

# 19 Justice

## Summary of the assessment

The Justice category consists of State spending on police services, law courts, legal services, prisons and corrective services. Associated revenues include fees, fines, and user charges such as property title changes and registrations of births, deaths and marriages. These are assessed in the Other revenue category.

The Commission has assessed above-average costs in States with higher than average concentrations of Indigenous people, young to middle-aged adults and people of low socio-economic status (SES), as they are more likely to come into contact with the justice system. The cost of police, courts and prisons are assessed separately as the extent of the influence of Indigenous status, age and SES is not the same for each service, and different data sources are used to measure use of the different services.

The assessment also recognises the differences between States in wage costs, the higher costs of providing services in remote and very remote locations, and the higher costs to the ACT of using the Australian Federal Police (AFP).

## Service overview

- 1 State expenses on Justice were \$22 billion in 2018-19, representing 9.8% of total State expenses (Table 19-1). State spending on Justice includes:
  - Police:
    - crime prevention, detection and investigation
    - road safety monitoring and promotion, including enforcing traffic law
    - maintenance of social order including resolving disputes, dealing with people affected by drugs or alcohol and dealing with domestic violence
    - community safety and support including security awareness programs, dealing with community safety concerns, policing major events and undertaking emergency and rescue operations
    - court prosecution including attending and preparing for court hearings, and transporting defendants to court.
  - Criminal courts:
    - Criminal court services are provided in each State. The seriousness and complexity of cases heard at each court level varies across States.
    - Within the judicial sector a number of agencies have roles that directly or indirectly relate to the work of criminal courts. The criminal courts assessment includes expenses from these related services, such as public prosecution and legal aid.

- Other legal services:
  - Other legal services include civil courts, Attorney-General departments, crown solicitors, law reform commissions and a range of other court and legal expenses not included in criminal courts.
  - The Commission used budgetary information and advice provided by States to calculate the split between criminal courts and other legal services.
- Prisons:
  - Prison services include the administration, support and operation of prisons and other places of secure detention, both government and privately run, for convicted persons and alleged offenders. The facilities offer varying levels of security from maximum through to low security prison farms.
  - Juvenile detention is included in the prison assessment.
  - The prison assessment also includes the administration and operation of community-based corrections and administration of parole, community service and home detention.

**Table 19-1 Justice expenses by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Total expenses (\$m)	6,342	6,013	3,882	2,927	1,547	434	314	626	22,087
Total expenses (\$pc)	789	921	769	1,123	888	816	742	2,549	878
Proportion of operating expenses (%)	9.0	13.2	7.2	11.2	10.3	8.6	6.8	11.5	9.8

Note: Expenses shown on a gross basis.

Source: Commission calculation using State budget data.

2 The Justice category excludes public order and safety services related to:

- fire protection services
- control of domestic animals and livestock
- public order and safety not elsewhere classified.

3 These expenses are assessed in the Other expenses category.

4 Table 19-2 shows the share of State expenses on Justice from 2015-16 to 2018-19.

**Table 19-2 Justice expenses, all States, 2015-16 to 2018-19**

	2015-16	2016-17	2017-18	2018-19
Total expenses (\$m)	18,154	19,146	20,419	22,087
Proportion of total operating expenses (%)	9.5	9.5	9.5	9.8

Note: Expenses shown on a gross basis.

Source: Commission calculation using Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.

5 User charges (Table 19-3) were \$1.4 billion in 2018-19. States cost-recover some expenses associated with justice services, predominantly within the other legal services component, but also to a lesser extent from some police provided services such as policing at special events.

- 6 In this category, the expense disabilities are not appropriate to apply to the user charges, and there are no other reliable data available. Therefore, Justice user charges are assessed equal per capita (EPC) in the Other revenue category.

**Table 19-3 Justice user charges, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Revenue (\$m)	398	377	211	195	195	26	17	27	1,446
Revenue (\$pc)	50	58	42	75	112	49	40	111	57

Note: User charges refer to revenue from the sale of goods and services classified in GFS to economic type framework (ETF) 112.

Source: Commission calculation using ABS GFS and State budget data.

## State and Commonwealth roles and responsibilities

### **Policing**

- 7 State police forces enforce the laws of their respective States.
- 8 The AFP enforces Commonwealth law and deals with issues affecting crime and security at the national level. This includes crimes like human trafficking, trafficking of drugs in and out of Australia, counterfeiting of currency, fraud against the Commonwealth and intellectual property crime. They patrol, and have exclusive jurisdiction, at most major airports.
- 9 The AFP provides State-type policing services to the ACT on a cost-recovery basis.
- 10 State and federal police may work together on certain investigations, as some incidents may involve both State and federal crimes.

### **Criminal courts**

- 11 State criminal courts have almost exclusive jurisdiction to hear matters relating to indictable offences, whether these occurred under Commonwealth or State law. The exceptions are matters dealing with making a contract containing a cartel provision and giving effect to a cartel provision, which are heard by the Federal Court.
- 12 Summary offences against a number of Commonwealth Acts are dealt with by the Federal Court. State courts deal with all matters relating to State law as well as some offences related to Commonwealth law not under the jurisdiction of the Federal Court.

### **Other legal services**

- 13 States provide civil law court services to address civil disputes arising under State law while almost all civil matters arising under Australian federal law are under the Federal Court's jurisdiction.
- 14 Family court services are provided by the Commonwealth, except in Western Australia where the Family Court of Western Australia provides the service with funding from the Commonwealth.
- 15 A number of other legal-related services are provided by States, including registrars, law commissions and public prosecution.
- 16 States run legal aid commissions, which provide legal assistance to the community for both State and Commonwealth matters. The Commonwealth provides approximately one-third of legal aid funding.

## Prisons

- 17 There are no federal prisons in Australia. States are responsible for housing both State and federal prisoners.

## Commonwealth payments

- 18 In addition to general revenue assistance, the Commonwealth provides funding to the States for justice services, comprising mainly legal aid services.
- 19 Table 19-4 shows that other than legal aid, the Commonwealth provides very little direct support to the States for justice services.

**Table 19-4 Commonwealth payments to the States for Justice, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Legal Aid (\$m)	79	61	53	31	20	7	6	7	266
Family Advocacy and Support Services (\$m)	2	1	1	1	1	1	1	1	7
Total (\$m)	<b>81</b>	<b>62</b>	<b>54</b>	<b>32</b>	<b>21</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>273</b>
Total (\$pc)	<b>10</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>12</b>	<b>15</b>	<b>16</b>	<b>33</b>	<b>11</b>

Note: Table shows major payments only. Commonwealth own purpose expenses (COPEs) are not included. Payments that the Commission treats as 'no impact' are included in the table.

Source: Commonwealth Final Budget Outcome, 2018-19.

- 20 Legal aid and family advocacy payments have no effect on State fiscal capacities. The complete list of Commonwealth payments and their treatment is available on the [Commission website](https://cgc.gov.au), (<https://cgc.gov.au>).<sup>1</sup>

## Category structure

- 21 The assessment of the Justice category is undertaken in four components:
- police
  - criminal courts
  - other legal services
  - prisons.
- 22 Components allow different disability assessments to apply to sub-functions.
- 23 Table 19-5 shows the category's assessment structure, the size of each component and the disabilities that apply.

<sup>1</sup> Most Commonwealth payments to the States affect the grant distribution but some do not. The Commission refers to payments that affect the grant distribution as 'impact' payments. For more information, see Chapter 5 Commonwealth payments.

Table 19-5 Category structure, Justice, 2018-19

Component	Component expense	Disability	Influence measured by disability
	\$m		
<b>Police</b>	11,337	Regional costs	Recognises that the cost of providing policing services increases as the level of remoteness increases.
		Socio-demographic composition	Recognises that certain population characteristics (Indigenous status, age, and SES) affect the degree of police attention.
		Wage costs	Recognises the difference in wage costs between States.
		National capital	Recognises the additional costs incurred by the ACT as a result of its reliance on the AFP as the provider of its policing services.
<b>Criminal courts</b>	2,869	Socio-demographic composition	Recognises that certain population characteristics (Indigenous status, age, and SES) affect the use of criminal court services.
		Regional costs	Recognises the additional costs of providing services in sparsely populated and remote areas.
		Wage costs	Recognises the difference in wage costs between States.
<b>Other legal services</b>	2,388	Regional costs	Recognises the additional costs of providing some services in sparsely populated and remote areas.
		Wage costs	Recognises the difference in wage costs between States.
<b>Prisons</b>	5,493	Socio-demographic composition	Recognises that certain population characteristics affect the use of services, for example, Indigenous status, age, and SES.
		Regional costs	Recognises the additional costs of providing services in remote areas.
		Wage costs	Recognises the difference in wage costs between States.

Source: Commission calculation using ABS GFS and State budget data.

