

URBAN TRANSIT – ASSESSMENT RESULTS

- 1 This working paper describes the expenses assessment for the Urban Transit category and provides information on its impact on GST revenue distribution for the 2008 Update. The Commission's assessment aims to estimate what each State would need to spend to provide the average level of subsidy for urban transit if each State provided the average level of service. The development of the assessment method is discussed in Volume 5 of the 2004 Review Working Papers.

URBAN TRANSIT SERVICES

- 2 All States provide urban transit services. In the 2004 Review, the Commission decided that the urban transit assessment would be based on an assessment of the net impact of services (usually provided by PTE or the private sector) on State budgets. The Commission's equalisation budget included the budget impact of those enterprises (not the detailed financial transactions), any direct payments by governments for depreciation and debt charges relating to assets used in providing the services, any other costs met directly by governments as well as any charges or payments collected by governments for the provision of urban transit services.
- 3 The Urban Transit category includes:
 - subsidies to service providers to fund the concessional fares charged to specified groups of passengers;
 - capital subsidies for the provision of services to the general public;
 - pricing subsidies for the provision of services to the general public; and
 - central administration and other overhead costs that relate to urban transit.
- 4 State governments spent \$5.2 billion (\$250.96 per capita) on urban transit services in 2006-07. The category included the Specific Purpose Payment (SPP) from the Australian Government for the Gold Coast Light Rail.

WHY EXPENSES ON URBAN TRANSIT SERVICES DIFFER BETWEEN STATES

5 The per capita budget impact of the provision of urban transit services varies considerably between States. The Commission seeks to understand why. If the sole source of variation is different government policies, then these differences have no impact on State grants. If the variation is due to circumstances beyond a State's control, then these differences are reflected in the Commission's assessments. Table 1 shows urban transit expenses per capita for each State and the Australian average.

Table 1 Urban Transit 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	228.67	34.82	117.32	139.67	110.18	42.32	149.01	116.44	134.70
2003-04	254.69	113.04	118.05	126.91	96.20	43.20	185.77	130.96	161.11
2004-05	298.99	98.21	161.00	156.70	162.84	43.95	158.66	140.57	187.95
2005-06	312.79	72.41	163.26	183.95	129.97	49.54	202.70	202.50	188.00
2006-07	477.04	80.43	187.31	235.81	93.20	50.89	200.01	205.40	250.96

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

Note: ACT expenses may include municipal expenses. See Attachment A, 2008 Update, RFCS for how State actual figures are compiled.

Box 1: The Commission's concept of average

The Australian average expense per capita is not a simple average of the experience of the eight States. It 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. About a third 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 (\$477.04 per capita in 2006-07) 33 times the weight of the experience of the Northern Territory (\$205.40 per capita). This approach means the average expense per capita in New South Wales has a much greater impact on the Australian per capita average than the expense per capita in the Northern Territory.

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 (where 39 per cent of remote Indigenous people live) and least to Victoria (less than 0.1 per cent), Tasmania (0.6 per cent) and the ACT (0 per cent).

6 The drivers of the per capita impact on State budgets are likely to include influences such as:

- the proportion of the population living in urban areas;
- the geographical size of the urban centres;
- the population size of individual urban centres; and
- the number of concession users in State populations.

7 Table 2 shows some population characteristics of the States and how they relate to the amount spent on urban transit.

Table 2 Urban transit expenses and population characteristics (Table different to the table in the assessment system)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Expenses^(a)									
Expenses, 2006-07 (\$m)	3 270.5	415.6	774.6	491.0	146.9	25.0	67.3	43.7	5 234.7
Population^(b) and capital city characteristics									
State population ('000)	6 370	4 644	3 653	1 849	1 466	456	312	208	18 959
Urban population ('000)	4 397	3 432	2 454	1 333	1 060	233	312	92	13 314
Capital city population ('000)	3 790	3 160	1 885	1 333	1 060	165	310	92	11 794
Capital city area (km ²)	2 092	2 080	1 937	1 236	844	185	275	88	8 738
Number of concession users ('000)	1 458	1 051	843	458	387	90	94	25	4 405
Ratios									
Proportion of Australian urban population (%)	33.6	24.5	19.3	9.8	7.7	2.4	1.6	1.1	100.0
Expenses per capita (\$)	513.4	89.5	212.0	265.5	100.2	54.9	215.9	209.8	276.1
Expenses per urban population (\$)	743.7	121.1	315.6	368.3	138.6	107.4	215.9	475.5	393.2
Proportion of pop that is in urban areas (%)	69.0	73.9	67.2	72.1	72.3	51.1	100.0	44.1	70.2
Capital city density (pop/km ²)	1 812	1 519	973	1 078	1 255	890	1 127	1 048	1 350
Concession users per urban population	0.33	0.31	0.34	0.34	0.36	0.38	0.30	0.27	0.33
Difference between State and average ratios (%)									
Expenses per capita	186	32	77	96	36	20	78	76	100
Expenses per urban population	189	31	80	94	35	27	55	121	100
Proportion of pop that is in urban areas (%)	98	105	96	103	103	73	142	63	100
Capital city density (urban pop/area)	134	113	72	80	93	66	83	78	100
Concession users per urban capita	100	93	104	104	110	116	91	82	100

(a) Source: ABS, GFS data.

(b) Source: ABS, Census 2001.

Note: ACT expenses may include municipal expenses. See Attachment A, 2008 Update, RFCS for how State actual figures are compiled.

8 It would be reasonable to expect that the larger a State's proportion of urban population, the greater its per capita urban transit expenses. In addition, larger urban centres may need more expensive forms of urban transit, such as rail and underground rail, and have higher costs due to the greater complexity and overheads needed to coordinate and manage the transport systems. These higher costs would be offset, at least in part, by higher usage and greater ability to gain fare revenue.

- 9 Table 2 shows the relationship between population characteristics and expenses is complex:
- The two most populous States (and with the largest capitals), namely New South Wales and Victoria, show large differences in expenses per capita. While some of these differences may relate to differences in geographies and populations of their cities, some is likely due to policy differences.
 - Lower population States have lower expenses per capita (for example, South Australia and Tasmania) however the least populous State (Northern Territory) has a per capita cost similar to Queensland and Western Australia. Economies of scale are likely to play a role.
 - Growth in the population of the capital city is not matched by an equivalent growth in the capital city land area. Instead, as the city population grows, the city area grows at a slower rate, meaning the population density increases. Sydney and Melbourne, with dense city centres, consequently have population densities well above average. Higher densities make public transport more necessary — and more attractive to users. However the cost of building infrastructure in densely populated areas will be higher.
- 10 Most cities provide bus services, while larger cities also incorporate rail. Cities with very large central business districts (CBDs) add underground rail. While rail and underground rail may be expensive, States opt to use them to reduce the social costs that would occur without their use (such as increased congestion and pollution).

The characteristics of States’ urban transit services

- 11 Table 3 shows how the characteristics of urban transit services differ between States. It shows how both the form of service provided and the demand for services varies, as well the effect that these variations have on the expense per trip.
- 12 Table 3 also shows that populations in larger urban centres have a higher per capita use of urban transit services and that rolling stock, buses and ferries carry considerably more passengers per journey in larger cities. This combination tends to reduce costs in larger urban centres as it improves fare revenue and reduces the per capita cost of a journey. Table 3 also shows that States that have cities with about 1 million people or more incorporate rail for urban transit services.

Table 3 Urban transit service characteristics

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Expenses^(a) (\$m)	3 270.5	415.6	774.6	491.0	146.9	25.0	67.3	43.7	5 234.7
Populations^(b) ('000)									
Urban population	4 397.4	3 432.1	2 454.3	1 332.9	1 060.1	233.0	311.9	91.9	13 313.6
Capital city population	3 789.8	3 160.2	1 884.7	1 332.6	1 060.1	164.8	310.2	91.9	11 794.3
Stocks^(c)									
Buses and trams (number)	4 683.8	2 230.0	1 426.1	1 046.8	901.3	237.8	386.8	57.6	10 970.0
Trains and ferries (number)	1 496.0	960.0	458.0	98.0	100.0	2.0	0.0	2.0	3 116.0
Length of rail (km)	1 794.8	1 212.0	568.0	194.0	148.0	0.0	0.0	0.0	3 916.8
Length of U/G rail (km)	80.0	17.0	2.3	2.0	0.0	0.0	0.0	0.0	101.3
Daily journeys ('000)	1 288.0	678.9	262.8	139.7	116.7	21.2	40.2	8.2	2 555.7
Ratios									
Expense per journey (\$)	7.0	1.7	8.1	9.6	3.4	3.2	4.6	14.7	5.6
Annual journeys per person	106.9	72.2	39.1	38.2	40.2	33.2	47.1	32.4	70.1
Daily passenger journeys per stock unit	208.4	212.8	139.5	122.0	116.6	88.5	104.1	136.8	181.4
Comparison of State ratio to average ratio (%)									
Expense per journey	24.0	- 70.1	43.9	71.6	- 38.5	- 42.4	- 18.3	161.6	
Annual journeys per person	52.6	3.0	- 44.2	- 45.4	- 42.6	- 52.5	- 32.8	- 53.8	
Daily passenger journeys per stock unit	14.9	17.3	- 23.1	- 32.8	- 35.7	- 51.2	- 42.7	- 24.6	

(a) Source: ABS, GFS data.

(b) Source: ABS, Census 2001.

(c) Source: State data.

WHAT AFFECTS STATE EXPENSES

13 It is reasonable to conclude that States' expenses per capita are affected by:

- the relative proportion of a State's population that resides in urban areas;
- the population size and complexity of a State's urban areas;
- the number of commuters that are eligible for concession travel;
- the level service use by the urban population; and
- the form of transport.

Relative proportion of a State's population that is urban

14 The proportion of the population that resides in urban areas varies across States. This will impact on the per capita demand for urban transit services. Table 2 shows some population characteristics of the States and how they relate to the amount spent on urban transit. Table 2 shows that:

- New South Wales, Victoria, Queensland, Western Australia and South Australia have near-average proportions of their populations living in urban areas;
- The city-State nature of the ACT means that almost all of its population lives in urban areas; while
- Tasmania and the Northern Territory have significantly lower proportions of their relative populations residing in urban areas.

