761	1.09363	2.75060	1.22840	58.74083
C Wgtd comp factor	0.00005	0.00009	0.00014	0.00226	0.00136	0.00343	0.00153	0.07332
Category factor	0.98703	0.87213	1.08813	1.11623	0.96257	1.06742	1.03670	1.73669

Source: CGC Assessment System

- (a) For each component, the component factor is calculated using the formula in the following paragraph. The weighted component factor is the component factor multiplied by the component weight. This is then population weighted to ensure that the sum of the assessed expenses equals average expenses.
- (b) Category factor = A + B + C.

130 The category factor was calculated as follows:

$$\begin{aligned}
 \text{Category factor} &= \text{fixed costs} + \text{schools} + \text{isolation} \\
 \text{Fixed costs} &= 0.0038 [\text{administrative scale} * \text{fixed costs input costs}] \\
 \text{Schools} &= 0.9949 [\text{socio-demographic composition} * \text{service delivery scale} * \\
 &\quad \text{grade cost} * \text{cross-border} * (\text{dispersion} + \text{input costs} - 1)] \\
 \text{Isolation} &= 0.0012 [\text{isolation}]
 \end{aligned}$$

131 In each case, the contribution to the category factor was calculated as the component weight (the percentages in the table) multiplied by the component factor (the bracketed terms in the formulas). Each component's contribution to the category factor was scaled to ensure the sum of assessed expenses equalled average expenses.

RESULTS FOR 2006-07

132 Assessed expenses per capita are calculated by multiplying each States' category factor by the average expense per capita. Table 37 shows, for 2006-07, the actual, average and assessed expenses per capita and the assessed cost of providing services ratios. The assessed cost of providing services ratios are equivalent to the category factors shown in Table 36.

Table 37 Government Secondary School Education, assessment results, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Avg
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Actual expenses	470.02	435.85	381.02	475.17	464.26	499.11	516.04	659.09	447.34
Assessed expenses	441.54	390.14	486.77	499.34	430.60	477.51	463.76	776.90	447.34
Assessed cost of providing services ratio (a)	98.70	87.21	108.81	111.62	96.26	106.74	103.67	173.67	100.00