## Category and component expenses

- 24 The main data sources for calculating category and component expenses are Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.<sup>2</sup>
- 25 A split of GFS estimates of court and legal services expenses, into criminal courts and other legal services, is derived from expense data received from States. This split is calculated using 2016-17 data and is intended to be applied in all updates that use the 2020 Review methods.

## Assessment approach

### Police

- 26 Expenses for this component include:
- police services
  - research and development – public order and safety.

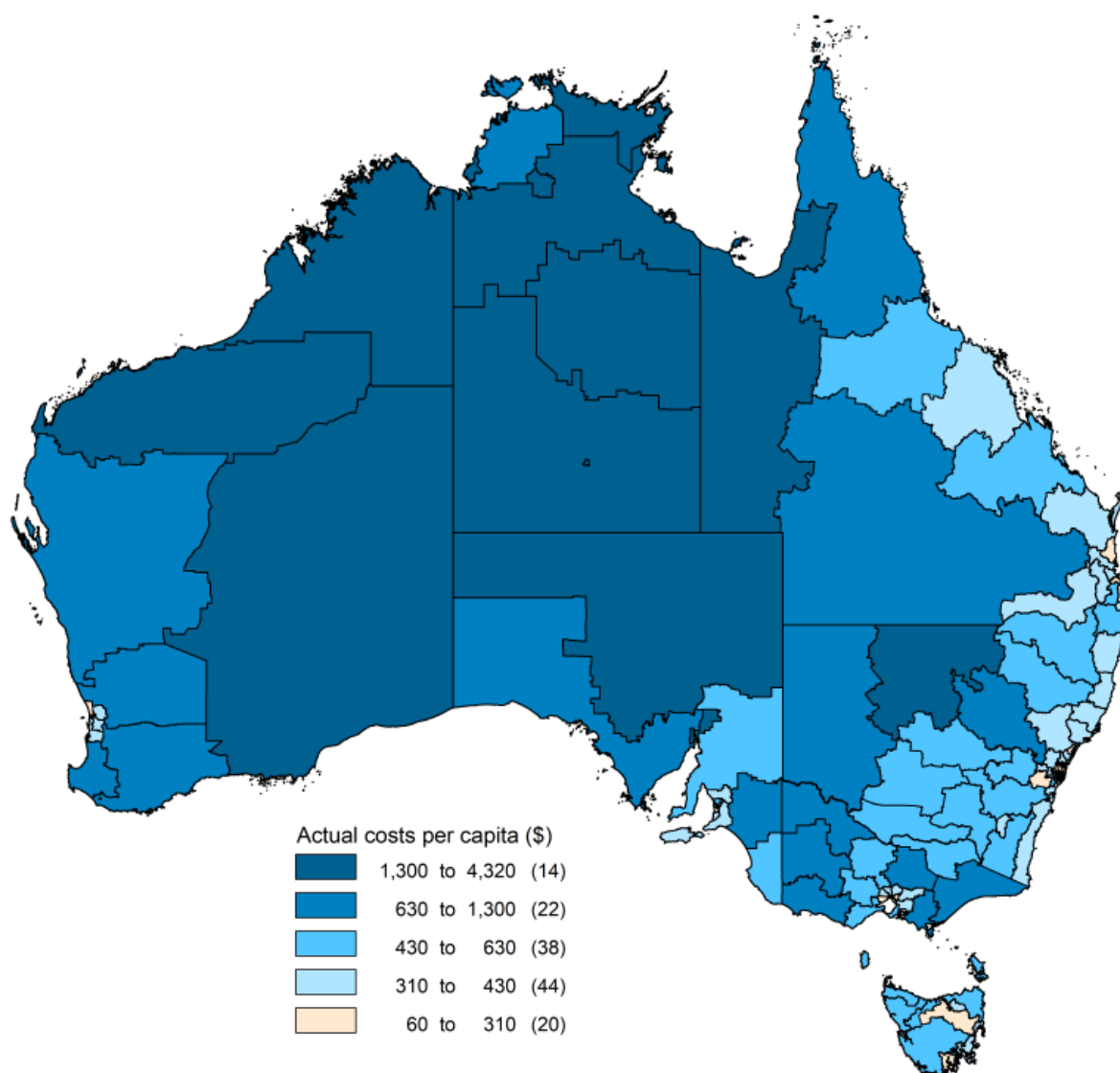
<sup>2</sup> Unless otherwise stated, category and component expenses for the first two assessment years are sourced from ABS GFS. States provide data for the most recent assessment year because GFS data are not available in time for the annual update.

- 27 The police assessment is based upon the geographic distribution of State populations and the number of assessed offenders in a jurisdiction, with adjustments for wage costs and a national capital allowance for the ACT.
- 28 The 2015 Review police assessment divided police expenses into those targeting criminal activity and those targeting community policing on a 50:50 basis, following the Commission's interpretation of State expense data. States expressed concern over this method, with different States advocating for a greater or lesser proportion of costs directed towards the criminal population.
- 29 For the 2020 Review, the Commission has produced a more empirical assessment. States generally welcomed the new assessment as representing a more reliable framework and improvement on the previous 2015 Review approach, though Tasmania cautioned against changing the existing model, noting that the Commission considered the 2015 Review approach as sufficiently reliable.

### **Policing task – population**

- 30 Spending on the policing task increases the more remote the geographic distribution of a State's population. Additional loadings (or cost weights), derived from Commission modelling using regression techniques, are applied to State populations depending on their level of remoteness:
- people living in major cities — 1.0
  - people living in inner regional areas — 1.5
  - people living in outer regional areas — 1.7
  - people living in remote areas — 5.4
  - people living in very remote areas — 6.9.
- 31 Data provided by States show that police costs per capita are much higher for remote areas compared to non-remote areas. These data are mapped in Figure 19-1. This shows that the high costs of policing in remote areas are experienced across the country. All States with remote populations demonstrate significantly higher costs per capita in remote than non-remote areas.

Figure 19-1 Actual cost per capita by police district, average of 2015-16 and 2016-17



Source: Commission calculation based on State data.

- 32 The increases in costs with remoteness reflect that, in addition to the increases in costs experienced similarly in other services with increasing remoteness (usually captured by regional costs in other categories), police provide a more permanent presence in a much wider range of locations compared to other State service delivery staff. During the State visits, several States told the Commission that in some communities police represent the primary face of government service delivery, thus providing a wider range of services than just policing. In contrast, in major cities and regional centres, these roles are usually provided by staff from other agencies.

### Policing task – assessed offenders

- 33 Offender numbers are also a significant driver of police expenses. A cost weight, derived from Commission modelling, of 20 per offender is applied to the number of assessed offenders for each assessment year.
- 34 New South Wales argued that, conceptually, the level of remoteness should affect the cost associated with offenders as well as the costs associated with the general population. While this approach may be conceptually valid, analysis using such an approach did not bear this

out. The Commission's view is that any increase in costs in dealing with offenders is better explained through the relationship between remoteness and population, rather than between remoteness and offender numbers.

- 35 Offending rates are higher among some population groups than others. The number of assessed offenders is derived by applying the national average offender rate for a given socio-demographic sub-population to a State's share of such populations. The socio-demographic groups include a cross-classification of Indigenous status, SES and age. In total, there are 40 socio-demographic groups based on the groups shown in Table 19-6.

**Table 19-6 Socio-demographic groups used in police – assessed offender calculation**

Indigenous status and socio-economic status (a)		Age
Indigenous (IRSEO)	Most disadvantaged (40%)	0-14
	Middle quintile (20%)	15-24
	Least disadvantaged (40%)	25-44
Non-Indigenous (NISEIFA)	Most disadvantaged (20%)	45-64
	2nd most disadvantaged (20%)	65+
	Middle quintile (20%)	
	2nd least disadvantaged (20%)	
	Least disadvantaged (20%)	

(a) SES is measured using Indigenous Relative Socioeconomic Outcomes (IRSEO) for the Indigenous population and Non-Indigenous Socio-Economic Index for Areas (NISEIFA) for the non-Indigenous population.