15 The greater the proportion residing in urban areas, the greater the per capita need for urban transport.

The population size of a State’s urban areas

16 Table 4 shows each State’s urban areas serviced by some form of urban transport.

Table 4 Urban areas serviced by some form of urban transport

NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Newcastle	Ballarat	Brisbane	Perth	Adelaide	Hobart	Canberra	Darwin
Sydney	Bendigo	Cairns			Launceston		
Wollongong	Geelong	Gold Coast					
	Melbourne	Rockhampton					
		Sunshine Coast					
		Toowoomba					
		Townsville- Thuringowa					

- 17 The population size in urban areas has two effects on States’ expenses:
- Per capita rail operating expenses and capital expenses increase with an increase in urban size. This is because more heavily populated urban areas require complex rail services and very large urban centres require underground rail to avoid congestion on roads, requiring considerable capital investment in rail assets.
 - Bus operating expenses per capita decrease with an increase in population. This is because bus services are more efficient to operate when there is a larger user base. This contrasts with the relatively smaller volumes of commuters in smaller urban centres which result in a lower level of use of bus services and higher cost per passenger journey.

The number of commuters that are eligible for concession travel

18 Because all States provide concessions on fares for low income people, State expenses on urban transit are influenced by the proportion of people who are concession users of urban transit services. There are two distinct groups of concessions users that each have different patterns of use of urban transit services:

- students (people aged 5 to 14 years, and people aged 15 to 24 years and not in the labour force) who use urban transit services at a rate 25 per cent higher than the rate of use of the total population; and
- other concession users (people aged 60 years and over and not in the labour force, and unemployed people aged 15 years and over) who use urban transit services at a rate twice as high as the total population.

The transport mode

- 19 There are significant differences in the costs and efficiency of different modes of urban transport. Buses have a comparatively low capital cost both in terms of the stock, bus stops and stations. Rail is more expensive because of the requirement for separate infrastructure (land, rail lines, stations) separate from the road network. Underground rail is the most expensive because of the significant cost of excavation, maintenance and urban workarounds. Different demands for urban transport will influence the per capita cost of providing urban transit services.

ASSESSING STATES' COSTS OF PROVIDING URBAN TRANSIT SERVICES

The equalisation task

- 20 The Commission aims to identify why it costs some States more to provide urban transit services. It uses this information to estimate what it would cost each State to provide urban transit services using the average policy and practice of all States. This estimate is called a State's *assessed expense*.
- 21 The process the Commission follows is twofold. First, it starts with the average expense, which 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 population eligible for concession travel) 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 based solely on its innate characteristics. The resultant estimate is its assessed expense. This section discusses how the Commission identifies these characteristics and the following sections discuss how it measures them.
- 22 The Commission identifies the major influences 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

- 23 For urban transit services, the influences on service use that the Commission assesses are:
- the proportion of urban population in the State; and

- the proportion of the population eligible for concession travel.

24 In addition, some adjustments are made to the assessed service use in the ACT because of the impact of its role as the national capital.

Assessed unit costs

25 The influences on unit costs that the Commission assesses are:

- the fixed costs associated with providing services; and
- the level of capital expenditure required to operate services.

26 Fixed costs include labour costs. While wage levels may be partially affected by government policies, the Commission attempts to take account of only that part of the influence which is beyond the control of individual State governments.

DEVELOPMENTS SINCE THE 2007 UPDATE

27 There were no new developments affecting the assessment since the last update.

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 State’s assessed expenses for urban transit services.

<p>Box 2: Assessment framework</p> <p>Step 1: Derive the average expense per capita This is done by dividing the total expenses incurred by all States by the total State population. This figure captures the average financial impact of the policies, practices and particular State circumstances which impact on the cost of delivering the service across the nation.</p> <p>Step 2: Identify different types of expenses The Commission examines the service to determine whether parts of the total expense are affected by different influences. If the differences are material, the expense is divided into component parts to ensure that the various influences are accurately matched with the expenses they affect. The different expense types identified are referred to as components. To identify components, the Commission also 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.</p> <p>Step 3: Identify the influences for each component The Commission identifies the influences that affect each component and the extent to which they are beyond the control of individual State governments. To identify influences, 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.</p> <p>Step 4: Measure the size of each influence The Commission measures the relative financial impact of each influence on each State’s cost of subsidising the service, but only to the extent it is beyond the control of individual State governments. The relative impact is measured by relating the State’s experience to the average experience. The relative impacts are</p>

presented as factors. A factor measures the percentage increase (or decrease) that the influence has on a State's cost of subsidising 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 assessment of the combined financial impact of all the influences on a State's cost of subsidising 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 subsidise 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 influences. If the differences are material, the expense is divided into component parts to ensure that the various influences 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 five components for urban transit and estimated the proportion of expenses that each cost component contributed to total urban transit costs. These components were:
- concessional subsidies — subsidies for providing reduced price services to concession users such as students, unemployed and older people;
 - non-concessional pricing subsidies — subsidies to service providers so that urban transport is able to be provided at a reasonable price to all users;
 - non-concessional capital subsidies — subsidies for providing capital goods for urban transit;
 - fixed costs; and
 - national capital effects.
- 31 The components and component weights are presented in Table 5.

Table 5 Components and component weights, 2006-07

	Component	Component weights
	\$m	%
Fixed costs	18.212	0.35
Pricing subsidies	2 730.516	52.16
Capital subsidies	1 934.288	36.95
Concessional subsidies	550.041	10.51
National capital	1.670	0.03
Total	5 234.728	100.00

- 32 The component weights for fixed costs and national capital were calculated directly from actual dollar amounts. For 2006-07, fixed costs were estimated at \$18.2 million and national capital costs at \$1.7 million.¹ The corresponding component weights are calculated by dividing these amounts by total category expenses. The concessional subsidy, non-concessional pricing subsidy and non-concessional capital subsidy component weights were calculated as their respective proportions of the residual amount. These proportions were based on urban transit subsidy data provided by States in their annual data returns to the Commission.
- 33 The Commission identifies the influences 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 influences 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 which is beyond the control of individual State governments.

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.

- 34 Table 6 lists each component and associated factors for urban transit services.

¹ The administrative scale and input costs working papers describe how the Commission determines the size of the fixed costs.

Table 6 Urban Transit components and factors, 2008 Update

Component and component weights	Factors	Influence measured by factor
Fixed costs (0.35%)	Fixed Costs Input costs	Recognises the differences between States in the prices of head office labour, accommodation, and electricity used in providing services.
	Administrative scale	Recognises the unavoidable costs each State incurred to provide the policy and administrative infrastructure necessary to provide the minimum service, regardless of the size of the task.
Concessional Subsidies (10.51%)	Concession passenger use	Recognises the differences in subsidies paid by States to urban transit service providers on behalf of concession holders.
Non-concessional subsidies - pricing subsidies (52.16%)	Pricing subsidies	Recognises the influences on general price subsidy levels of differences in passenger use, urban influences and uneconomic services.
	Wages input costs	Recognises the influence of wage levels on subsidy costs
Non-concessional subsidies – capital subsidies (36.95%)	Capital subsidy	Recognises the influences on subsidy levels of differences in urban transit infrastructure according to the type of transport required, determined by the characteristics of urban centres.
	Wages input costs	Recognises the influences on subsidy levels of differences in construction costs due to differences in wage levels.
National capital (0.03%)	National capital	Recognises the impact on bus revenue of the ACT's inability to charge for parking in some parts of Canberra and on its pricing subsidy because of its dispersed urban form.

35 An explanation of the reasoning behind each factor assessed in the urban transit category and the method of assessment is presented below.

DERIVING THE FIXED COST COMPONENT FACTOR

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

Administrative scale factor

37 The administrative scale factor is assessed to recognise the unavoidable cost each State incurs to provide central administrative services to plan, regulate, and subsidise urban transit services, regardless of the size of its population. For Urban transit, each State is assessed to require a similar level of administration of \$2.277 million in 2006-07.

- 38 The disabilities for administrative scale factors are assessed by a common method. The method is discussed in Volume 7 of the 2004 Review working papers under the section for common factors.
- 39 The table below shows the amount assessed for each State and the per capita equivalent. It also shows the administrative scale factor, which is calculated by dividing each States' per capita amount by the average per capita amount.

Table 7 Urban Transit, calculation of administrative scale factor, 2006-07

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Fixed cost amount	\$m	2.277	2.277	2.277	2.277	2.277	2.277	2.277	2.277	18.212
Population ^(a)	m	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
Fixed costs per capita	\$pc	0.33	0.44	0.55	1.09	1.44	4.63	6.76	10.70	0.87
Factor		0.38031	0.50456	0.63046	1.25230	1.65373	5.30328	7.74403	12.25245	1.00000

(a) Mean Resident Population 2006-07, ABS special data request.

- 40 The administrative scale factor is revised annually by adjusting the unavoidable fixed cost to reflect changes in the labour price index (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 7 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 wages, accommodation expenses and electricity expenses. For this component, these are 80% for wages, 2% for accommodations and 0.5% for electricity. The table below shows:
- the price differentials for labour (wages), accommodation and electricity assessed by the Commission. For example, Table 8 shows that average wages in New South Wales are, for reasons beyond its control, 3 per cent higher than average;
 - the proportion of fixed costs expenses which relate to wages, 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.
- 44 The input cost factor is revised annually.

Table 8 Derivation of fixed costs input costs factor, 2006-07

Component (proportion)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
% difference from average expense								
Wages (80%)	3.0	-0.5	-2.7	-1.4	-2.2	-4.1	2.5	2.5
Accommodation (2%)	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
Weighted difference from average expense	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

Box 4: Weighting factors

The Commission weights a factor when the factor is to be applied to all of a component expense but it only affects part of the component 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 wages (80 per cent), accommodation (2 per cent) and electricity (0.5 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, wages, 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

EPC factor = 1.0

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

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

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.

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 the dollar value of fixed costs in each State will be affected by interstate differences in the price per unit of input. For example, Table 8 shows price differences add 2.5 per cent to New South Wales' costs, so it costs New South Wales 2.5 per cent more than its administrative scale assessment of \$2.277 million to finance the minimum structures required to provide State services.

47 The table below shows the derivation of the component factor. It is equivalent to multiplying the administrative scale and fixed costs input costs factor and produces the same result.

48 The component factor is calculated by:

- assessing the impact of interstate differences in the unit cost of inputs on the fixed costs assessed in Table 7;
- 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 9 Urban Transit, calculation of fixed costs component factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Fixed costs amount (from Table 7)									
Amount (\$m)	2.277	2.277	2.277	2.277	2.277	2.277	2.277	2.277	18.212
B. Difference from average price of inputs (from Table 8)									
Difference (%)	2.5	-0.8	-1.6	-0.8	-2.4	-4.3	1.9	1.8	
C. Impact of price differences (A * B)									
Amount (\$m)	0.058	-0.018	-0.037	-0.018	-0.055	-0.099	0.044	0.040	-0.085
D. Total fixed costs (A + C)									
Amount (\$)	2.334	2.259	2.240	2.258	2.221	2.178	2.321	2.317	18.128
E. Population									
m	6.856	5.168	4.136	2.082	1.577	0.492	0.337	0.213	20.859
F. Total fixed costs per person (D / E)									
\$pc	0.34046	0.43708	0.54159	1.08466	1.40896	4.42968	6.89265	10.88718	0.86906
G. Factor (E / E _{Aust})									
Factor	0.39175	0.50293	0.62319	1.24808	1.62124	5.09707	7.93112	12.52747	1.00000

49 The fixed costs component factor is updated annually. The following table shows the assessed factors for the 2008 Update.