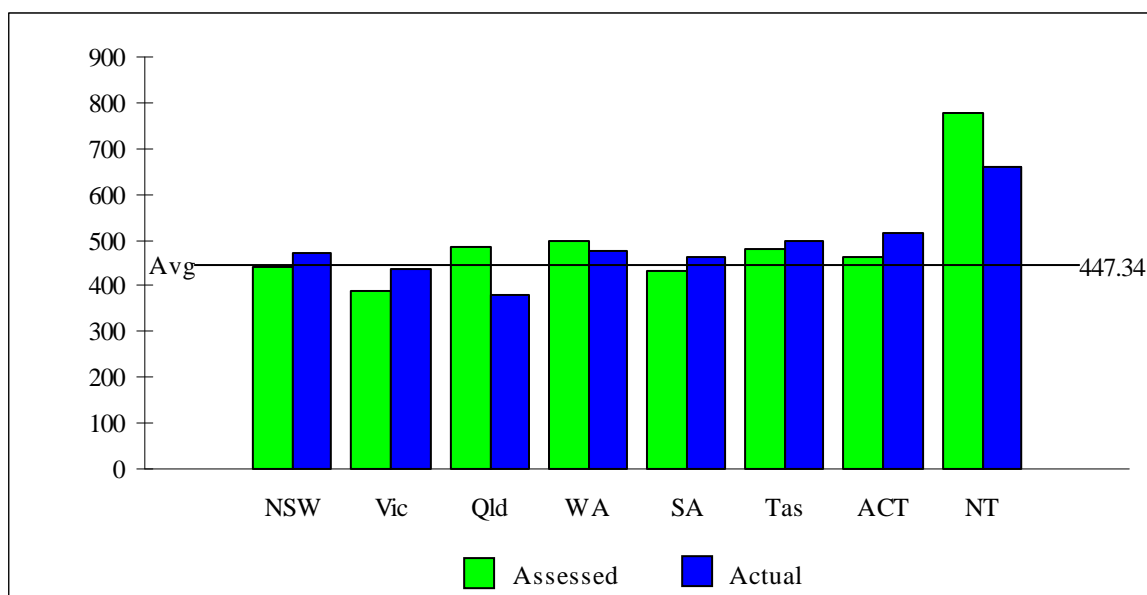
Source: CGC Assessment System

(a) The assessed cost of providing services ratio is the ratio of assessed expenses per capita to average expenses per capita.

133 Table 45 at the end of this section shows the actual, average and assessed expenses for each State for all years of the 2008 Update.

134 Figure 2 illustrates the actual, average and assessed expenses for Government Secondary School Education for 2006-07.

Figure 2 Government Secondary Schools Education, expenses per capita – assessed, actual and average, 2006-07



Note: Actual expenditure for QLD, WA, SA and NT includes spending on year 7 students. Actual expenditure on year 7 students for NSW, VIC, ACT and NT is captured in government primary. This reflects the structure of primary and secondary schooling in the States (see figure 1).

CONTRIBUTION TO GST REVENUE DISTRIBUTION

135 The assessed difference from average in millions of dollars provides an indication of the impact of this assessment on GST shares. This can be calculated by:

- subtracting the average expense per capita from each State's assessed expenses per capita; and
- multiplying by each State's population.

136 Table 38 shows this calculation for 2005-06.

Table 38 Assessed difference from average, 2006-07

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Assessed expenses per capita	\$pc	441.54	390.14	486.77	499.34	430.60	477.51	463.76	776.90	447.34
Assessed difference from average per capita	\$pc	-5.80	-57.20	39.42	52.00	-16.75	30.16	16.42	329.56	0.00
Population	m	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
Assessed difference from average	\$m	-39.8	-295.6	163.0	108.3	-26.4	14.8	5.5	70.1	0.0

Source: CGC Assessment System

137 Table 39 shows the assessed difference from average in millions of dollars. The average over these amounts over the five year assessment period provides an indication of impact of the assessment on GST shares. The actual impact depends on the growth in the size of the pool between the assessment years and the application year.

Table 39 Assessed difference from average, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust ^(a)
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
2001-02	-47.2	-224.1	108.2	113.4	-16.3	12.0	2.2	51.7	287.6
2002-03	-47.4	-240.2	123.2	108.2	-18.4	12.2	4.5	57.9	305.9
2003-04	-46.0	-248.3	129.2	102.2	-19.8	12.4	5.4	64.9	314.1
2004-05	-42.3	-268.2	138.6	105.0	-21.7	14.7	5.6	68.3	332.2
2005-06	-39.8	-295.6	163.0	108.3	-26.4	14.8	5.5	70.1	361.8
Average	-44.5	-255.3	132.4	107.4	-20.5	13.2	4.6	62.6	320.3

(a) Total redistribution. It is the sum of the positive (or negative) items in the row.

Source: CGC Assessment System

138 The impact of Government Secondary School Education on the distribution of GST revenue and Health Care Grants (hereafter GST revenue) is equal to the average from the table above

scaled by the growth in the pool. This impact can be sub-divided to show the effect of each factor.

139 Table 40 shows the category's contribution to the distribution of GST revenue. It also shows the contribution of each factor and component.