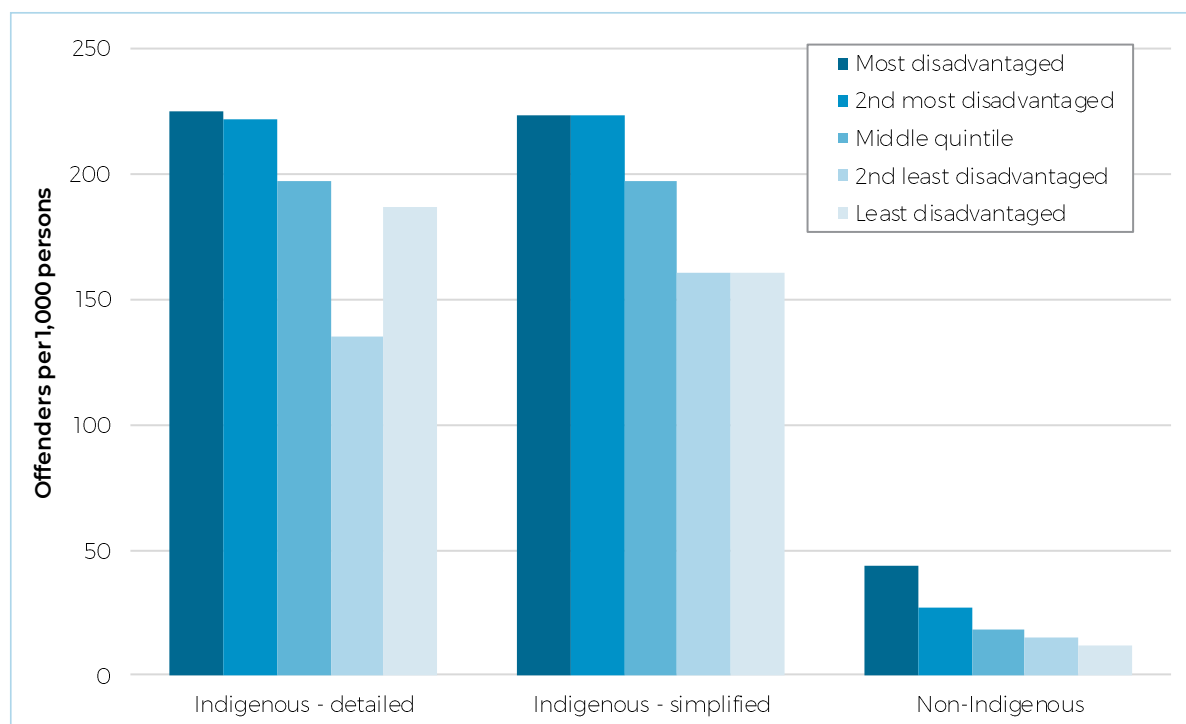
Source: Commission decision.

## Indigenous status and SES

- 36 Police proceedings against the Indigenous people are eight times more per capita than non-Indigenous people. Therefore, Indigeneity is an important factor to consider when assessing disabilities related to the number of offenders.
- 37 While generally, offender rates for Indigenous people are lower for Indigenous people from less disadvantaged areas, the available data did not identify a uniform decrease in offender rates, as shown in Figure 19-2. A simplified three-group set of Indigenous SES groups (Indigenous Relative Socioeconomic Outcomes — IRSEO) appears to assess the SES of the Indigenous population as accurately as the available data will allow.
- 38 For the non-Indigenous population, a clearer relationship of lower offender rates in less disadvantaged areas is observable. As such the Commission is using five non-Indigenous socio-economic index for areas (NISEIFA) quintiles to assess the non-Indigenous offending population to capture the effect of SES on offender rates.



Figure 19-2 Offence rates by SES, average of 2015-16 and 2016-17



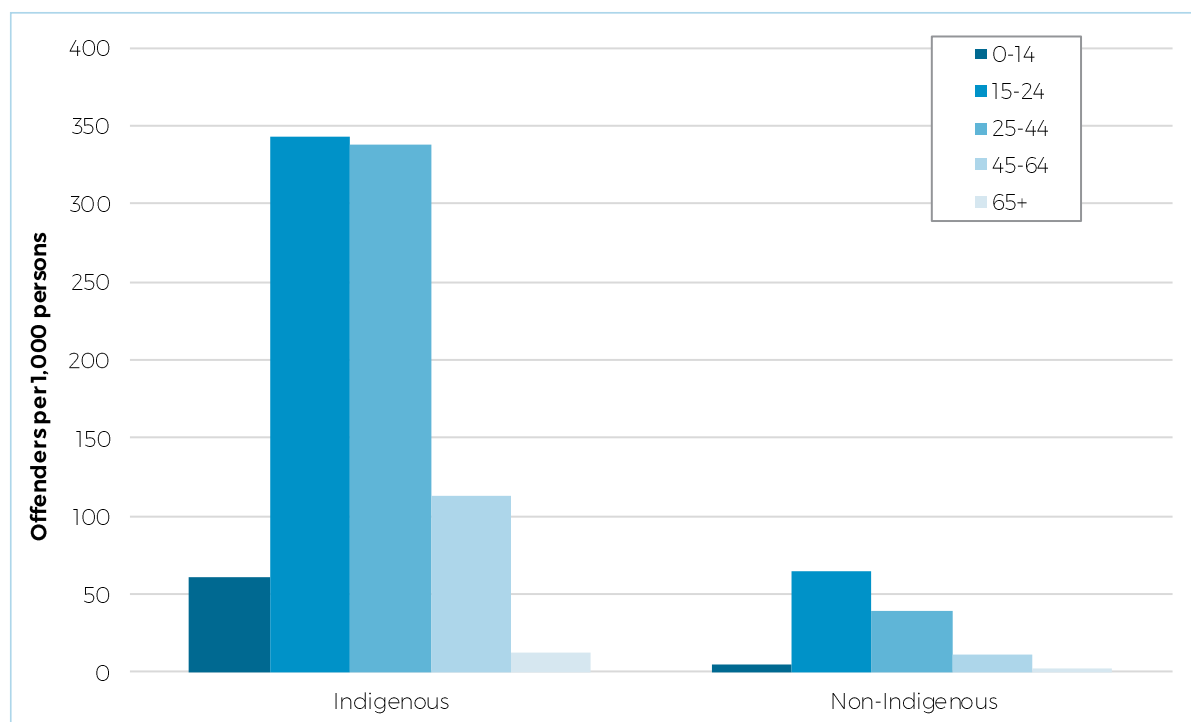
Source: Commission calculation based on State provided data.

## Age

- 39 The offender rate varies significantly by age, with 15-44 year olds having considerably higher offender rates than other age groups as shown in Figure 19-3, with very low rates for the 0-14 and 65+ age groups.<sup>3</sup>

<sup>3</sup> In the 2015 Review approach, the 0-14 and 65+ age groups were assumed to have zero use of justice services. In this review the Commission considers it simpler and more appropriate to use the actual offence rates of these groups.

Figure 19-3 Offence rates by age and Indigenous status, average of 2015-16 and 2016-17

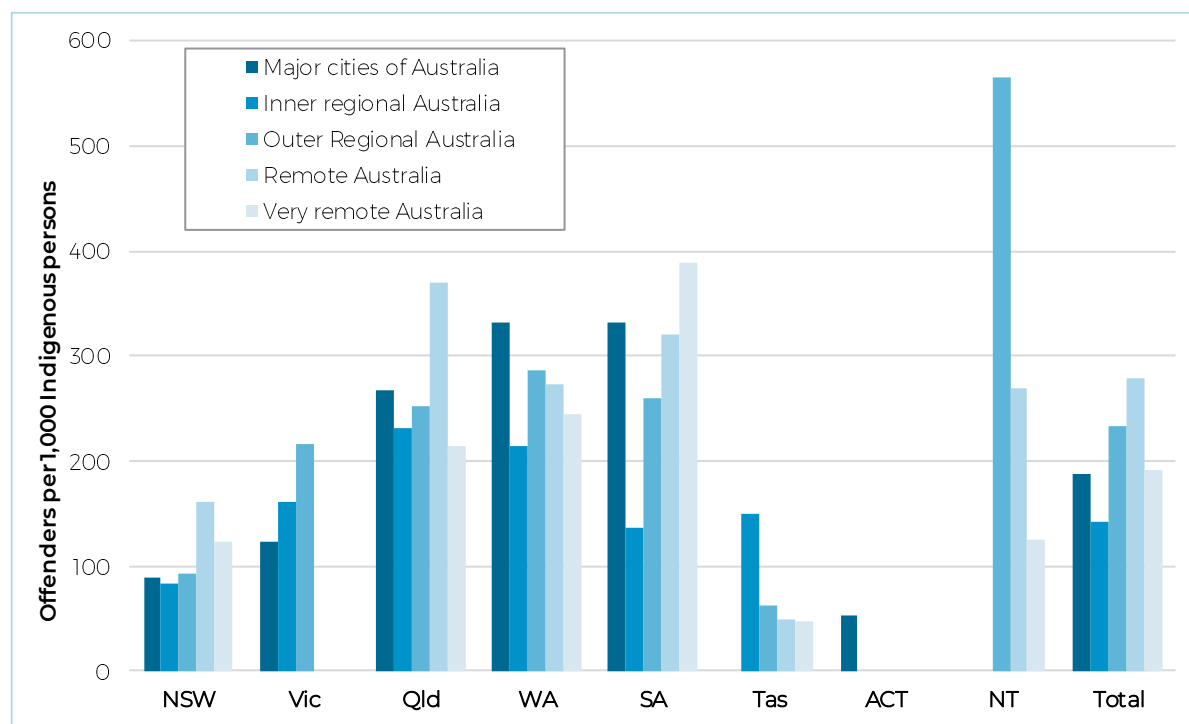


Source: Commission calculation based on State provided data.