Table 10 Fixed costs component factor, 2008 Update

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
2001-02	0.38521	0.50625	0.64467	1.25798	1.56366	4.98323	7.84361	12.76510	1.00000
2002-03	0.38587	0.50673	0.63816	1.25827	1.58014	5.01558	7.87689	12.85981	1.00000
2003-04	0.38688	0.50698	0.63230	1.25492	1.59678	5.01809	7.93658	12.92090	1.00000
2004-05	0.38783	0.50662	0.62810	1.24958	1.61106	5.02899	7.98577	12.90779	1.00000
2005-06	0.38874	0.50552	0.62401	1.24595	1.62359	5.06092	8.01778	12.82442	1.00000
2006-07	0.39175	0.50293	0.62319	1.24808	1.62124	5.09707	7.93112	12.52747	1.00000

DERIVING THE CONCESSIONAL SUBSIDIES COMPONENT FACTOR

- 50 State governments recognise that some segments of the community have a lower capacity to pay for urban transit services. It is the average policy of States to provide lower income users with a fare structure lower than that provided to other users. The Commission therefore took into account the exposure to those additional costs.
- 51 There is one factor assessed for the concessional subsidies component — the concession passenger use factor.

Concession passenger use factor

- 52 The concession passenger use factor is assessed to take account of interstate differences in:
- the number of people with access to concessional fares; and
 - the average propensity of the different concession groups to use public transport.
- 53 The concession population used as the basis for calculating this factor included the groups of people who receive concessional fares in all or most States. It was determined as:
- non-student concession passengers (people aged 60 years and over and not in the labour force, and unemployed people aged 15 years and over); and
 - students (people aged 5 to 14 years, and people aged 15 to 24 years and not in the labour force).
- 54 The concession group data did not include data for Ballarat, Bendigo and Geelong. An adjustment was therefore necessary to include an estimate of concession data for these urban areas.

Box 5: Concession passenger use factor

Step 1: Obtain data on journey use by concession groups

Obtain available data on number of journeys by concession groups from States.

Determine the relevant concession population for those journeys from Census 2001 data.

Step 2: Calculate the average propensity to use public transport

Divide Australian total number of journeys by the relevant population for each concession group.

Step 3: Obtain population data for each concession group

Determine the total concession population for each concession group from Census 2001 data.

Step 4: Calculate the notional concession population

For each concession group in each State multiply the concession group population by the average propensity of the respective concession groups to use public transport.

Add the weighted populations of each concession group to obtain the notional concession population in each State.

Step 5: Obtain total population

Determine the total population for each State.

Step 6: Determine per capita notional concession population

Divide notional concession population by total population to obtain per capita notional concession population.

Step 7: Factor calculation

Divide State per capita notional concession population by Australian per capita notional concession population to obtain raw factor.

55 Table 11 shows the calculation of the concessional passenger use factor.

Table 11 Concessional passenger use factor calculation, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Annual number of journeys by concession group (excluding Ballarat, Bendigo and Geelong)									
Concessions, '000	480.8	109.3	77.6	49.5	51.4	7.7	16.0	3.0	795.4
Students, '000	233.8	210.1	55.5	45.6	25.0	7.1	11.7	2.7	591.5
B. Size of concession groups (excluding Ballarat, Bendigo and Geelong)									
Concessions, '000	666.6	487.4	402.7	206.1	200.7	45.1	34.7	7.9	2 051.2
Students, '000	791.7	563.5	440.0	251.4	185.9	44.5	59.4	17.0	2 353.4
C. Average propensity to use public transport (A_{Aust} / B_{Aust})									
Concessions									0.39
Students									0.25
D. Size of concession groups (including Ballarat, Bendigo and Geelong)									
Concessions, '000	666.6	540.4	402.7	206.1	200.7	45.1	34.7	7.9	2 104.3
Students, '000	791.7	615.2	440.0	251.4	185.9	44.5	59.4	17.0	2 405.1
E. Weighted passenger base population (C * D)									
Concessions, '000	258.5	209.6	156.2	79.9	77.8	17.5	13.5	3.1	815.9
Students, '000	199.0	154.6	110.6	63.2	46.7	11.2	14.9	4.3	604.5
F. Notional concession population ($E_{concessions} + E_{students}$)									
Number, '000	457.4	364.2	266.7	143.1	124.6	28.7	28.4	7.3	1 420.4
G. Population									
2001 Census '000	6 370.1	4 644.2	3 653.3	1 849.3	1 466.5	455.7	311.9	208.4	18 959.5
2006 MRP '000	6 855.8	5 167.5	4 135.6	2 082.0	1 576.6	491.6	336.7	212.8	20 858.8
H. Notional concession population per capita (F / G_{2001})									
Ratio	0.07181	0.07841	0.07302	0.07738	0.08494	0.06290	0.09099	0.03523	0.07492
I. Factor (H / H_{Aust})									
Raw Factor	0.95852	1.04664	0.97461	1.03289	1.13372	0.83955	1.21459	0.47031	1.00000
Scaled Factor	0.95799	1.04606	0.97407	1.03232	1.13309	0.83908	1.21392	0.47004	1.00000

Source: ABS, Census 2001 and CGC special data collection for the 2004 Review.

56 The concessional passenger use factors are not revised in an update. Table 12 shows the assessed factors for the 2008 Update.

Table 12 Concessional passenger use factor, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2001-02	0.95794	1.04600	0.97401	1.03226	1.13303	0.83903	1.21385	0.47002	1.00000
2002-03	0.95793	1.04599	0.97400	1.03225	1.13302	0.83903	1.21384	0.47001	1.00000
2003-04	0.95794	1.04600	0.97402	1.03227	1.13304	0.83904	1.21386	0.47002	1.00000
2004-05	0.95798	1.04604	0.97405	1.03231	1.13308	0.83907	1.21391	0.47004	1.00000
2005-06	0.95801	1.04607	0.97408	1.03234	1.13311	0.83909	1.21394	0.47005	1.00000
2006-07	0.95799	1.04606	0.97407	1.03232	1.13309	0.83908	1.21392	0.47004	1.00000

DERIVING THE NON-CONCESSIONAL PRICING SUBSIDIES COMPONENT FACTOR

- 57 States provide subsidies to service operators so that urban transport is able to be provided at a reasonable price to all users.
- 58 The Commission considers the amount of non-concessional pricing subsidies required to be spent by each State is influenced by:
- differences in urban characteristics and the provision of uneconomic services (via a pricing subsidies factor); and
 - differences in the level of wages (via a wages input cost factor).

Pricing subsidies factor

- 59 States require urban transit service providers to provide certain standards of urban transit. The standards they impose, such as an expected level of services and ticket pricing, constrain the financial viability of service operators. As a result, all States provide general or deficit funding subsidies to service providers.
- 60 The pricing subsidy factor measures the influences on per capita subsidy levels that are not captured by concessions or by the need for capital assets. It captures the effects on subsidy levels of differences in:
- urban influences, such as population density; and
 - uneconomic services (financially unviable routes).

Box 6: Pricing subsidies factor**Step 1: Determine the urban centre locality (UCL) populations relevant to urban transit**

From the ABS Census 2001, identify those UCLs and their populations that have access to urban transit services.

Step 2: Calculate the bus pricing subsidy

- A. List all UCL populations for urban areas as this is the relevant population for bus pricing subsidies.
- B. Apply regression values derived from the relationship between population and operating deficit to each urban centre to estimate the bus pricing subsidy.
- C. Sum the urban centre values to obtain the total bus pricing subsidy.

Step 2: Calculate the rail pricing subsidy

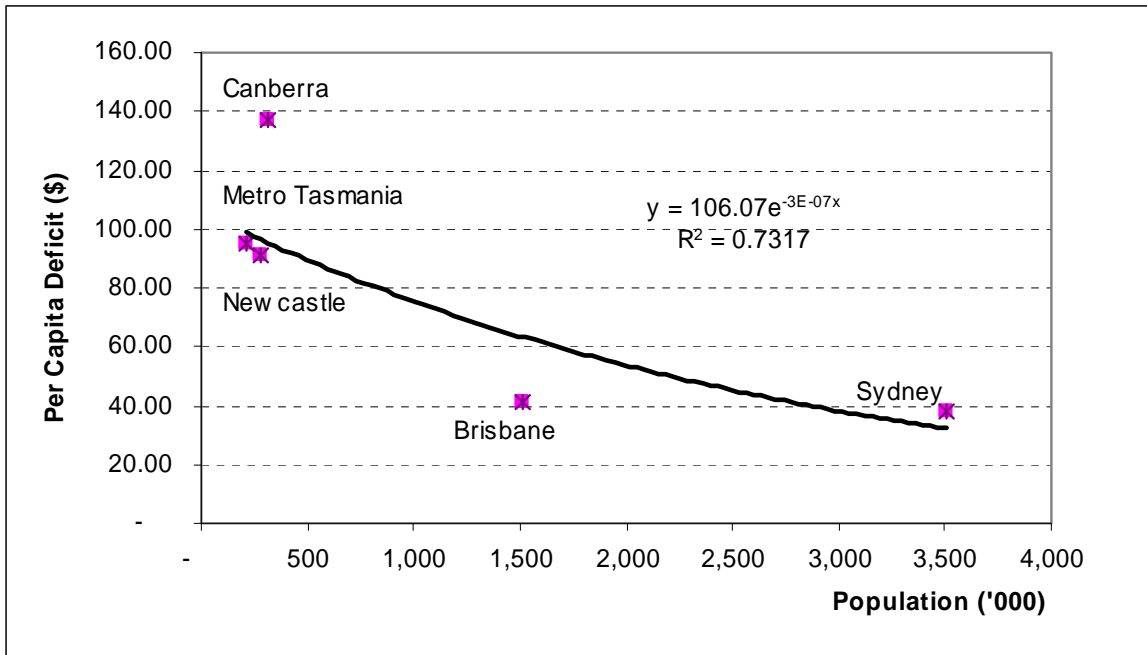
- A. Identify urban centre populations that are serviced by rail.
- B. Calculate per capita rail subsidy for different sized regions.
- C. Multiply the per capita subsidy for each urban centre by the relevant populations to obtain the rail pricing subsidy for each UCL.
- D. Total the urban centre values to obtain the total rail pricing subsidy.