Table 40 Government Secondary Schools Education, contribution to GST revenue distribution, 2008 Update

Factor	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redist'd
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Fixed costs									
Administrative scale	-8.1	-4.9	-2.9	1.0	1.8	3.9	4.2	4.9	15.8
Input costs	0.4	0.0	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.4
Component factor	-7.9	-4.9	-3.0	1.0	1.7	3.7	4.3	5.0	15.7
Schools									
Socio-demographic composition	-69.6	-240.8	193.4	104.0	-16.4	12.3	-3.2	20.3	330.0
Service delivery scale	-20.6	-14.0	2.8	7.5	11.9	10.0	-3.1	5.6	37.7
Grade costs	6.0	8.8	-13.2	-5.0	1.3	1.1	1.3	-0.2	18.4
Cross-border	-9.0	0.3	0.2	0.1	0.1	0.0	8.3	0.0	9.0
Dispersion	-31.3	-44.9	30.6	33.2	-5.4	-3.2	-4.9	25.9	89.7
Input costs	86.7	-8.9	-44.9	-13.1	-16.5	-8.4	3.0	2.0	91.8
Component factor	-42.9	-296.4	163.9	127.7	-26.2	11.0	0.9	62.0	365.5
Isolation									
Isolation	-4.1	-3.0	-2.3	1.1	0.1	0.5	0.0	7.7	9.5
Component factor	-4.1	-3.0	-2.3	1.1	0.1	0.5	0.0	7.7	9.5
Redistribution from EPC resulting from the 2008 Update assessment									
	-55.0	-304.3	158.6	129.8	-24.3	15.2	5.3	74.7	383.6

Source: CGC Assessment System

Differences from an equal per capita assessment

140 The table indicates that the disabilities which had the biggest impact on the assessment were:

- socio-demographic composition factor — which recognised differences in the assessed proportion of a State's population who attended government secondary schools and differences in the costs of providing services to students with particular characteristics (for example, low socio-economic status, Indigeneity, low English fluency and living in geographically remote locations);
- input costs factor — which recognised the interstate differences in the costs of inputs used to provide services (labour, office accommodation and electricity); and

- dispersion — which recognised the impact of population settlement patterns on the cost of providing services.
- 141 The overall category factor reflected the following on a State by State basis.
- ***New South Wales*** — Its negative GST revenue redistribution was mainly due to its below average assessed proportion of government secondary school enrolments, its lower dispersion costs and its lower per capita costs because of economies of scale and a lower proportion of small schools in rural areas. This negative effect however was partially offset by its high labour costs and above average proportion of Year 11 and 12 students.
 - ***Victoria*** — Victoria had the largest negative GST revenue redistribution. This was due to its below average assessed proportion of government secondary school enrolments, its lower dispersion costs and its lower per capita costs because of economies of scale and a lower proportion of small schools in rural areas. These influences were in part offset by its above average proportion of Year 11 and 12 students.
 - ***Queensland*** — Queensland had the largest positive GST revenue redistribution. This was due to an above average assessed proportion of government secondary school enrolments and its higher dispersion costs. This positive impact was partially offset by its lower labour costs and a below average proportion of Year 11 and 12 students.
 - ***Western Australia*** — Its positive GST revenue redistribution was due to its above average assessed proportion of government secondary school enrolments, its higher dispersion costs and higher per capita costs because of its diseconomies of scale and a higher proportion of small schools in rural areas. This positive impact was partially offset by its lower labour costs and its below average proportion of Year 11 and 12 students.
 - ***South Australia*** — The State's lower labour costs and its lower dispersion costs and its below average assessed proportion of government school enrolments had a negative influence on its GST revenue redistribution. Its higher per capita costs because of diseconomies of scale and a higher proportion of small schools in rural areas were not sufficient to fully offset its negative influences.
 - ***Tasmania*** — The positive GST revenue redistribution for this State was due its above average assessed proportion of secondary school enrolments, higher per capita costs because of its diseconomies of scale and a higher proportion of small schools in rural. These influences were partially offset by Tasmania's lower labour costs and its lower dispersion costs.
 - ***ACT*** — Its positive GST revenue redistribution was a result of above average assessed participation rates (reflecting, in part, the use of services by students from the surrounding areas of New South Wales), and higher per capita costs associated with diseconomies of small scale in fixed costs and labour costs. Influences which tended to

reduce its redistribution were its lower per capita costs because of a smaller proportion of small schools in rural areas and its lower dispersion costs.