### Remote service use

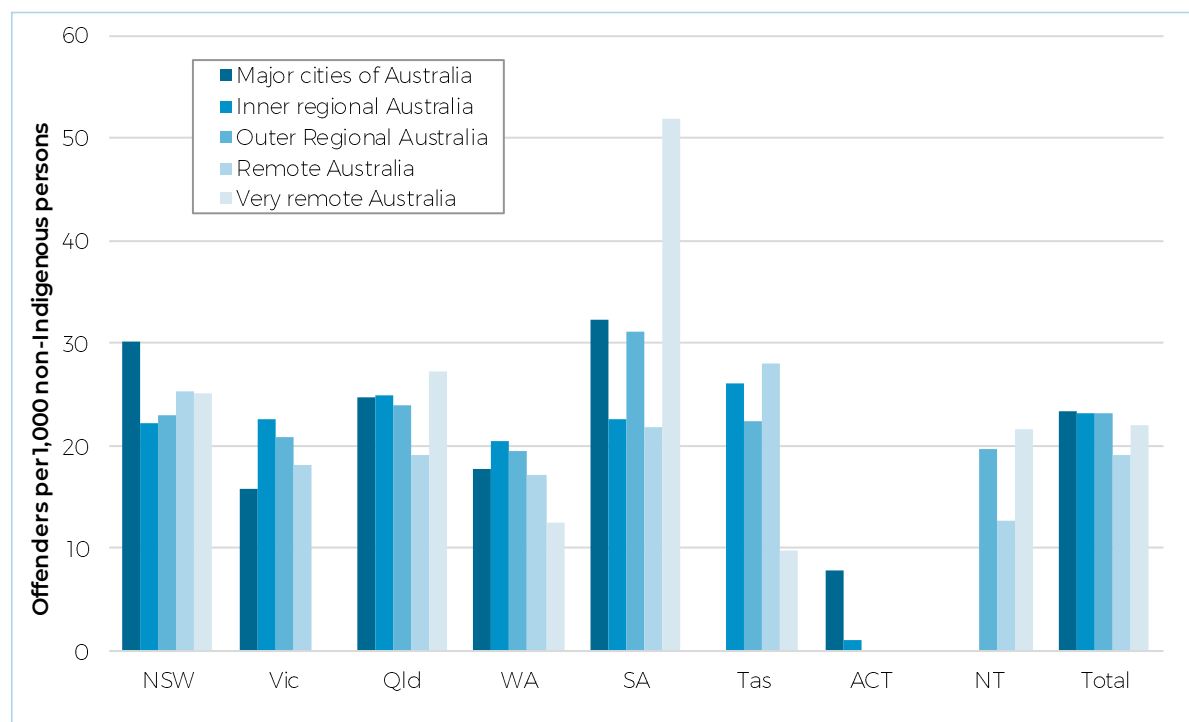
- 40 There is no clear or consistent relation between remoteness and offender rates, as shown in Figure 19-4 and Figure 19-5. For the Indigenous population, even at the national level, it is not clear whether offender rates increase or decrease with remoteness. For the non-Indigenous population, there is some support in the data that remote areas probably have marginally lower offender rates than non-remote areas, although this pattern is far from clear or consistent across the country. In the absence of compelling evidence that offender rates vary with remoteness, remoteness has not been included in the offender use rate profile.

Figure 19-4 Indigenous offence rates by remoteness, average of 2015-16 and 2016-17



Source: Commission calculation based on State provided data.

Figure 19-5 Non-Indigenous offence rates by remoteness, average of 2015-16 & 2016-17



Source: Commission calculation based on State provided data.

## Wage costs

- 41 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.

## National capital

- 42 The police assessment includes a national capital allowance for police services, recognising the higher salaries paid to AFP staff compared to staff of State police forces and the legislated use of this service by the ACT (see Chapter 29 Other disabilities).

## Data and methods

- 43 The policing task is based upon cost-weighted populations and cost-weighted assessed offenders. The cost weights were derived from regression analysis of a model of police spending patterns developed by the Commission based upon State provided data.
- 44 The number of assessed offenders is calculated by applying the national offending rates of the population, cross-classified by Indigenous status, SES and age, to those population groups in each State. The weighted policing task is assessed by applying different cost weights per capita for each remoteness area, plus an additional cost weight for each assessed offender. Total national government finance statistics (GFS) spending is then allocated between the States in proportion to their share of the weighted policing task.
- 45 Table 19-7 shows the calculation of the policing task for 2018-19. The per capita cost weights are applied to the population of each remoteness area for the assessment year. The offender cost weight of 20 is applied to the number of assessed offenders for the assessment year. Together these sum to the total weighted policing task. This weighted policing task of 46 million units is scaled to match the \$11.3 billion of GFS State police expenses to derive the policing task assessed expenses (prior to the allocation of the wage costs and national capital disabilities).

**Table 19-7 Police assessment, policing task calculations, 2018-19**

	Cost weight	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
		'000	'000	'000	'000	'000	'000	'000	'000	'000
Major city population	1.0	6,061	5,089	3,239	2,039	1,282	-	423	-	18,134
Inner regional population	1.5	1,494	1,184	988	226	225	361	1	-	4,478
Outer regional population	1.7	447	251	696	185	177	160	-	147	2,065
Remote population	5.4	30	3	73	86	45	8	-	48	292
Very remote population	6.9	6	-	55	69	14	3	-	50	197
<b>Cost weighted population</b>		<b>9,280</b>	<b>7,319</b>	<b>6,698</b>	<b>3,642</b>	<b>2,265</b>	<b>879</b>	<b>424</b>	<b>860</b>	<b>31,367</b>
Assessed offenders	20.0	232	162	156	74	52	18	8	20	722
Cost-weighted offenders		4,623	3,227	3,118	1,483	1,033	354	160	397	14,395
<b>Total cost-weighted policing task</b>		<b>13,903</b>	<b>10,546</b>	<b>9,816</b>	<b>5,125</b>	<b>3,298</b>	<b>1,234</b>	<b>583</b>	<b>1,257</b>	<b>45,762</b>
		<b>\$m</b>	<b>\$m</b>	<b>\$m</b>	<b>\$m</b>	<b>\$m</b>	<b>\$m</b>	<b>\$m</b>	<b>\$m</b>	<b>\$m</b>
Policing tasks assessed expenses rescaled to GFS		3,444	2,613	2,432	1,270	817	306	144	311	11,337

Source: Commission calculation.

- 46 The 2020 Review policing task model removes the need to apply a judgment based estimate on the split between community (EPC) driven costs, and specialised (offender driven) costs. It is worth considering how the implicit split in the model differs from the judgment based split of the 2015 Review methods.

- 47 The results of applying the regression to the 2018-19 assessment year (see Table 19-7) show offender based costs make up 31.5% of the policing task results, and regional based population costs make up 68.5%. This share of 68.5% should not be confused with the 50.0% of police costs assumed to be related to population in the 2015 Review, as it also incorporates the impact that geography has on the policing task. Similarly, it should not be interpreted as police using 31.5% of their resources to target offenders and 68.5% for other general work. Rather, it means that 68.5% of spending can be explained on an EPC basis or is correlated with remoteness and the remaining 31.5% can be explained by differing levels of crime.
- 48 The difference between these concepts can be seen from a hypothetical example. If States allocated police resources across each State in an EPC manner, police could still spend 100% of their time targeting offenders. One possible outcome of this would be that in low crime areas, less severe crimes may attract more resourcing than they would in high crime areas. Alternatively, if police resources were allocated across each State in proportion to offender numbers, police could still spend time dealing with the general community in those areas, or preventing crime.

### **Data concerns**

- 49 New South Wales and Queensland raised concerns that costs associated with activities focused on prevention, disruption and community engagement are not accounted for and are poorly reflected in offender numbers or the SES of those offenders, creating bias in the data. The Commission does not consider that any such bias exists. Police districts with a large number of offenders have higher costs. While some of these costs are directly related to arresting or other forms of proceeding against those offenders, other costs relate to diversion or other strategies aimed at the same population group but not tied to resolving a particular offence. For example, police may spend significant resources checking on people on parole to discourage parole violations. This spending is not targeted at a particular offence or offender, but areas with high numbers of parolees are likely to have higher numbers of offenders. To the extent to which this is true, this spending will be allocated to offender related costs. That is, to the extent that variation in police spending between districts is correlated with, but not necessarily directly caused by, variation in offender numbers, it will be allocated to offender related spending.
- 50 Traffic and breach of bail offences have been excluded from the calculations. This was done to ensure data were more comparable between States. The Northern Territory expressed reservations that the exclusion of these offences could distort the regional costs gradient and Western Australia argued their inclusion would better describe State expenditure on offenders. Based on advice of the Australian Bureau of Statistics and data received from States, the varying quality of the information make traffic and breach of bail offences not comparable between States. The Commission understands that these offences tend to require fewer resources than other types of crime. As such, excluding these offences results in a more reliable model for predicting police expenses than including them. If the profile of these offenders is similar to that of other offenders, the model will attribute the associated costs to offender numbers. If the profile of these offenders is not similar to other offenders, the model will attribute the associated costs to the EPC regional cost element of the assessment.