Step 3: Calculate the factor

- A. Add bus and rail subsidies to obtain total pricing subsidy.
- B. Calculate per capita total subsidies (using 2001 Census)
- C. Divide State pricing subsidy by Australian pricing subsidy to obtain the raw factor.
- D. Rescale factor to MRP for each relevant year of the 2008 Update.

- 61 Not all the States were able to provide data that separated pricing subsidies from concessional subsidies. Therefore, a statistical relationship between population and subsidies paid for each mode of transport was required.
- 62 An analysis of per capita bus operating deficits — which excluded depreciation and interest charges — indicated a strong relationship between population size and the per capita deficit. Two major assumptions were necessary to make this analysis meaningful.
- All public transport systems, whether private, government owned or government operated, performed similarly in financial terms.
 - The operating deficits (less depreciation and interest charges) estimated from the financial statements of operators were good proxies for the pricing subsidies paid by government.
- 63 The first assumption could not be tested directly, because financial data for private operators were commercial-in-confidence. However, the Commission considered that most government owned/operated public transport systems had adjusted their cost and revenue structures to efficient levels through corporatisation, restructuring and mandated efficiency measures. They therefore should not be too different from their private sector counterparts.
- 64 Figure 1 fits a curve through the available adjusted operating deficit data points using an exponential relationship with population.

Figure 1 Bus operating deficit population relationship



- 65 The data showed a high level of per capita subsidy when the population size was small (poor use of capacity). As the city population increased, the per capita subsidy fell, but the total deficit (= per capita subsidy * population) increased. As the city population increased further, the per capita subsidy fell to a very low level because of high use.
- 66 The differences between the regressed line and the actual results for individual cities (see Table 13) were not unexpected:
- for Sydney, the regression did not allow for its above average wages;
 - for Brisbane, the regression did not allow for the below average wages; and
 - for Canberra, the regression did not allow for the effects of the less densely settled urban design.

Table 13 Bus pricing subsidies — adjusted actual and modelled – 2000-01

City	Actual ^(a)	Modelled
	\$pc	\$pc
Sydney	37.66	32.1
Brisbane	41.41	63.4
Perth	56.77	69.1
Canberra	136.80	95.4
Newcastle	91.44	96.4
Metro Tasmania	94.90	98.7
Darwin	77.66	102.8

(a) Pricing subsidy or operating deficit.

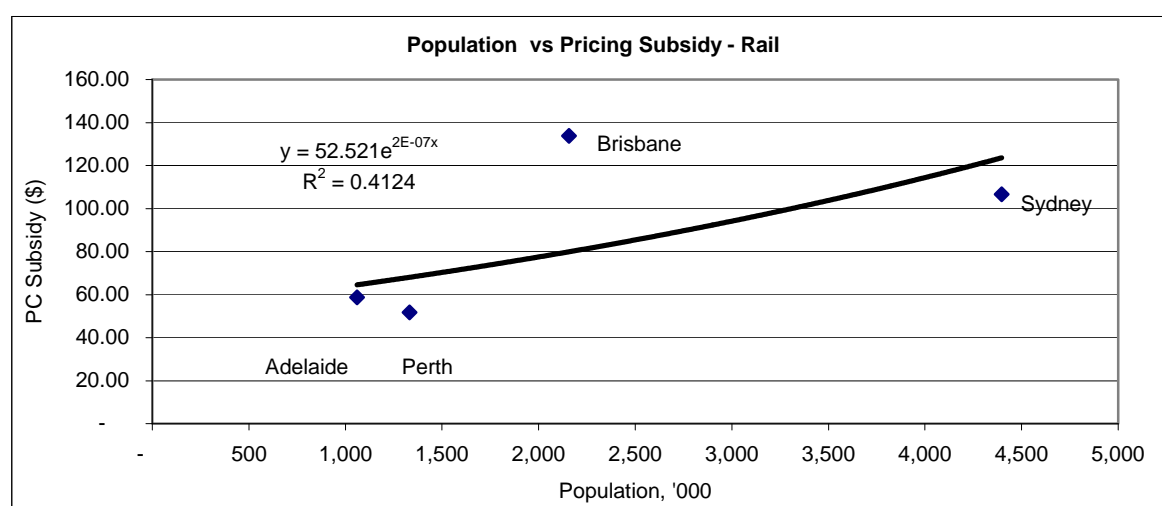
Source: Public Transport companies' annual reports, Independent Pricing and Regulatory Tribunal of New South Wales, Cityrail and STA Buses and Ferries, Public Transport Fares from 1 July 2002, and State data returns.

67 The modelled subsidies were sufficiently close to adjusted actual subsidies to conclude that population size (and, implicitly, density) was the major driver of the level of subsidies and that the modelled outcomes were quite close to what States do. The differences between the model results and adjusted actual subsidies could reflect policy differences (such as frequency of services and routing arrangements) and non-policy differences (such as wages costs, fuel prices and urban form)².

68 The model results were used to determine assessed per capita pricing subsidies for bus transport for each urban centre, given their population sizes, including for Melbourne.

69 A similar analysis for rail transport was attempted, as shown in Figure 2. It could not be used in the same way as the bus analysis because there were only four observations. However, it suggested that metropolitan areas could be grouped by size.

Figure 2 Rail operating deficit - population relationship



² The non-policy influences suggested that there may be a need for additional factors in the assessment. The requirement for a wages input cost factor and a national capital factor are discussed below.

70 Two levels of pricing subsidy were calculated: one for large metropolitan areas (population of 2 million and more) and one for small metropolitan areas (less than 2 million population). This was done by averaging the actual subsidies for the cities in each group. Table 14 summarises the calculations. Subsidies for large metropolitan areas were more than double (2.11 times on average) those of small metropolitan areas.

Table 14 Rail pricing subsidies and population – 2000-01

Metropolitan	Relevant Population	Pricing Subsidy
		\$pc
Sydney	4 397 374	106.68
Brisbane	2 069 805	139.37
A. Average - large metropolitan		115.59
Perth	1 332 563	51.77
Adelaide	1 060 127	58.73
B. Average – small metropolitan		54.85
Ratio (A / B)		2.11

Source: State data returns.

71 The Commission expected per capita subsidies for large metropolitan areas to be subject to two opposing influences:

- increased capacity to raise revenue, which should lower the subsidy; and
- the greater complexity of large rail systems, which should increase the subsidy.

72 The Commission examined the financial statements of rail operators in New South Wales, Queensland and Western Australia. It was considered likely that the observed operating deficits for large metropolitan areas included both elements of pricing and capital subsidies. Therefore, the Commission concluded that the per capita subsidies for large metropolitan areas were too high. The estimated relationship was based on State actual deficits.

73 The Commission decided that the rail subsidies for larger cities should be 1.5 times that of smaller cities.

74 In summary, State subsidies in dollar terms were calculated as follows:

- for bus services, a gross average subsidy was calculated by applying the regression relationship, separately for each population centre³, and adding the results;
- for rail services, a gross average subsidy was calculated by multiplying State urban populations by an assessed measure of per capita subsidy (\$54.85 for South Australia and Western Australia, and \$82.28 — that is $\$54.85 * 1.5$ — for New South Wales, Victoria and Queensland); and
- the bus and rail services subsidies were added.

³ Although they are separate UC/Ls, the population of Brisbane and the Gold Coast, and of Canberra and Hall, were combined for these calculations.

75 Table 15 shows pricing subsidy factors calculated on this basis.

Table 15 Pricing subsidy factor calculation, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. UCL Populations									
Number, '000	4 397.4	3 432.1	2 454.3	1 332.6	1 060.1	233.3	310.2	91.9	13 311.8
Bus regression results									
Alpha	106.074								
Beta	-3E-07								
B. Bus subsidy									
\$m	200.6	142.0	163.3	99.9	81.7	24.0	29.6	9.6	750.6
C. Rail pricing subsidies									
Small metro, \$pc	54.85								
Large metro, \$pc	82.28								
D. Rail service populations									
Number, '000	4 397.4	3 290.4	2 069.8	1 332.6	1 060.1				12 150.2
E. Total rail subsidy (relevant C * D)									
\$m	361.8	270.7	170.3	73.1	58.2				934.1
F. Total subsidy (B + E)									
\$m	562.4	412.8	333.6	173.0	139.8	24.0	29.6	9.6	1 684.7
G. Total population ('000)									
2001 Census	6 370.1	4 644.2	3 653.3	1 849.3	1 466.5	455.7	311.9	208.4	18 959.5
MRP 2006	6 855.8	5 167.5	4 135.6	2 082.0	1 576.6	491.6	336.7	212.8	20 858.8
H. Per capita subsidy									
\$pc	88.29	88.88	91.31	93.54	95.34	52.67	94.88	45.85	88.86
I. Factor (H/HAust)									
Raw Factor	0.99360	1.00019	1.02758	1.05267	1.07297	0.59273	1.06779	0.51594	1.00000
Scaled Factor	0.99287	0.99945	1.02682	1.05189	1.07218	0.59229	1.06699	0.51556	1.00000

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

Source: ABS, Census 2001 and CGC special data collection for the 2004 Review.

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:

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

76 The pricing subsidy factors are not revised in an update. Table 16 shows the assessed factors for the 2008 Update.

Table 16 Pricing subsidies factor, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2001-02	0.99336	0.99994	1.02733	1.05242	1.07271	0.59259	1.06753	0.51581	1.00000
2002-03	0.99321	0.99980	1.02718	1.05226	1.07255	0.59250	1.06737	0.51574	1.00000
2003-04	0.99313	0.99971	1.02709	1.05217	1.07246	0.59245	1.06728	0.51569	1.00000
2004-05	0.99306	0.99964	1.02702	1.05210	1.07238	0.59241	1.06720	0.51566	1.00000
2005-06	0.99297	0.99956	1.02693	1.05201	1.07229	0.59236	1.06711	0.51561	1.00000
2006-07	0.99287	0.99945	1.02682	1.05189	1.07218	0.59229	1.06699	0.51556	1.00000

Wages input cost factor

- 77 It was considered that interstate differences in wage levels impacted on the relative level of pricing subsidies governments pay for urban transit services and were not covered by the pricing subsidy factor.
- 78 This factor was derived using the general method similar to the wage sub-factors in the input costs factor⁴.
- 79 Generally, the wage cost disabilities as assessed are applied to the expenses proportion relating to the costs of labour input. However, this is not the case for wages input in this component.
- 80 Although wages comprised about 40 per cent of operating expenses for States with rail services and about 60 per cent for States with bus only services, the Commission noted in the 2004 Review that the wages input cost factor was calculated on a whole-of-State basis, rather than specifically for major urban areas. Generally, the spread of wages would be higher on the latter basis. Thus, there was already an implicit discount in the manner in which wages input costs were applied.
- 81 For the 2008 Update, an average wage proportion of 100 per cent was used — the same as that used in the 2007 Update.
- 82 Table 17 shows the wages input cost factors used in the 2008 Update.