- *Northern Territory* — The Northern Territory’s large positive GST revenue distribution was due to its above average assessed proportion of secondary school enrolments, a high proportion of Indigenous people and people in remote areas. A higher proportion of small schools in rural areas, diseconomies of scale, higher labour costs and higher dispersion costs also lead to a positive redistribution..

CHANGES IN THE GST REVENUE DISTRIBUTION: 2008 UPDATE COMPARED TO 2007 UPDATE

Effect of assessment on distribution of the GST revenue

142 Table 41 shows the redistribution of GST revenue resulting from the assessments in the 2007 Update and the 2008 Update. It also shows the sources of change.

143 Changes in the distribution of GST revenue between the 2007 Update and the 2008 Update were brought about because the Commission:

- used revised average expenses data and other revised data in updating factor calculations for the years 2001-02 to 2005-06;
- updated cost weighted population proportions through the Census; and
- replaced 2001-02 average expenses and factors with those of 2006-07 to move forward the five year period on which GST revenue distribution was based. Moving the five year period forward in this way ensures the assessments reflect recent trends in State priorities on the services provided and recent trends in State demographic and economic circumstances which affect the relative costs of the services.

Table 41 Government Secondary School Education, effect of the assessment on GST revenue distribution, 2007 Update to 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redist'd
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Redistribution from EPC resulting from the 2007 Update assessment (a)									
	-75.0	-302.2	161.6	141.1	-21.9	15.8	6.2	74.3	399.1
Effect of revising category averages and factors for 2001-02 to 2005-06									
Category average	-0.2	-0.6	0.4	0.3	0.0	0.0	0.0	0.2	0.8
Category factors	13.1	-2.2	-8.4	0.8	-1.3	-0.3	-1.3	-0.4	13.9
Interactions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total	13.0	-2.8	-8.1	1.0	-1.3	-0.2	-1.3	-0.2	14.0
Effect of replacing 2001-02 category averages and factors with those for 2006-07									
Category average	0.6	2.6	-1.2	-1.4	0.2	-0.1	0.0	-0.6	3.4
Category factors	6.7	-1.9	6.6	-11.4	-1.4	-0.2	0.4	1.3	14.9
Interactions	-0.3	0.1	-0.3	0.5	0.1	0.0	0.0	-0.1	0.6
Total	7.0	0.7	5.1	-12.4	-1.1	-0.3	0.3	0.6	13.8
Redistribution from EPC resulting from the 2008 Update assessment (a)									
	-55.0	-304.3	158.6	129.8	-24.3	15.2	5.3	74.7	383.6
Total effect of revisions and updating (b)									
	20.1	-2.1	-3.0	-11.4	-2.5	-0.6	-1.0	0.4	20.5

Source: CGC Assessment System

(a) Using the same pool and populations that were used to calculate the 2008 Update redistribution.

(b) This figure shows the change in the amount redistributed among the States between the 2007 Update and the 2008 Update. It does not necessarily equal the difference in the total redistribution from EPC between the two inquiries.

144 Compared with an equal per capita (EPC) assessment, the 2008 Update redistributed \$20.5 million away from New South Wales, Victoria and South Australia to the other States. Victoria, Queensland and Western Australia experienced the biggest redistributions.

145 Table 42 shows the changes in GST revenue attributable to changes in each factor arising from both revising data for 2001-02 to 2005-06 and replacing 2001-02 data with 2006-07.