## Component calculations

- 51 As shown in Table 19-8, a wage costs factor and national capital allowance are applied to the policing task assessed expenses to calculate assessed expenses for the police component in 2018-19.

**Table 19-8 Police assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Policing task (\$m)	3,444	2,613	2,432	1,270	817	306	144	311	11,337
Wage costs factor	1.007	0.993	0.995	1.020	0.976	0.968	1.022	1.033	1.000
National capital allowance (\$m)	-3	-2	-2	-1	-1	0	9	0	0
<b>Assessed expenses (\$m)</b>	<b>3,465</b>	<b>2,592</b>	<b>2,417</b>	<b>1,294</b>	<b>796</b>	<b>295</b>	<b>157</b>	<b>321</b>	<b>11,337</b>
<b>Assessed expenses (\$pc)</b>	<b>431</b>	<b>397</b>	<b>478</b>	<b>497</b>	<b>457</b>	<b>556</b>	<b>371</b>	<b>1,309</b>	<b>450</b>

Source: Commission calculation.

- 52 Data for both the cost weights and the socio-demographic composition (SDC) calculations were provided by States for the years 2015-16 and 2016-17. Population data are as at 30 December 2016.

## Courts and legal services

- 53 For the 2020 Review, courts and legal services have been split into two components reflecting the differing methods of assessment for criminal courts and other legal services.
- 54 ABS GFS data identify total costs associated with courts and legal services. The criminal courts related proportion of this is calculated based on a one-off data request to States. The State data indicated that, on average, 51% of courts and legal services expenses relate to criminal courts.
- 55 Queensland did not support the expenditure split as it claimed it was inconsistent with information in the Report on Government Services (RoGS). However, RoGS data only cover court expenses which, as shown in Table 19-9, make up only \$1.6 billion of the \$4.1 billion of GFS spending on all legal and court services. Therefore, the split of criminal and civil court expenditure in RoGS is not reflective of all courts and legal services spending.

**Table 19-9 Criminal and other legal services GFS splits, 2016-17**

	Courts	Non-court	Total
Criminal-related expenditure	57%	47%	51%
Other legal services related expenditure	43%	53%	49%
Total spend (\$b)	1.6	2.5	4.1

Note: Non-court criminal related expenditure include public prosecution and legal aid. Non-court other legal services include civil & administrative tribunals, law commission, birth registries, etc.

Source: Productivity Commission, *Report on Government Services 2018*, Chapter 7 Tables 7A.9 and 7A.10.  
State provided data.

## Criminal courts

- 56 Expenses for this component include:
- criminal courts
  - public prosecution

- legal aid related to defendants in criminal courts
- other legal services associated with criminal courts.

57 The criminal court assessment is based on an SDC assessment of the number of defendants with adjustments for wage costs and regional costs.

## Socio-demographic composition

58 Spending by each State on criminal court services is affected by the size of its population and the relative size of those population groups that are more likely to appear before a court. The number of assessed defendants is derived by applying the national average defendant rate for a given socio-demographic sub-population to that population in each State. The socio-demographic groups include a cross-classification of Indigenous status, SES and age. There are 50 socio-demographic groups based on the categories shown in Table 19-10.

**Table 19-10 Socio-demographic groups used in criminal courts and prisons assessments**

Indigenous status and socio-economic status (a)		Age
Indigenous (IRSEO)	Most disadvantaged (20%)	0-14
	2nd most disadvantaged (20%)	15-24
	Middle quintile (20%)	25-44
	2nd least disadvantaged (20%)	45-64
	Least disadvantaged (20%)	65+
Non-Indigenous (NISEIFA)	Most disadvantaged (20%)	
	2nd most disadvantaged (20%)	
	Middle quintile (20%)	
	2nd least disadvantaged (20%)	
	Least disadvantaged (20%)	

(a) SES is measured using IRSEO for the Indigenous population and NISEIFA for the non-Indigenous population.

Source: Commission decision.

59 Data on the SDC profile of defendants include only New South Wales, Queensland, Western Australia, South Australia and Northern Territory as other States were unable to provide Indigenous status for their defendants.

## Indigenous status

60 The Indigenous rate of defendants is much higher than that of the non-Indigenous population in all States, ranging from 3.8 times the rate in New South Wales to 8.8 in Western Australia, with an average of 5.4 across the five States.

61 **Treatment of Indigenous status non-response.** State provided data include 20% of defendants as having an Indigenous status of 'not stated'. This is primarily because Indigenous status is not routinely collected for traffic offences.<sup>4</sup>

62 Traffic defendant data provided by Western Australia show 60% provided an Indigenous status, with 40% not stated. Figure 19-6 shows that suburbs with a smaller proportion of Indigenous defendants based on responding persons (x axis) tend to have more defendants

<sup>4</sup> Traffic incidents account for some 40% of court attendances. Excluding traffic incidents could result in distorted national averages by Indigenous status.

not stating their Indigenous status (y axis) at all. This is suggestive of police asking or inferring Indigenous status of Indigenous people, but recording a not-stated response for a significant number of non-Indigenous people. According to this interpretation, the vast majority of actual Indigenous defendants have been identified, and the proportion of the not-stated population who are Indigenous is likely to be significantly less than the proportion of the stated population. That is, allocating not-stated responses on the basis of stated responses could substantially overstate Indigenous proportions. On this basis, the Commission intends to allocate the Indigeneity of not stated defendants in proportion to the Indigenous share of the total population. Western Australia was not convinced by the logic underpinning this approach.

**Figure 19-6 Western Australian traffic defendants: Indigenous status by suburb, 2016-17**



Note: Only includes locations with 40 or more people.

Source: Commission analysis of Western Australian Treasury data.

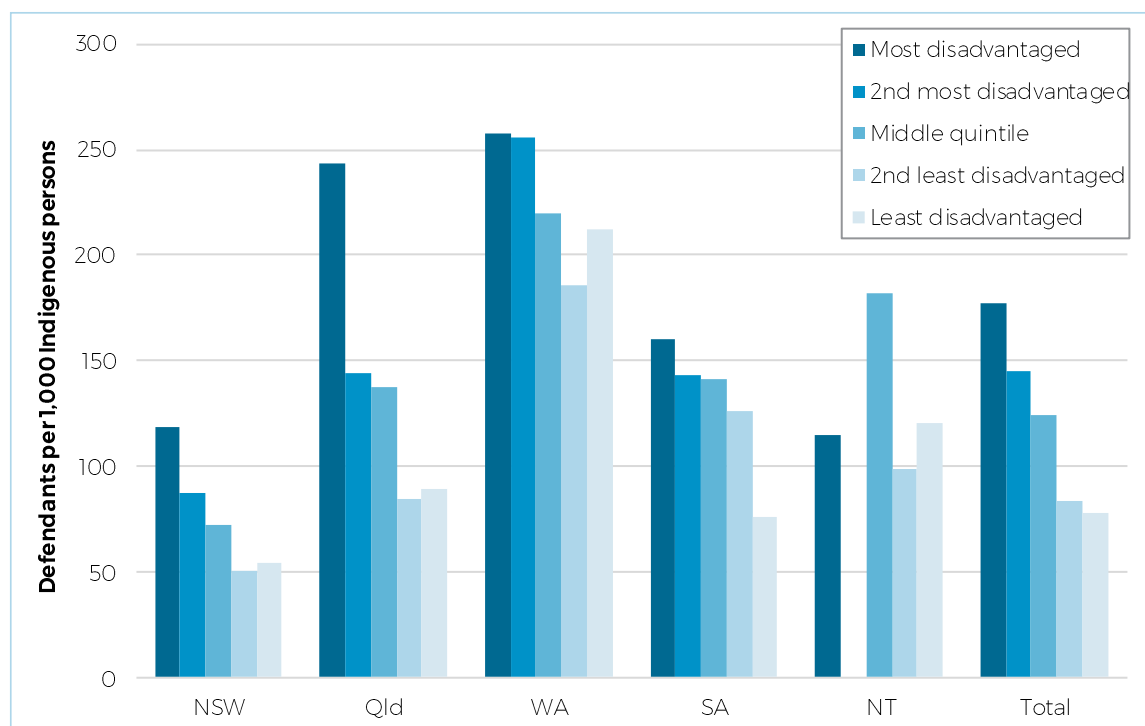
- 63 This conclusion is not generalised to other areas. The Commission extrapolates on the basis of stated responses unless there is strong evidence for an alternative.