⁴ A description of how the wages input cost factor is derived is in Volume 5 of the 2004 Update working papers.

Table 17 Wages input costs factors, pricing subsidies component, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2001-02	1.04204	0.99431	0.95898	0.98090	0.96062	0.95898	1.02813	1.03562	1.00000
2002-03	1.03945	0.99484	0.96177	0.98124	0.96527	0.95921	1.02757	1.03338	1.00000
2003-04	1.03687	0.99536	0.96455	0.98159	0.96993	0.95944	1.02701	1.03115	1.00000
2004-05	1.03426	0.99584	0.96732	0.98190	0.97458	0.95964	1.02642	1.02888	1.00000
2005-06	1.03161	0.99628	0.97004	0.98216	0.97921	0.95979	1.02577	1.02656	1.00000
2006-07	1.03046	0.99517	0.97261	0.98584	0.97812	0.95872	1.02463	1.02542	1.00000

Non-concessional pricing subsidies component factor

83 The non-concessional pricing subsidies component factor reflects differences in pricing subsidies outside of a State's control. The pricing subsidies factor captures the assessed service use by each State. By multiplying the pricing subsidies factor by a wages input cost factor the impact of wage differences on pricing subsidies is captured.

84 Table 18 shows the derivation of the non-concessional pricing subsidies component factor for 2006-07. The component factor is calculated using the formula:

$$\text{Non-concessional pricing subsidies component factor} = [\text{pricing subsidies factor} * \text{wages input cost factor}]$$

Table 18 Calculation of non-concessional pricing subsidies component factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Assessed service use factor									
	0.99287	0.99945	1.02682	1.05189	1.07218	0.59229	1.06699	0.51556	
B. Wages input cost factor									
	1.03046	0.99517	0.97261	0.98584	0.97812	0.95872	1.02463	1.02542	
C. Calculating the component factor (A * B)									
Raw Factor	1.02311	0.99462	0.99869	1.03700	1.04871	0.56784	1.09327	0.52866	0.99989
Rescaled ^(a)	1.02322	0.99473	0.99880	1.03711	1.04883	0.56791	1.09339	0.52872	1.00000

(a) Factors are scaled so that the sum of assessed expenses equals average expenses. Refer to Box 7.

85 The non-concessional pricing subsidies component factors are updated annually. The following table shows the assessed factors for the 2008 Update.

Table 19 Non-concessional pricing subsidies component factor, 2008 Update

Year	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
2001-02	1.03550	0.99462	0.98555	1.03269	1.03084	0.56849	1.09796	0.53438	1.00000
2002-03	1.03272	0.99494	0.98822	1.03285	1.03562	0.56851	1.09714	0.53312	1.00000
2003-04	1.03002	0.99532	0.99094	1.03307	1.04048	0.56857	1.09639	0.53189	1.00000
2004-05	1.02729	0.99568	0.99365	1.03326	1.04534	0.56861	1.09561	0.53065	1.00000
2005-06	1.02452	0.99599	0.99632	1.03340	1.05016	0.56862	1.09477	0.52939	1.00000
2006-07	1.02322	0.99473	0.99880	1.03711	1.04883	0.56791	1.09339	0.52872	1.00000

DERIVING THE NON-CONCESSIONAL CAPITAL SUBSIDIES COMPONENT FACTOR

- 86 States provide subsidies to urban transit service providers to help with funding the capital equipment necessary for the services, such as bus and train stations and the rail tracks.
- 87 The Commission considers the amount of non-concessional capital subsidies required to be spent by each State is influenced by:
- differences in the quantities of capital equipment required (via a capital subsidies factor); and
 - differences in the level of wages associated with the construction costs of built assets (via a wages input cost factor).

Capital subsidies factor

- 88 Governments subsidise capital expenditures and other operating costs associated with the provision of urban transit infrastructure. For example, where populations are large and more densely settled, governments provide subsidies for the dedicated use of railway tracks and the high investment and maintenance costs of rail services. This factor allowed for the non-policy influences that affected the per capita costs of capital subsidies.
- 89 The method was based on observed relationships between city size and actual State asset levels.

Box 8: Capital subsidies factor**Step 1: Determine the required quantities of urban transit infrastructure**

- A. From State asset data, calculate the Australian average fixed and per capita variable amount of assets, for each type of asset, for each relevant urban centre.
- B. Apply the average per capita asset amounts to relevant populations in each urban centre.

Step 2: Calculate annual costs of the required quantities of urban transit infrastructure

- A. Apply unit costs to required assets in each State.
- B. Total the required rolling stock and non-rolling stock assets amounts in each State.
- C. Obtain the expected asset life of rolling stock and non-rolling stock.
- D. Divide the asset values by the asset life to obtain the annualised required asset values of rolling stock and non-rolling stock.
- E. Total the rolling stock and non-rolling stock annualised asset values to obtain the annual costs of the required quantities of urban transit infrastructure.

Step 3: Calculate factor

- A. Divide the annual costs of the required quantities of urban transit infrastructure by the relevant population to obtain the per capita annual costs of the required quantities of urban transit infrastructure.
- B. Divide each State's per capita amount by the Australian per capita amount to obtain the raw factor.

- 90 An analysis of settlement patterns and historical development of transport and transit systems suggested that:
- Roads are initially built for any movement. In the early stages of the settlement they are mostly used for private transport, until the settlement size justifies public transport.
 - When the settlement reaches a certain size, it requires some kind of public transport, usually bus transport. As the road is already there, the only cost is the vehicle and some supporting infrastructure. Over time the number of vehicles and associated infrastructure increases smoothly to match the demand.
 - When rail is introduced into the system, the transition is not smooth because it requires a lump-sum investment for the alignment, tracks, stations, carriages and depots. Usually this decision is delayed until the significant investment can be justified.
 - As cities become larger and land, especially in central areas, becomes more valuable, the option for developing rail transport is to build underground systems. This requires an even larger upfront investment and the transition is not smooth.
 - Depending on the topographical character of the settlement, if the settlement has water features, then ferry transport is introduced.
- 91 To remove the impact of State-specific policy influences from the State data, the Commission adopted a simplified model in which it was assumed that centres of different sizes required different types and quantities of infrastructure:
- urban areas with populations up to 1 million people required urban transit services only through bus transport systems;

- urban areas with populations of more than 1 million people required a rail mode (heavy or light) additional to bus transport (satellite centres Wollongong, Newcastle and Geelong were also included because services were extended from the capital cities);
- urban areas with populations of more than 2 million people required underground rail; and
- the provision of ferry services was not related to the size of the urban settlement, but to topographical and water features (ferry data were not adjusted).

92 Based on a review of the State data, the urban populations serviced by the different modes of urban transport were identified. The table below shows the feeder urban areas for each mode of transport.

Table 20 Urban areas serviced by urban transport, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Rail	Newcastle	Geelong	Brisbane	Perth	Adelaide			
	Sydney	Melbourne	Gold Coast					
			Sunshine					
	Wollongong		Coast					
Dedicated busways	Sydney		Brisbane	Perth	Adelaide		Canberra	
Buses	Newcastle	Ballarat	Brisbane	Perth	Adelaide	Hobart	Canberra	Darwin
	Sydney	Bendigo	Cairns			Launceston		
	Wollongong	Geelong	Gold Coast					
		Melbourne	Rockhampton					
			Sunshine					
			Coast					
			Toowoomba					
			Townsville-					
			Thuringowa					

93 Assessed asset requirements were then estimated by:

- calculating the Australian average fixed and per capita variable amount of assets, for each type of asset, for each relevant urban centre; and
- multiplying the per capita variable amount of assets by relevant State populations for each type of asset and adding on the average fixed amount of assets⁵.

⁵ The average number of bus stops was calculated differently because State data on bus stops and depots were not fully comparable in the submissions to the 2004 Review. The average numbers of bus stops were inflated, on a whole-of-State basis, by the relative density for the State (measured using the ratio of density of population in the urban areas for the State divided by density of population in urban areas for

94 Table 21 shows the assessed quantities of assets for each State. The assessed assets data should be interpreted carefully. They are not an estimate of the level of assets a State should have but a means of establishing a relationship between States that helps compare like with like.

Table 21 Assessed quantities of urban transit infrastructure, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Underground Rail									
Length of track	62	34	4	0	0	0	0	0	99
Number of stations	10	6	2	0	0	0	0	0	18
Number of depots	0	0	0	0	0	0	0	0	0
Number of buses/rolling stock/vessels	0	0	0	0	0	0	0	0	0
Rail									
Length of track	1 742	730	607	243	96	0	0	0	3 417
Number of stations	284	213	134	87	69	0	0	0	788
Number of depots	31	12	11	4	1	0	0	0	59
Number of buses/rolling stock/vessels	1 617	729	549	208	68	0	0	0	3 170
Light Rail									
Length of track	14	479	0	0	8	0	0	0	501
Number of stations	8	2 338	0	0	17	0	0	0	2 364
Number of depots	2	11	0	0	0	0	0	0	12
Number of buses/rolling stock/vessels	8	384	0	0	14	0	0	0	406
Bus									
Length of track	62	0	25	22	4	0	5	0	119
Number of stations	20 766	16 089	20 167	9 481	6 458	2 118	2 110	672	77 861
Number of depots	59	47	38	18	14	4	4	2	186
Number of buses/rolling stock/vessels	3 407	2 664	1 912	1 050	840	204	264	96	10 437
Ferry									
Length of track	0	0	0	0	0	0	0	0	0
Number of stations	34	0	40	2	0	2	0	2	80
Number of depots	2	0	0	0	0	0	0	0	2
Number of buses/rolling stock/vessels	38	0	29	2	0	2	0	2	73

95 Table 22 contains the average unit costs for the different components of urban transit infrastructure.

Australia) to approximately capture the fact that smaller urban centres have a higher ratio of bus stops to people.