Table 42 Government Secondary School Education, effect of the assessment on GST revenue distribution by factor, 2007 Update to 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total redist'd
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Fixed costs									
Administrative scale	0.5	0.2	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	0.7
Input costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Schools									
Socio-demographic composition	27.4	-2.2	-8.5	-12.9	-4.4	-0.5	-0.9	2.0	29.5
Service delivery scale	0.2	0.0	0.0	-0.1	-0.1	-0.2	0.0	0.2	0.4
Grade costs	0.0	0.3	-0.7	0.2	0.3	0.0	0.0	-0.1	0.8
Cross-border	-0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2
Dispersion	0.1	0.0	-0.2	-0.5	0.0	0.0	0.0	0.6	0.8
Input costs	-8.6	-2.6	7.8	2.4	1.4	0.0	-0.2	-0.3	11.6
Isolation									
Isolation	0.3	0.1	0.1	-0.1	0.0	-0.1	0.0	-0.3	0.5

Source: CGC Assessment System

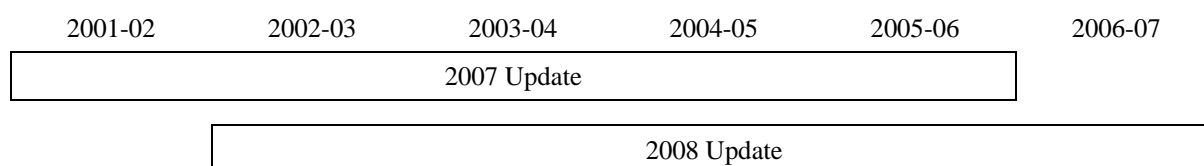
What has changed?

146 The main changes the Commission examines are:

- revisions to the financial and assessment data that were used in the 2007 Update; and
- advancing the assessment period one year — a new year comes into the assessment period and the oldest year drops out.

147 Figure 3 shows the assessment periods for the two inquiries.

Figure 3 Advancing the assessment period, 2008 Update



148 The effect of revisions is calculated by replacing 2007 Update data with 2008 Update data for the years 2001-02 to 2005-06. The effect of advancing the assessment period one year is calculated by comparing the data of the new year entering the assessment period (2006-07) with the financial and assessment data of the year dropping out (2001-02). In both cases, the Commission considers the impact of replacing financial data (average expenses) separately from the effect of replacing assessment data (category factors).

Changes due to revising average expenses and factors for years 2001-02 to 2005-06

- 149 **Revising average expenses.** An upward revision signifies average expenses in the 2006 Update understated how much States spent on this service. An upward revision leads to an increase in the category's redistribution, which will increase the GST distributions of States with above average assessed cost of providing services ratios.
- 150 For this category, upward revisions were made to average expenses for 2001-02 to 2005-06. This increased the category's redistribution of GST revenue for that period (\$0.8 million) and reduced the GST revenue shares of the States assessed to have below average costs of providing services ratios (New South Wales, Victoria and South Australia). The revisions were the result of State UPF data understating State spending on this service in 2005-06 and reclassifications by States of education spending in earlier years.
- 151 **Revising category factors.** The major drivers of category factor revisions were the incorporation of the 2006 Census data and changes to the mean resident population
- 152 An upward revision in the assessed costs of providing services ratio reflects an increase in the category factor for a State (and vice versa) and will lead to a higher GST distribution for that State.
- 153 Revisions were made to States' cost of providing services ratio as a result of replacing State provided enrolment data for 2005 with ABS enrolment data and revising input costs data for 2001-02 to 2005-06. Replacing State enrolment data had a minor impact on the ratios. The larger impact was the change to input costs data. The major difference between 2001 and 2005 were due to a lower location effect for New South Wales and the Northern Territory and higher location effects for the other States. For Victoria and Western Australia the change was small. This change reduced the GST distributions of New South Wales and the Northern Territory and increased those of Queensland and South Australia.

Changes in State circumstances – replacing 2001-02 with 2006-07 data

- 154 Table 43 shows the actual expenses and implied costs of service provision for 2001-02, the year that drops out of the assessment period, and 2006-07, the year that comes in, for the 2008 Update assessment.