### **Socio-economic status**

- 64 Defendant rates are higher among lower SES populations as shown in Figure 19-7 and Figure 19-8. The Commission has used five SES quintiles for both the Indigenous and non-Indigenous populations. IRSEO is the SES measurement for the Indigenous population and NISEIFA is used for the non-Indigenous population.

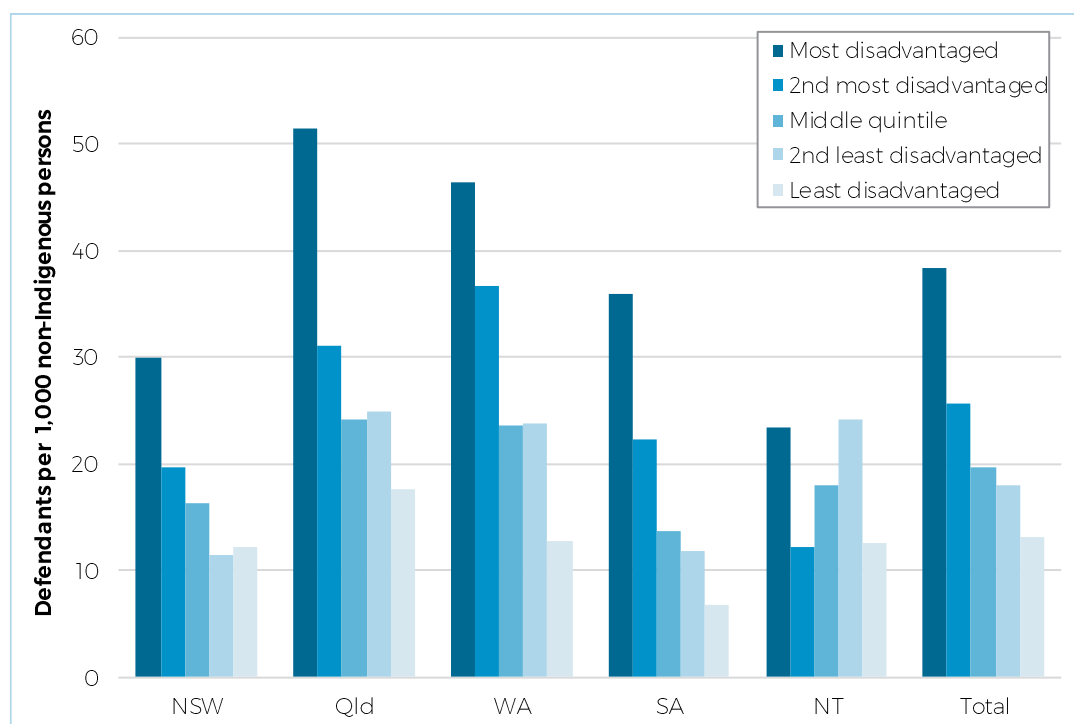


Figure 19-7 Indigenous defendant rates by SES (IRSEO), average of 2015-16 and 2016-17



Source: Commission calculation based on State provided data.

Figure 19-8 Non-Indigenous defendant rates by SES (NISEIFA), average of 2015-16 and 2016-17

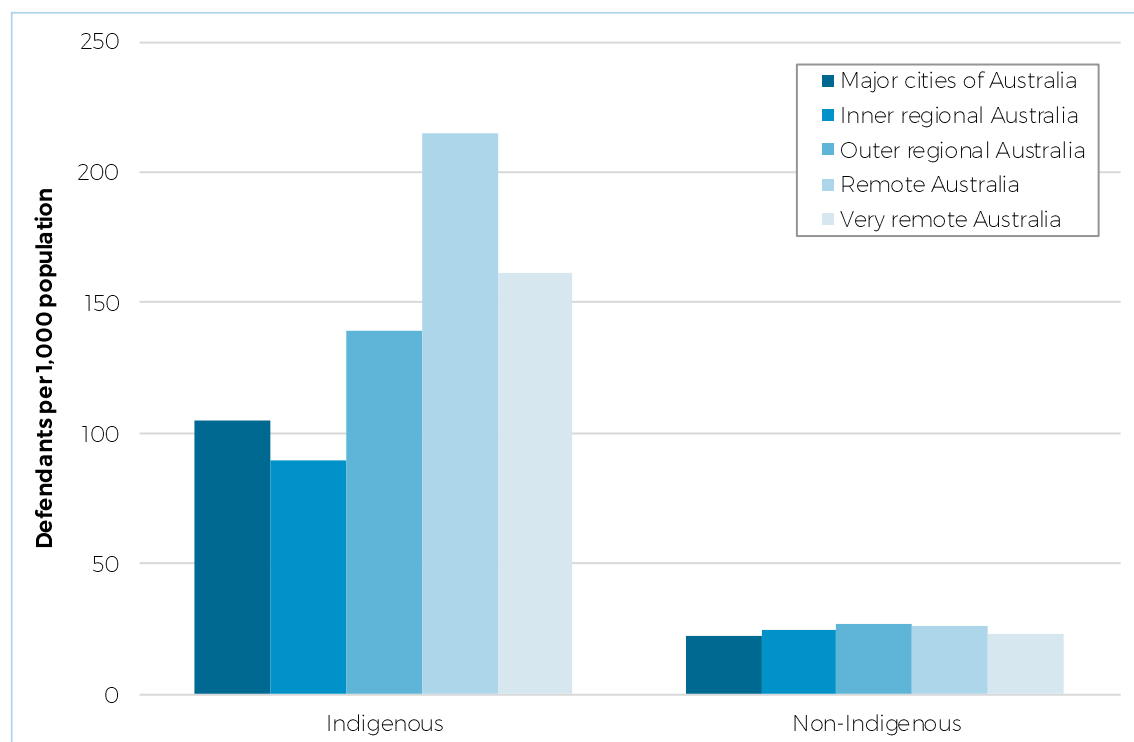


Source: Commission calculation based on State provided data.

## Remote service use

- 65 No clear relationship was established between the rate of defendants and their remoteness location, as shown in Figure 19-9. Therefore, remoteness has not been used as a factor in assessing the number of defendants.

Figure 19-9 Defendant rate by remoteness, average of 2015-16 and 2016-17



Note: Total data include NSW, Qld, WA, SA and NT only.

Source: Commission calculation based on State provided data.

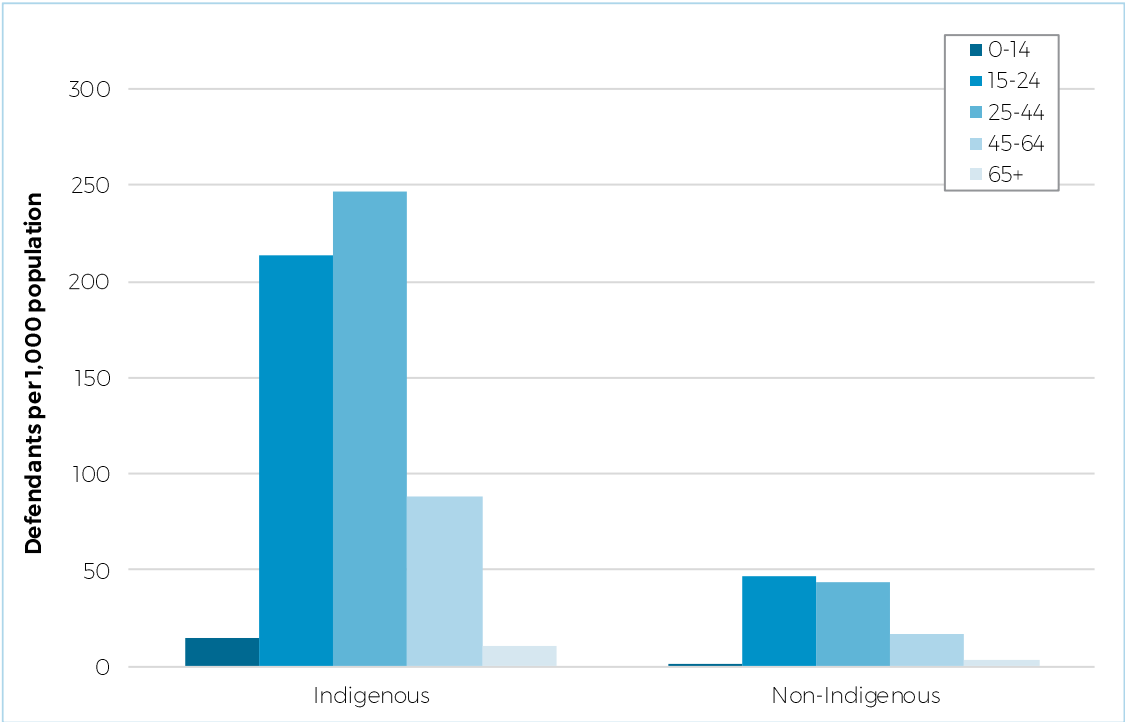
- 66 Western Australia and the Northern Territory both argued that while all five remoteness areas do produce an inconsistent relationship, grouping remoteness areas (as is done elsewhere) is appropriate.
- 67 While at face value such a grouping would produce a remoteness gradient for the Indigenous population, it would not for the non-Indigenous population. Additionally, while the Indigenous population in remote areas have higher offender rates compared to non-remote areas, this is primarily driven by higher proportions of low SES populations in remote areas. After controlling for SES, Indigenous status and age, there is no consistent relationship with remoteness, with remote Indigenous people less likely to go to court than major city Indigenous people, but the reverse pattern holding for non-Indigenous people.