Table 22 Average unit costs of urban transit infrastructure components

	Track/road cost per km	Cost per station	Cost per depot	Vehicle/rolling stock value
	\$m	\$m	\$m	\$m
Underground heavy rail	40.00	40.00	0.00	3.00
Above ground heavy rail	7.50	7.00	7.50	3.00
Light rail	5.00	0.30	2.00	2.70
Bus	3.75	0.05	1.00	0.40
Ferry	0.00	1.00	0.00	1.00

Source: State data returns, 2004 Review.

96 Table 23 shows the derivation of the capital subsidy factor for 2006-07.

Table 23 Derivation of capital subsidy factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Annualised Assessed Value of Assets (\$m)									
Non-rolling stock	362.5	233.9	129.4	56.2	29.9	2.1	2.4	0.7	817.1
Rolling stock	368.9	252.2	143.5	61.5	34.0	4.9	6.2	2.4	873.7
Total	731.4	486.2	273.0	117.7	63.9	7.0	8.6	3.1	1690.8
B. Population ('000)									
2001 Census	6370.1	4644.2	3653.3	1849.3	1466.5	455.7	311.9	208.4	18959.5
MRP 2006	6855.8	5167.5	4135.6	2082.0	1576.6	491.6	336.7	212.8	20858.8
D. Per Capita Asset Value (A_{total} / B_{census})									
\$	114.82	104.68	74.72	63.65	43.54	15.37	27.54	14.68	89.18
D. Factor (C / C_{Aust})									
Raw factor	1.28755	1.17383	0.83789	0.71369	0.48828	0.17240	0.30879	0.16458	1.00000
Scaled ^(a)	1.28885	1.17502	0.83874	0.71441	0.48878	0.17258	0.30910	0.16474	1.00000

(a) This is the component factor after it has been scaled to ensure total assessed expenses equals average expenses (see Box 7). Source: ABS, Census 2001 and CGC special data collection for the 2004 Review.

97 The capital subsidy factors are not updated annually. Table 24 summarises the rescaled factors for the 2008 Update.

Table 24 Capital subsidy factors, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2001-02	1.28478	1.17131	0.83609	0.71215	0.48723	0.17203	0.30813	0.16422	1.00000
2002-03	1.28538	1.17185	0.83648	0.71249	0.48746	0.17211	0.30827	0.16430	1.00000
2003-04	1.28633	1.17272	0.83710	0.71301	0.48782	0.17224	0.30850	0.16442	1.00000
2004-05	1.28729	1.17359	0.83772	0.71354	0.48819	0.17237	0.30873	0.16454	1.00000
2005-06	1.28816	1.17438	0.83829	0.71402	0.48851	0.17249	0.30894	0.16465	1.00000
2006-07	1.28885	1.17502	0.83874	0.71441	0.48878	0.17258	0.30910	0.16474	1.00000

Wages input cost factor

- 98 This factor measured the inter-State differences in wages associated with the construction costs of built assets, such as tracks and stations, which influenced the amount of subsidy required.
- 99 The impact was measured using the wages input costs factor applied in the pricing subsidy component (see Paragraph 79) but discounted to apply to 35 per cent of capital expenses. As in the Depreciation category, it was assumed that labour costs represented 35 per cent of construction costs on average across Australia.
- 100 Table 25 summarises the wages input cost factor used in this component.

Table 25 Wages input cost factor, capital subsidy component, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
2001-02	1.01471	0.99801	0.98564	0.99331	0.98622	0.98564	1.00985	1.01247	1.00000
2002-03	1.01381	0.99819	0.98662	0.99344	0.98784	0.98573	1.00965	1.01168	1.00000
2003-04	1.01291	0.99837	0.98759	0.99356	0.98948	0.98581	1.00945	1.01090	1.00000
2004-05	1.01199	0.99854	0.98856	0.99366	0.99110	0.98587	1.00925	1.01011	1.00000
2005-06	1.01106	0.99870	0.98951	0.99376	0.99272	0.98593	1.00902	1.00930	1.00000
2006-07	1.01066	0.99831	0.99041	0.99504	0.99234	0.98555	1.00862	1.00890	1.00000

Non-concessional capital subsidies component factor

- 101 The non-concessional capital subsidies component factor represents the combined effects of the influence on use and unit costs of non-concessional capital subsidies that are not affected by State policies. The capital subsidy factor captures the assessed service use by each State. By multiplying the capital subsidy factor by a wages input cost factor the Commission recognises that the costs of providing these services will vary between States because of differences in wages paid for constructing the assets.
- 102 Table 26 shows the derivation of the non-concessional capital subsidies component factor for 2006-07. The component factor is calculated using the formula:

$$\text{Non-concessional capital subsidies component factor} = [\text{capital subsidy factor} * \text{wages input cost factor}]$$

Table 26 Calculation of non-concessional capital subsidies component factor, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
A. Capital subsidy factor (from Table 24)									
%	1.28885	1.17502	0.83874	0.71441	0.48878	0.17258	0.30910	0.16474	
B. Wages input costs factor (from Table 25)									
%	1.01066	0.99831	0.99041	0.99504	0.99234	0.98555	1.00862	1.00890	
C. Calculating component factor (A * B)									
Raw factor	1.30259	1.17303	0.83070	0.71087	0.48503	0.17008	0.31177	0.16621	1.00179
Scaled Factor ^(a)	1.30026	1.17093	0.82921	0.70960	0.48417	0.16978	0.31121	0.16591	1.00000

(a) Factors are scaled so that the sum of assessed expenses equals average expenses. Refer to Box 7.

103 Table 27 shows the assessed factors for the 2008 Update.

Table 27 Non-concessional capital subsidies component factor, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
2001-02	1.30017	1.16583	0.82187	0.70549	0.47922	0.16911	0.31032	0.16582	1.00000
2002-03	1.29954	1.16652	0.82302	0.70586	0.48021	0.16919	0.31039	0.16576	1.00000
2003-04	1.29928	1.16753	0.82440	0.70643	0.48134	0.16932	0.31054	0.16575	1.00000
2004-05	1.29903	1.16857	0.82579	0.70701	0.48247	0.16945	0.31070	0.16574	1.00000
2005-06	1.29874	1.16955	0.82716	0.70757	0.48359	0.16958	0.31084	0.16572	1.00000
2006-07	1.30026	1.17093	0.82921	0.70960	0.48417	0.16978	0.31121	0.16591	1.00000

(a) This is the component factor after it has been scaled to ensure total assessed expenses equals average expenses (see Box 7).

DERIVING THE NATIONAL CAPITAL COMPONENT FACTOR

104 National capital factors allow for the extra costs incurred by the ACT resulting directly from influences that were unavoidable consequences of Canberra's status as the national capital and the seat of government. They have been a feature of the Commission's assessments of ACT finances since 1984.

105 This factor measures the effect on subsidies of the impact of:

- the ACT's dispersed urban form resulting from the National Capital Plan (NCP); and
- free parking in certain Commonwealth government occupied premises on bus revenue.

Impact of urban form.

106 The ACT's urban form has been dictated to it by the requirements of the NCP. As a result, the ACT has a more highly dispersed form than would otherwise have been the case. The value of the urban form restrictions was based on a comparison of the pricing subsidy reported by the ACT with that derived from the regression model. In the 2004 Review, the Commission estimated an allowance of \$1.0 million.

Impact of Commonwealth-owned free car spaces.

107 Commonwealth policies prohibit parking fees being charged on Commonwealth land. It was considered that this impacted on the ACT's ability to raise revenue from public transport for urban transport. The uncollected revenue was estimated as follows:

	Total revenue uncollected
=	9 204 (car parking spaces in Barton/Parkes and Russell Defence Offices)
*	1.1 (car occupancy rate)
*	0.049 (derived from City/Town Centres' average propensity of bus use of 11.3 per cent <i>less</i> the Parkes/Barton/Russell average propensity of 6.3 per cent)
*	230 (working days)
*	\$4.00 (return ticket fare)
=	\$0.46 million.

108 The allowance was rounded to \$0.50 million.

109 In the 2008 Update, the allowances assessed for 2001-02 to 2005-06 have been maintained at their 2007 Update levels while the 2006-07 allowance has been derived by escalating the 2007 Update amount by the movement in the consumer price index (CPI). The national capital allowances assessed in future updates, for these categories, will continue to be updated annually by CPI movements.

110 The national capital allowances for the 2008 Update are shown in Table 28.

Table 28 National capital allowances, 2008 Update

	\$
2001-02	1 500 000.0
2002-03	1 500 000.0
2003-04	1 535 306.7
2004-05	1 572 753.2
2005-06	1 623 038.5
<u>2006-07</u>	<u>1 670 114.1</u>

Note: Figures have been calculated through scaling of the base year.

111 The factors in Table 29 were used to assess the ACT national capital disability. The component weight applied to these factors was calculated as the proportion of the category standard represented by the national capital allowance.

Table 29 National capital allowance factor, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aus
2001-02	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	60.87752	0.00000	1.00000
2002-03	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.01895	0.00000	1.00000
2003-04	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.38267	0.00000	1.00000
2004-05	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.70609	0.00000	1.00000
2005-06	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.87532	0.00000	1.00000
2006-07	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.95227	0.00000	1.00000

CALCULATING CATEGORY FACTORS

112 Category factors measure the combined impact on a State of those circumstances that are beyond its control and that impact on its cost of providing urban transit 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.

113 Table 30 summarises the components, component weights and disability factors for this category factor for the last year of the 2008 Update. It shows the calculation of the category factor for 2006-07.

Table 30 Urban transit, derivation of category factor, 2008 Update, 2006-07

Factors	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Fixed costs (component weight = 0.35 %)								
Administrative scale	0.38031	0.50456	0.63046	1.25230	1.65373	5.30328	7.74403	12.25245
Input costs	1.02528	0.99212	0.98387	0.99199	0.97579	0.95664	1.01939	1.01769
Component factor	0.38993	0.50059	0.62029	1.24227	1.61369	5.07334	7.89420	12.46916
A Wgtd comp factor	0.00136	0.00175	0.00217	0.00434	0.00564	0.01773	0.02759	0.04358
Concessional subsidies (component weight = 10.51 %)								
Concession passenger use	0.95799	1.04606	0.97407	1.03232	1.13309	0.83908	1.21392	0.47004
Component factor	0.95799	1.04606	0.97407	1.03232	1.13309	0.83908	1.21392	0.47004
B Wgtd comp factor	0.10066	0.10991	0.10235	0.10847	0.11906	0.08817	0.12755	0.04939
Non-concessional subsidies pricing (component weight = 52.16 %)								
Pricing subsidies	0.99287	0.99945	1.02682	1.05189	1.07218	0.59229	1.06699	0.51556
Wages input costs	1.03046	0.99517	0.97261	0.98584	0.97812	0.95872	1.02463	1.02542
Component factor	1.02311	0.99462	0.99869	1.03700	1.04871	0.56784	1.09327	0.52866
C Wgtd comp factor	0.53373	0.51887	0.52099	0.54097	0.54709	0.29623	0.57033	0.27579
Non-concessional subsidies capital (component weight = 36.95 %)								
Capital subsidy	1.28885	1.17502	0.83874	0.71441	0.48878	0.17258	0.30910	0.16474
Wages input costs	1.01066	0.99831	0.99041	0.99504	0.99234	0.98555	1.00862	1.00890
Component factor	1.30259	1.17303	0.83070	0.71087	0.48503	0.17008	0.31177	0.16621
D Wgtd comp factor	0.48046	0.43267	0.30640	0.26220	0.17890	0.06274	0.11500	0.06131
National capital (component weight = 0.03 %)								
National capital	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.95227	0.00000
Component factor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.95227	0.00000
E Wgtd comp factor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.01977	0.00000
Category factor	1.11621	1.06320	0.93191	0.91599	0.85069	0.46486	0.86024	0.43007

Notes: Category factor is the sum of the weighted component factors. It equals A + B + C + D + E.