Table 43 Government Secondary Education, actual expenses and assessed cost of providing services, 2001-02 and 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Avg
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Actual expenses									
2001-02	348.05	347.15	314.65	366.74	344.28	378.77	415.91	455.65	346.04
2006-07	470.02	435.85	381.02	475.17	464.26	499.11	516.04	659.09	447.34
	%	%	%	%	%	%	%	%	%
Change between 2000-01 and 2005-06	35.04	25.55	21.09	29.57	34.85	31.77	24.08	44.65	29.27
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Assessed expenses									
2001-02	338.56	303.54	371.45	405.85	336.60	371.28	355.06	580.72	346.04
2006-07	441.54	390.14	486.77	499.34	430.60	477.51	463.76	776.90	447.34
	%	%	%	%	%	%	%	%	%
Assessed cost of providing services ratio									
2001-02	97.84	87.72	107.34	117.28	97.27	107.29	102.61	167.82	100.00
2006-07	98.70	87.21	108.81	111.62	96.26	106.74	103.67	173.67	100.00

Source: CGC Assessment System

Note: Changes may occur over time in how actual expenses are classified, so trends for individual States should be treated with caution.

- 155 **Replacing average expenses.** An increase in average expenses, between 2001-02 and 2006-07 in excess of the increase in the pool signifies States are using a greater share of the pool to finance this service. This will lead to an increase in the size of the category's GST redistribution, which will increase the GST distribution to States with an above average cost of providing service ratio.
- 156 Since 2001-02, State spending on this function has increased (39.3 per cent), but it has not kept pace with the growth in the GST pool (43.3 per cent). So, replacing the 2001-02 average expenses with 2006-07 average expenses has led to a reduction in the size of the category's GST redistribution (\$3.4 million). It has reduced the GST distribution to States assessed to have above average cost of providing services ratios (Queensland, Western Australia, Tasmania, the ACT and the Northern Territory). It has increased the GST distribution to the other States.
- 157 **Replacing category factors.** An increase in the assessed cost of providing services ratio between 2001-02 and 2006-07 reflects an increase in the category factor for a State (and vice versa) and will lead to a higher GST distribution to that State.
- 158 With the availability of the 2006 Census data, these data have now been included in the calculation of the factor for the years 2004-05 through 2006-07, that is, two years were reflected in the revision effect while one year was reflected in the replacement effect.
- 159 New South Wales, Queensland, the ACT and the Northern Territory were the only States where the ratio increased. So, replacing the 2001-02 factors with 2006-07 factors increased

the GST distribution to those States (\$14.9 million). The shares of the other States were reduced.

160 The observed changes were largely driven by changes to socio-demographic composition. The socio-demographic composition change was due to the removal of 2000 enrolment data and the inclusion of 2006 data¹³. The new enrolment data showed that between 2001-02 and 2006-07, the proportion of people attending government secondary schools declined in all States. The rate of decrease was greatest in Western Australia, ACT, South Australia and Tasmania, which decreased the costs of providing services ratio in these States and increased the ratio in all other States.

161 Table 44 below shows the actual proportion of each States population attending government secondary schools in 2001-02 and 2006-07.

Table 44 Government Secondary School Education, proportion of actual government secondary school enrolments, 2001-02 and 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Average
	%	%	%	%	%	%	%	%	%
Proportion of the population attending government secondary schools.									
2001-02	4.6	4.5	4.2	4.3	3.8	5.4	5.1	4.2	4.4
2006-07	4.5	4.3	4.1	3.8	3.6	5.1	4.7	4.2	4.2
Change	-3.0	-3.5	-3.1	-10.3	-5.3	-4.7	-8.2	0.9	-4.2

Source: CGC Assessment System

This chapter was prepared by the Expense — Education section of the Commonwealth Grants Commission. If you have any questions about its content please contact Nick Reddan on (02) 6229 8869 or nick.reddan@cgc.gov.au.