## Age

- 68 Defendant rates are particularly high among 15-44 year olds, as shown in Figure 19-10. There are also different age profiles between the Indigenous and non-Indigenous population. Generally Indigenous defendant rates are five times that of the non-Indigenous population. However, for youth under 15, they are on average 18 times the rate. These differing age profiles will be reflected when assessing the number of defendants in each State.
- 69 As data are available, in this review the Commission intends to use the actual defendant rates for the 0-14 and 65+ age groups, in contrast to the 2015 approach when zero rates were applied to these age groups.<sup>5</sup>

<sup>5</sup> In contrast to the 2015 Review approach when 0-14 and 65+ age groups were assumed to have zero use of Justice services, in this review the Commission considers it simpler and more appropriate to use the actual offence rates of these groups.

Figure 19-10 Defendant rates by age and Indigenous status, average of 2015-16 and 2016-17



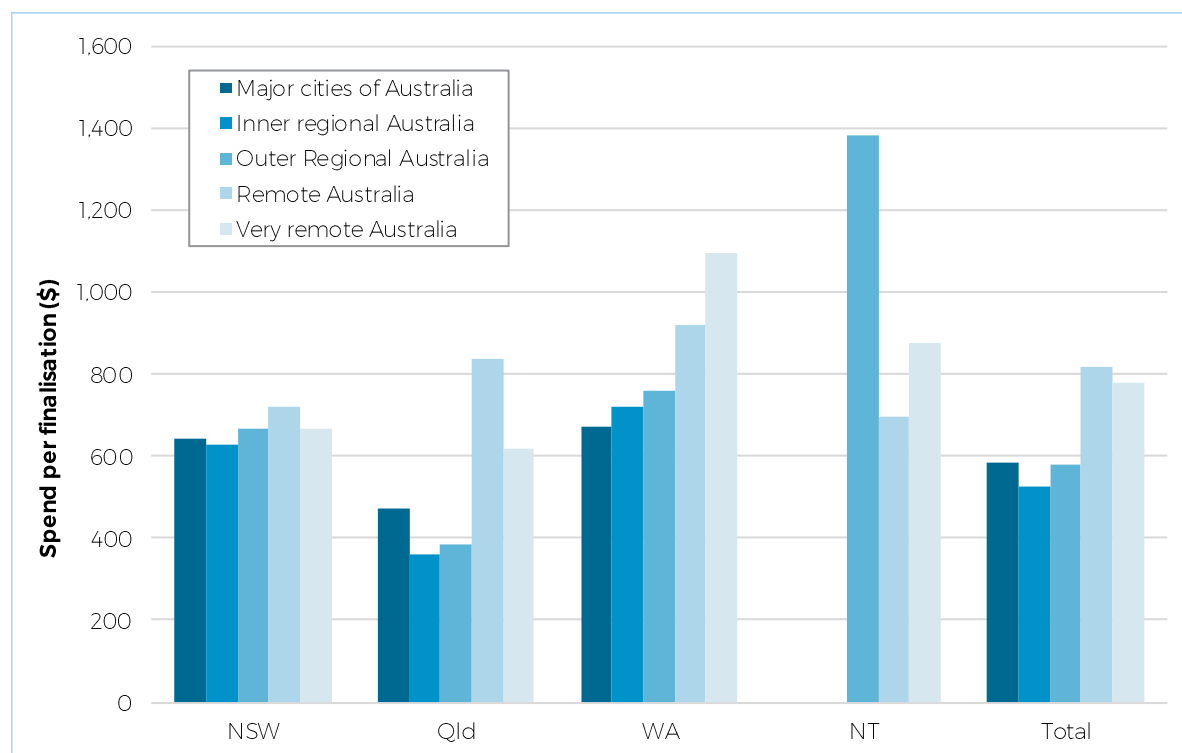
Note: Data include New South Wales, Queensland, Western Australia, South Australia and the Northern Territory only.  
Source: Commission calculation based on State provided data.

Regional costs

- 70 State provided data from New South Wales, Queensland, Western Australian and the Northern Territory along with data from the Productivity Commission were used to derive an additional 20.6% higher cost for courts in remote areas compared to non-remote areas.<sup>6</sup>
- 71 Most States have been unable to meaningfully attribute costs to different districts. Therefore, the Commission has restricted calculations to those data that both contained remote regions and where costs were not proportional to the number of cases. Data used were scaled to defendant numbers published by the Productivity Commission.
- 72 Figure 19-11 shows the cost per court case in different regions for these four States.

<sup>6</sup> As the distribution of defendants by region is not assessed, the regional cost factors are calculated based upon the regional distribution of Estimated Resident Population (ERP) in each State.

Figure 19-11 Cost per criminal court case, Magistrates' courts, 2016-17



Source: State treasuries.

Productivity Commission, *Report on Government Services 2018*, Chapter 7, Tables 7A.5 & 7A.9.

- 73 The relative spend was 40% higher in remote areas compared to non-remote areas. However, this was only applicable to Magistrates' courts which, according to the Productivity Commission RoGS, make up about half the total court spend. Therefore, the regional cost will be applied to this proportion.
- 74 Some higher court expenses (such as District Courts) are also applicable to remote areas. Using District court data from three States, and assuming Supreme courts have a similar remote use, the cost gradient could be increased from 21% to 25% to take into account higher court work in remote areas.
- 75 However, this is offset by the situation, as argued by Victoria, that not all defendants from remote areas use remote courts. Comparing data on defendants' residence to the location of criminal finalisation by State, it was found, on average, that there were 17% fewer finalisations in remote courts than finalisations of remote resident defendants. Applying this factor to the regional cost gradient almost fully offsets the additional costs associated with higher courts.
- 76 Given the negligible change arising from adjustment for these competing factors, and the assumptions made with limited data, the Commission has decided on the simplified approach of measuring the gradient using Magistrates' criminal court data and applying it to Magistrates' court expenses, without taking additional factors into account.

## Wage costs

- 77 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.

## Data and methods

- 78 SDC groups are derived from State provided data<sup>7</sup> on the number of defendants by Indigenous status, SES, and age as described in Table 19-10 for the years 2015-16 and 2016-17.
- 79 A defendant rate for each Indigenous status/SES/age subgroup is calculated as the ratio of defendants to population. A summary of the patterns observed from the State provided data on defendants can be seen in Figure 19-7 to Figure 19-10. The Commission does not intend to collect these data again during the 2020 Review period. The defendant rates derived from the State data will be fixed for the period of the Review, and these fixed rates applied to each assessment year population, to generate assessed defendants for those years.
- 80 Data about the cost of courts in regional areas have been provided by the States. The cost weight derived from these data will be fixed for the period of the Review.

## Component calculations

- 81 Table 19-11 shows the calculation of total assessed expenses for the component in 2018-19.

**Table 19-11 Criminal courts assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
SDC assessed (\$m)	904	673	604	303	207	65	34	78	2,869
Wages cost factor	1.007	0.993	0.995	1.020	0.976	0.968	1.022	1.033	1.000
<b>Assessed expenses (\$m)</b>	<b>911</b>	<b>668</b>	<b>601</b>	<b>310</b>	<b>201</b>	<b>63</b>	<b>35</b>	<b>81</b>	<b>2,869</b>
<b>Assessed expenses (\$pc)</b>	<b>113</b>	<b>102</b>	<b>119</b>	<b>119</b>	<b>116</b>	<b>119</b>	<b>82</b>	<b>329</b>	<b>114</b>

Note: Regional cost effects are included in the SDC assessed expenses.

Source: Commission calculation.

## Other legal services

- 82 Other legal services entail court and legal expenses not included in criminal courts. Expenses for this component include those legal services not associated with the prosecution or defence of criminal legal cases. This covers a wide range of functions, including:
- civil courts
  - Attorney-General departments
  - crown solicitors
  - law reform commissions.
- 83 Expenses within other legal services will be assessed on an EPC basis, as neither the Commission nor States have identified any conceptual basis for certain groups to be higher users of these services.

## Regional costs

- 84 The regional cost gradient for criminal courts has been extrapolated and applied to the civil court part of other legal services. As most other legal services are provided from a centralised

<sup>7</sup> State data include only New South Wales, Queensland, Western Australia, South Australia, and Northern Territory as other States were unable to provide Indigenous status for their defendants.

location, the regional factor will only apply to the civil court-related costs which are about 30% of other legal services expenses.