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 assessed expenses equals average expenses.

114 The category factor was calculated as follows:

$$\begin{aligned}
 \text{category factor} &= \text{fixed costs component factor} + \text{concessional subsidies} + \text{pricing} \\
 &\quad \text{subsidies} + \text{capital subsidies} + \text{national capital} \\
 \text{fixed costs} &= 0.0035 * [\text{administrative scale} * \text{fixed costs input costs}] \\
 \text{concessional subsidies} &= 0.1051 * [\text{concessional passenger use}] \\
 \text{pricing subsidies} &= 0.5216 * [\text{pricing subsidies} * \text{wage input costs}] \\
 \text{capital subsidies} &= 0.3695 * [\text{capital subsidies} * \text{wage input cost}] \\
 \text{national capital} &= 0.0003 * [\text{national capital}]
 \end{aligned}$$

115 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

116 Assessed expenses per capita are calculated by multiplying each States' category factor by the average expense per capita. Table 31 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 30.

Table 31 Urban Transit, assessment results, 2006-07

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Avg
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Actual expenses	477.04	80.43	187.31	235.81	93.20	50.89	200.01	205.40	250.96
Assessed expenses	280.13	266.82	233.87	229.88	213.49	116.66	215.89	107.93	250.96
	%	%	%	%	%	%	%	%	%
Assessed cost of providing services ratio ^(a)	111.62	106.32	93.19	91.60	85.07	46.49	86.02	43.01	100.00

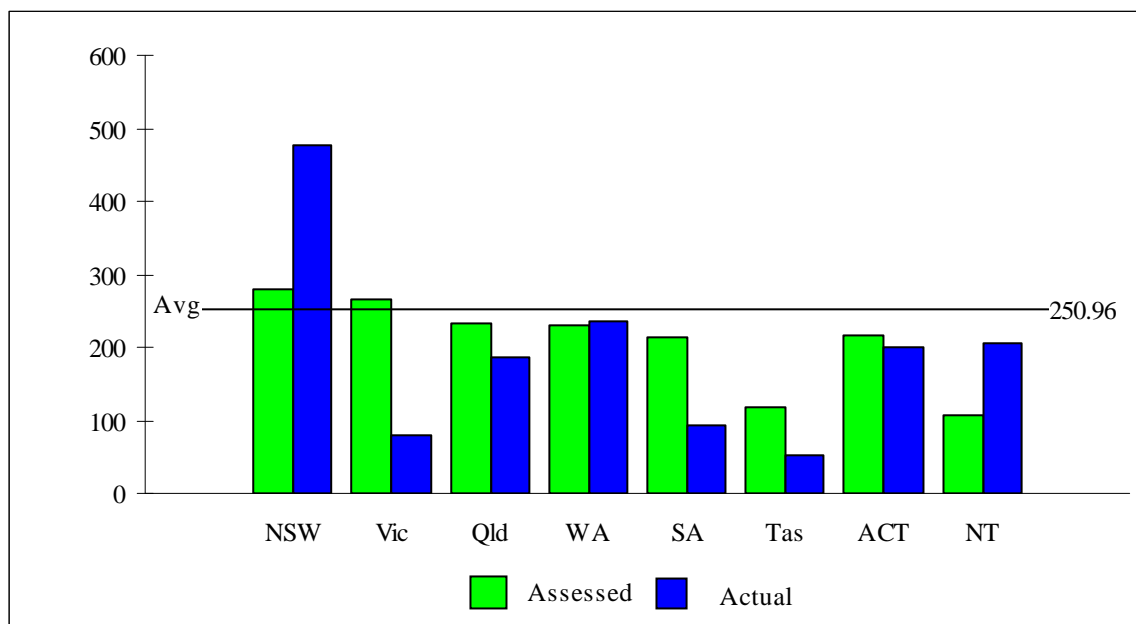
(a) The cost service provision ratio is the ratio of assessed expenses per capita to average expenses per capita.

Note: ACT expenses may include municipal expenses. See Attachment A, 2008 Update, RFCS for how State actual figures are compiled.

117 Table 39 at the end of this working paper shows the actual, average and assessed expenses for each State for all years of the 2008 Update.

118 Figure 3 illustrates the actual, average and assessed expenses for Urban Transit for 2006-07.

Figure 3 Urban Transit, expenses per capita — assessed, actual and average, 2006-07



CONTRIBUTION TO GST REVENUE DISTRIBUTION

119 The assessed difference from average in millions of dollars provides an indication of the impact of this assessment on grant 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.

120 Table 32 shows this calculation for 2006-07.

Table 32 Assessed difference from average, 2006-07

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Assessed expenses per person	\$pc	280.13	266.82	233.87	229.88	213.49	116.66	215.89	107.93	250.96
Assessed difference from average per person	\$pc	29.16	15.86	-17.09	-21.08	-37.47	-134.30	-35.07	-143.03	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	199.9	82.0	-70.7	-43.9	-59.1	-66.0	-11.8	-30.4	0.0

121 Table 33 shows the assessed difference from the average in millions of dollars. The average of these amounts over the five-year assessment period provides an indication of the impact of the assessment on grant shares. The actual impact depends on the growth in the size of the pool between the assessment years and the application year.

Table 33 Assessed difference from average, 2008 Update

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
2001-02	93.2	35.6	-35.5	-18.8	-26.5	-31.2	-2.9	-13.9	128.8
2002-03	93.3	36.7	-35.8	-19.1	-26.4	-31.6	-3.0	-14.1	130.0
2003-04	100.9	42.2	-39.7	-20.1	-26.4	-37.1	-2.8	-17.0	143.2
2004-05	125.4	52.0	-47.4	-25.7	-33.6	-45.2	-4.8	-20.7	177.4
2005-06	106.1	43.5	-39.9	-19.3	-24.2	-43.8	-2.2	-20.3	149.6
2006-07	199.9	82.0	-70.7	-43.9	-59.1	-66.0	-11.8	-30.4	281.9
Mean (last 5 years)	125.1	51.3	-46.7	-25.6	-33.9	-44.8	-4.9	-20.5	176.4

122 The impact of the Urban Transit category 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.

123 Table 34 shows the category's contribution to the distribution of GST revenue. It also shows the contribution of each factor and component to the GST revenue distribution.

Table 34 Urban Transit, 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	-4.1	-2.5	-1.4	0.5	1.0	2.0	2.2	2.3	8.0
Input costs	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.2
Component factor	-4.0	-2.5	-1.5	0.5	0.9	1.9	2.2	2.4	7.9
Pricing subsidies									
Pricing subsidies	-5.6	-0.4	12.6	12.3	12.8	-22.6	2.5	-11.7	40.2
Wages input costs	26.6	-2.4	-15.0	-4.0	-4.5	-2.2	1.0	0.7	28.3
Component factor	20.9	-2.7	-2.7	8.1	8.0	-23.9	3.6	-11.3	40.6
Capital subsidies									
Capital subsidies	131.7	60.4	-44.6	-39.8	-53.4	-26.9	-15.5	-11.9	192.1
Wages input costs	5.5	-0.5	-3.1	-0.8	-0.9	-0.5	0.2	0.1	5.8
Component factor	137.5	59.0	-47.7	-40.6	-54.0	-27.0	-15.4	-11.8	196.5
Concessional subsidies									
Concessional passenger use	-8.7	7.2	-3.3	2.0	6.3	-2.4	2.2	-3.4	17.7
Component factor	-8.7	7.2	-3.3	2.0	6.3	-2.4	2.2	-3.4	17.7
National capital									
National capital	-0.6	-0.5	-0.4	-0.2	-0.1	0.0	1.8	0.0	1.8
Component factor	-0.6	-0.5	-0.4	-0.2	-0.1	0.0	1.8	0.0	1.8
Redistribution from EPC resulting from the 2008 Update assessment									
	145.2	60.6	-55.5	-30.1	-38.9	-51.4	-5.6	-24.2	205.8

Note: The redistribution due to the component factors includes the effect of interactions between factors. Therefore the component factor figure may not equal the sum of its factors' redistribution.

DIFFERENCES FROM AN EQUAL PER CAPITA ASSESSMENT

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

- the capital subsidy factor — which recognised the effects on subsidy levels of differences in urban transit infrastructure according to the type of transport required, determined by the characteristics of urban centres. The States with the largest urban centres (Sydney and Melbourne), which require the most capital-intensive modes of transport, had GST distributed towards them ;
- the pricing subsidy factor — which recognised the effects on subsidy levels of differences in passenger use, urban influences and uneconomic services;

- wages input costs factor — which recognised the influence on subsidy levels of the differences in wage levels. GST distributions increased in those States with higher than average wages costs (NSW, the ACT and the Northern Territory) ; and
- the concession passenger use factor — which recognised the differences in subsidies paid by States to urban transit service providers on behalf of concession holders in centres within the scope of the assessment. Those States with larger than average concessional groups (Victoria, Western Australia, South Australia and the ACT) received increased GST distributions.

125 Overall the redistribution was towards New South Wales and Victoria primarily because of the large urban centres in those States and the associated high cost of capital subsidies particularly associated with rail and underground rail.