Date: 29/02/08

¹³ The Commission receives annual enrolment data which it converts to financial year data.

Table 45 Assessment of expenses, Government Secondary Schools Education

	2002-03		2003-04		2004-05		2005-06		2006-07	
	Amount	Per Capita	Amount	Per Capita	Amount	Per Capita	Amount	Per Capita	Amount	Per Capita
	\$m	\$	\$m	\$	\$m	\$	\$m	\$	\$m	\$
Standard Expenditure		363.80		386.51		405.71		426.26		447.34
New South Wales										
Assessed difference	-47.238	-7.10	-47.385	-7.08	-45.991	-6.83	-42.304	-6.23	-39.785	-5.80
Expenses - Assessed	2373.076	356.70	2539.368	379.43	2685.543	398.88	2851.579	420.03	3027.117	441.54
Actual	2 622.997	394.26	2 839.944	424.34	2 957.063	439.21	3 106.008	457.51	3 222.350	470.02
Victoria										
Assessed difference	-224.071	-45.77	-240.161	-48.46	-248.263	-49.46	-268.185	-52.68	-295.598	-57.20
Expenses - Assessed	1556.849	318.02	1675.432	338.06	1788.171	356.25	1901.907	373.58	2016.056	390.14
Actual	1 722.025	351.77	1 824.969	368.23	1 898.022	378.14	2 055.578	403.77	2 252.242	435.85
Queensland										
Assessed difference	108.179	28.71	123.156	31.88	129.222	32.66	138.624	34.24	163.041	39.42
Expenses - Assessed	1478.763	392.51	1616.139	418.40	1734.381	438.37	1864.495	460.50	2013.083	486.77
Actual	1 189.519	315.74	1 273.867	329.79	1 369.803	346.22	1 464.143	361.62	1 575.765	381.02
Western Australia										
Assessed difference	113.438	58.52	108.179	54.96	102.195	51.10	105.016	51.51	108.257	52.00
Expenses - Assessed	818.660	422.32	868.920	441.48	913.613	456.81	973.995	477.78	1039.645	499.34
Actual	712.100	367.34	773.406	392.95	844.929	422.47	920.665	451.62	989.317	475.17
South Australia										
Assessed difference	-16.285	-10.67	-18.350	-11.94	-19.801	-12.80	-21.743	-13.93	-26.401	-16.75
Expenses - Assessed	538.992	353.13	575.443	374.57	607.688	392.91	643.429	412.33	678.900	430.60
Actual	522.971	342.63	568.170	369.83	668.814	432.43	726.473	465.54	731.972	464.26
Tasmania										
Assessed difference	12.048	25.36	12.159	25.29	12.401	25.58	14.722	30.14	14.829	30.16
Expenses - Assessed	184.868	389.16	197.949	411.81	209.094	431.29	222.937	456.40	234.764	477.51
Actual	188.432	396.66	200.459	417.03	199.455	411.41	183.087	374.82	245.388	499.11
Australian Capital Territory										
Assessed difference	2.232	6.89	4.460	13.67	5.375	16.36	5.594	16.84	5.527	16.42
Expenses - Assessed	120.157	370.68	130.545	400.19	138.667	422.07	147.214	443.10	156.144	463.76
Actual	145.057	447.50	161.067	493.75	168.447	512.72	172.627	519.59	173.747	516.04
Northern Territory										
Assessed difference	51.697	259.21	57.942	288.40	64.862	317.53	68.276	327.12	70.130	329.56
Expenses - Assessed	124.252	623.01	135.595	674.91	147.737	723.24	157.246	753.38	165.326	776.90
Actual	92.516	463.88	97.509	485.34	118.362	579.43	134.222	643.07	140.255	659.09

Note: Refer to Attachment A of the 2008 Update, *Relative Fiscal Capacity of States* for how these figures are compiled.