CHANGES SINCE THE 2007 UPDATE

- 126 The change in GST distribution between the 2007 and 2008 Updates totalled \$14.7 million. For the change that was observed the main reason was the large increase in expenditure across States in recent years (it has grown almost 100.5 per cent since 2001-02) which increased the importance of the category to GST revenue distribution. This increased the redistribution. The influence of capital subsidy disabilities on the category has also increased resulting from changes in State spending priorities — for example in 2006-07, New South Wales spent \$960 million on capital subsidies for rail (almost half of total capital subsidies in that year).
- 127 The main changes in this update were a rapid growth in the category and the increased influence of capital subsidies that increased the GST distribution to New South Wales as it has the highest capital subsidy disability. A similar but smaller effect was seen for Victoria. Redistributions away from the other States was also mainly due to the greater influence of the capital subsidy factor where these States have needs well below average.

Effect of assessment on the distribution of GST revenue

- 128 Table 35 shows the distribution of GST revenue resulting from the assessments in the 2007 Update and the 2008 Update. It also shows the sources of the changes.
- 129 Changes in the distribution of GST revenue between the 2007 Update and the 2008 Update were brought about because the Commission:
- used revised financial data in the average expenses and other revised data in factor calculations for the years 2001-02 to 2005-06; 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 demographics, and economic circumstances on the relative costs of those services.

Table 35 Urban Transport, effect of 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)	135.0	56.0	-53.1	-27.9	-36.1	-47.3	-4.5	-22.2	191.1
Effect of revising category averages and factors for 2001-02 to 2005-06									
Category average	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Category factors	-4.4	-1.8	1.5	1.5	2.0	0.5	0.6	0.1	6.2
Interactions	0.3	0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.4
Total	-4.2	-1.7	1.3	1.4	1.9	0.5	0.5	0.2	5.9
Effect of replacing 2001-02 category averages and factors with those for 2006-07									
Category average	11.0	4.4	-4.4	-2.3	-3.0	-3.6	-0.3	-1.7	15.3
Category factors	2.4	1.3	0.5	-0.9	-1.2	-0.8	-0.9	-0.4	4.2
Interactions	1.0	0.5	0.2	-0.4	-0.5	-0.3	-0.4	-0.2	1.7
Total	14.3	6.2	-3.8	-3.6	-4.7	-4.7	-1.6	-2.2	20.6
Redistribution from EPC resulting from the 2008 Update assessment (a)	145.2	60.6	-55.5	-30.1	-38.9	-51.4	-5.6	-24.2	205.8
Total effect of revisions and updating (b)	10.2	4.5	-2.4	-2.2	-2.8	-4.2	-1.1	-2.1	14.7

(a) Using the same pool and populations that were used to calculate the 2007 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.

130 Compared with an equal per capita (EPC) assessment, the 2008 Update redistributed \$205.8 million to New South Wales and Victoria from other States.

131 Table 36 shows the changes in GST revenue attributable to changes in each factor arising from both revisions over the period 2001-02 to 2005-06 and replacing 2001-02 data with 2006-07 data.

Table 36 Urban Transport, effect of 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	0.3	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.3
Input costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pricing subsidies									
Pricing subsidies	-0.5	-0.1	1.1	1.0	1.1	-1.6	0.2	-1.1	3.4
Wages input costs	0.2	-0.1	-0.2	-0.1	0.2	-0.1	0.1	0.0	0.5
Capital subsidies									
Capital subsidies	9.3	5.4	-3.5	-3.1	-4.0	-1.7	-1.3	-1.1	14.7
Wages input costs	0.2	-0.1	-0.2	-0.1	0.2	-0.1	0.1	0.0	0.5
Concessional subsidies									
Concessional passenger use	0.0	0.1	-0.1	0.0	0.1	0.0	0.1	-0.1	0.2
National capital									
National capital	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.1

132 The main reasons for the changes in GST revenue distribution between the two updates are explained in more detail in the following sections.

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

133 **Revising average expenses.** For this category, net downward revisions were made to average expenses for 2001-02 to 2005-06 as shown in Table 37. This decreased the importance of the category for GST distribution and decreased the amount of GST revenue redistributed (\$0.1 million). Revenue shares decreased for States assessed to have above average disabilities (New South Wales and Victoria) and the reverse for other states, although the effect was so small, it rounded to zero for most States.

Table 37 Urban Transport, Average expenses used in the 2007 and 2008 Updates

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
2008 Update		133.62	134.70	161.11	187.95	188.00	250.96
2007 Update	146.72	129.35	131.30	159.81	188.69	201.13	
Difference	-	4.27	3.40	1.30	-0.74	-13.13	-

134 **Revising category factors.** The changes from revisions to category factors are mainly attributable to revisions made to data for Western Australia. Western Australia provided revised data for 2005-06 capital subsidies that reduced the influence of this on the assessment. This decreased the total level of expenditure on capital subsidies and reduced the influence of capital

subsidies disabilities. This resulted in States with higher than average assessed need for capital subsidies, New South Wales and Victoria, receiving less GST distribution while other states increased their GST distribution, as shown in Table 35.

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

135 Table 38 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.

136 **Replacing average expenses.** Between the 2001-02 and 2006-07 expenditure within the Urban Transit category grew by 100.5 per cent while the GST pool grew by 43.9 per cent. Replacing the 2001-02 average expenses with 2006-07 average expenses meant that the category has become more important to the distribution of GST. States with above average requirement for GST revenue are therefore assessed as needing more while other states with below average needs will receive a lesser share of GST. In net terms, between the updates this has increased the GST distribution to States assessed to have above average cost of providing services ratios (New South Wales and Victoria). It has decreased the GST distribution to the other States.

Table 38 Urban Transport, 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	208.65	69.99	102.80	134.17	108.56	37.77	157.62	132.28	133.62
2006-07	477.04	80.43	187.31	235.81	93.20	50.89	200.01	205.40	250.96
	%	%	%	%	%	%	%	%	%
Change between 2000-01 and 2005-06	128.64	14.91	82.20	75.76	-14.15	34.73	26.89	55.28	87.82
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Assessed expenses									
2001-02	147.72	140.98	123.96	123.79	116.11	67.59	124.66	63.65	133.62
2006-07	280.13	266.82	233.87	229.88	213.49	116.66	215.89	107.93	250.96
	%	%	%	%	%	%	%	%	%
Assessed cost of providing services ratio									
2001-02	110.56	105.51	92.77	92.65	86.90	50.59	93.30	47.63	100.00
2006-07	111.62	106.32	93.19	91.60	85.07	46.49	86.02	43.01	100.00

137 **Replacing category factors.** The assessed cost of providing services increased in New South Wales, Victoria and Queensland (Table 38). As a result, replacing the 2001-02 factors with 2006-07 factors increased the GST shares of those States (\$4.2 million). The shares of the other States were reduced.

138 The observed changes were driven by both growth and changes in State spending patterns. A major portion of the growth in expenditure was a \$960 million increase in capital subsidy expenditure in New South Wales. Combined with a small increase in expenditure on pricing subsidies and a decrease in expenditure on concessional subsidies across other States, this meant that capital subsidies had a greater influence on determining GST distribution. States assessed to have above average capital subsidies costs, New South Wales and Victoria, received larger GST distributions while the other States saw reduced distributions. Queensland benefited from the increase in expenditure on pricing subsidies which resulted in a larger distribution.

This working paper was prepared by the Transport and Other Services section of the Commonwealth Grants Commission. If you have any questions about its content please contact Glenn Pure on (02) 6229 8816 or glenn.pure@cgc.gov.au



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Table 39 Assessment of expenses, Urban Transport

	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	\$
Average Expenses		134.70		161.11		187.95		188.00		250.96
New South Wales										
Assessed difference	93.335	14.03	100.927	15.08	125.396	18.62	106.086	15.63	199.950	29.16
Expenses - Assessed	989.496	148.73	1 179.154	176.19	1 390.834	206.58	1 382.413	203.63	1 920.487	280.13
Actual	1 521.298	228.67	1 704.509	254.69	2 012.978	298.99	2 123.517	312.79	3 270.517	477.04
Victoria										
Assessed difference	36.705	7.50	42.237	8.52	51.975	10.35	43.517	8.55	81.964	15.86
Expenses - Assessed	696.120	142.20	840.706	169.63	995.394	198.31	1 000.620	196.55	1 378.806	266.82
Actual	170.444	34.82	560.222	113.04	492.969	98.21	368.637	72.41	415.602	80.43
Queensland										
Assessed difference	- 35.777	- 9.50	- 39.666	- 10.27	- 47.361	- 11.97	- 39.900	- 9.85	- 70.667	- 17.09
Expenses - Assessed	471.704	125.21	582.648	150.84	696.261	175.98	721.284	178.15	967.210	233.87
Actual	442.000	117.32	456.000	118.05	637.000	161.00	661.000	163.26	774.628	187.31
Western Australia										
Assessed difference	- 19.144	- 9.88	- 20.111	- 10.22	- 25.698	- 12.85	- 19.259	- 9.45	- 43.895	- 21.08
Expenses - Assessed	241.976	124.83	296.986	150.89	350.208	175.11	363.998	178.55	478.615	229.88
Actual	270.760	139.67	249.790	126.91	313.401	156.70	375.000	183.95	490.965	235.81
South Australia										
Assessed difference	- 26.359	- 17.27	- 26.413	- 17.19	- 33.617	- 21.74	- 24.185	- 15.50	- 59.078	- 37.47
Expenses - Assessed	179.242	117.43	221.096	143.92	257.080	166.22	269.184	172.50	336.598	213.49
Actual	168.169	110.18	147.785	96.20	251.850	162.84	202.811	129.97	146.942	93.20
Tasmania										
Assessed difference	- 31.638	- 66.60	- 37.125	- 77.23	- 45.229	- 93.29	- 43.764	- 89.59	- 66.027	- 134.30
Expenses - Assessed	32.351	68.10	40.318	83.88	45.893	94.66	48.068	98.41	57.357	116.66
Actual	20.102	42.32	20.764	43.20	21.308	43.95	24.200	49.54	25.022	50.89
Australian Capital Territory										
Assessed difference	- 3.004	- 9.27	- 2.801	- 8.59	- 4.775	- 14.53	- 2.162	- 6.51	- 11.809	- 35.07
Expenses - Assessed	40.659	125.43	49.754	152.52	56.975	173.42	60.298	181.49	72.687	215.89
Actual	48.301	149.01	60.601	185.77	52.127	158.66	67.343	202.70	67.343	200.01
Northern Territory										
Assessed difference	- 14.117	- 70.78	- 17.049	- 84.86	- 20.692	- 101.30	- 20.332	- 97.41	- 30.437	- 143.03
Expenses - Assessed	12.748	63.92	15.319	76.25	17.702	86.66	18.907	90.59	22.968	107.93
Actual	23.222	116.44	26.311	130.96	28.714	140.57	42.265	202.50	43.709	205.40

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