- 85 Some State data suggested that the cost gradient for civil cases is steeper than for criminal cases. However, this is largely due to the lower throughput. Given that the assessment assumes EPC cases, the effect of lower throughput on use is not assessed, and therefore should not be assessed for countervailing the cost effect. The gradient measured for criminal cases is applied to civil cases, but not to other legal services.

## Wage costs

- 86 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.

## Data and methods

- 87 Other legal services are assessed on an EPC basis, with an adjustment for the higher cost of providing civil courts in regional areas, and an adjustment for wage costs.

## Component calculations

- 88 Table 19-12 shows the calculation of total assessed expenses for the component in 2018-19.

**Table 19-12 Other legal services assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Other Legal Services									
Civil courts (a) (\$m)	212	172	134	69	46	14	11	7	665
Other (\$m)	550	447	346	178	119	36	29	17	1,722
Total (\$m)	762	619	479	248	166	50	40	24	2,388
Wages costs factor	1.007	0.993	0.995	1.020	0.976	0.968	1.022	1.033	1.000
<b>Assessed expenses (\$m)</b>	<b>768</b>	<b>614</b>	<b>477</b>	<b>253</b>	<b>161</b>	<b>49</b>	<b>41</b>	<b>25</b>	<b>2,388</b>
<b>Assessed expenses (\$pc)</b>	<b>95</b>	<b>94</b>	<b>94</b>	<b>97</b>	<b>93</b>	<b>92</b>	<b>97</b>	<b>100</b>	<b>95</b>

(a) Regional costs is applied to 51% of civil courts, representing the magistrate's court share of civil courts.

Source: Commission calculation.

## Prisons

- 89 Expenses for this component include:
- expenses associated with prisons
  - expenses associated with juvenile detention
  - expenses associated with community corrections which may include
    - supervision through home detention, parole or bail
    - program participation
    - community work orders.
- 90 The prison assessment is based on an SDC assessment of the number of prisoners with adjustments for wage costs and regional costs.

## **Socio-demographic composition**

- 91 Assessed spending by each State on prisons is affected by the size of its population and the relative size of those population groups that are more likely to be in prison. The number of assessed prisoners is derived by applying the national average prisoner rate for a given socio-demographic sub-population to that sub-population resident in each State. The socio-demographic groups include a cross-classification by Indigenous status, SES and age. There are 50 SDC groups with the same composition as that of criminal courts (see Table 19-10). SES data are extrapolated from defendant data.

## **Indigenous status and socio-economic status**

- 92 In 2017-18 Indigenous people were, on average, 11 times more likely to be in prison than non-Indigenous people. Indigenous status is accordingly included as a disability when assessing prisoner numbers.
- 93 It is not possible to measure directly an SES disability for prisoners, as SES data are not available for prisoners. Therefore, the Commission uses the SES profile of criminal court defendants as a proxy for the SES profile of prisoners.
- 94 The ACT argued that as the police regional costs factor applied to the courts and prison assessments was discounted by 25% in the 2015 Review, for consistency, the defendants' SES data used as a proxy for prison SES should also be discounted by 25%.
- 95 Both Indigenous and low SES people are overrepresented in the justice system, and Indigenous people are more overrepresented in the prison system than in the criminal court system. It seems likely that prisons may also have a greater overrepresentation of other disadvantaged groups, such as low SES. The Commission considered a mark-up of this disability, rather than a discount, but the level of mark-up could not be reliably measured, and likely values for such a mark-up would not be material.

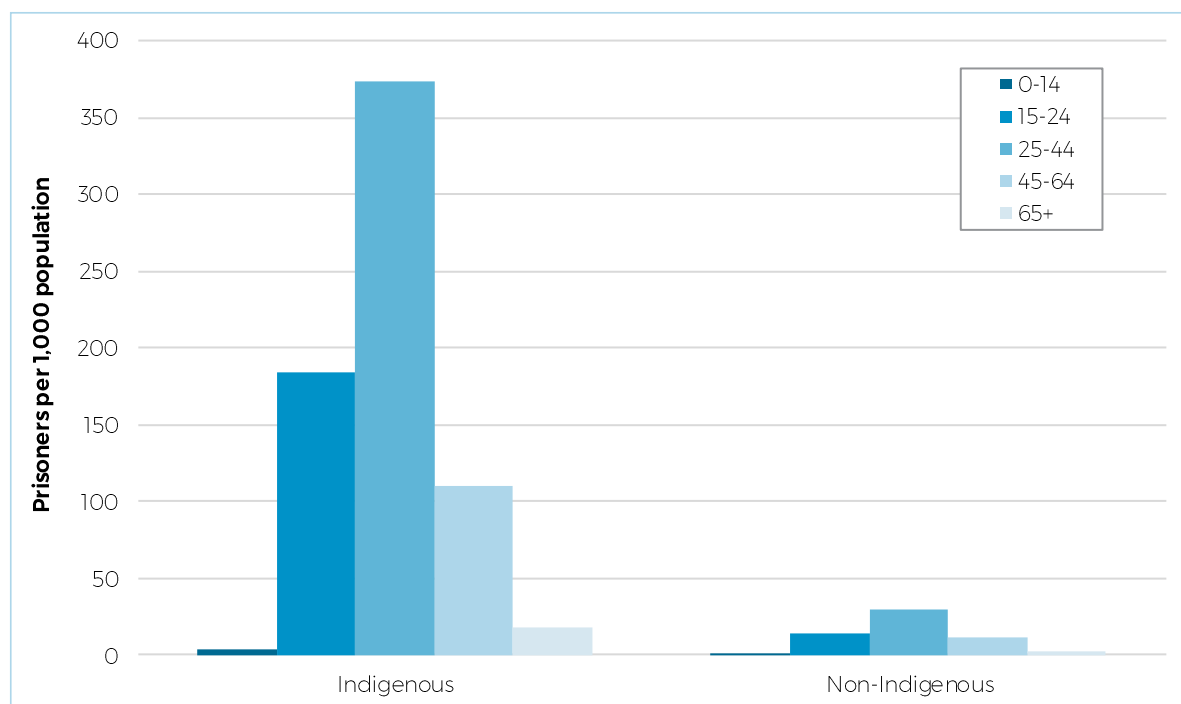
## **Remote service use**

- 96 There are no available data on place of residence of the imprisoned population prior to their imprisonment, and therefore no capacity to ascertain a relationship between remoteness and imprisonment rates. Additionally, in the absence of a clear relationship between remoteness and rates of crime for offenders or defendants there is no basis to assume any relationship.

## **Age**

- 97 Figure 19-12 shows the imprisonment rate of prisoners in Australia by age and Indigenous status, including those in juvenile detention. The data show imprisonment rates are highest for people aged 25-44 than for other age groups. These age profiles will be reflected when assessing the number of prisoners.
- 98 In contrast to the 2015 approach when 0-14 and 65+ age groups were assumed to have zero use of justice services, in this review the Commission considers it simpler and more appropriate to use the actual imprisonment rates of these groups.

Figure 19-12 Imprisonment rates by age and Indigenous status, 2017-18



Source: Commission calculation based on ABS 2018, *Prisoners in Australia, 2018*, cat. no. 4517.0, Table 21 and AIHW, 2017-18, *Youth Justice in Australia*, Table S78a.

## Regional costs

- 99 The Commission has developed a model based on State provided data that allocates regional costs and service delivery scale costs. Small prisons are more expensive per prisoner than large prisons. Prisons in non-remote areas contain, on average, four times as many prisoners as prisons in remote areas. Given the fixed and variable costs, States spend about 45% more per prisoner in remote prisons than those in non-remote prisons.
- 100 However, only about 40% of remote residents who go to prison end up in a remote prison. While 8.7% of assessed prisoners originate in remote areas, only 3.3% of prisoners are in remote prisons.
- 101 For practicality reasons, the Commission has distributed the additional service delivery scale and regional costs expenses of the 3.3% of actual prisoners in remote areas amongst the 8.7% of prisoners who originate from remote areas. Allocating the costs in this way leads to prisoners assessed to originate from remote areas being 17% more expensive than prisoners assessed to originate from non-remote areas.
- 102 New South Wales, Victoria, and the Northern Territory expressed concern given the low explanatory power of the model used. The Commission would prefer a model that had greater explanatory power. However, the Commission considers that there is a strong conceptual case that regional costs do apply to prisons and that, while not perfect, the regression approach represents the most reliable available measure of the likely magnitude. As such it has decided to use the regression based approach. It is worth noting that one reason for the low explanatory power of the model is major differences between States in the cost per prisoner. However, whether this reflects different levels of efficiency, or different accounting treatment and data standards, cannot be determined. A State identifier has not been included in the model.



103 Western Australia considers this ratio may reflect a national average tendency to house prisoners originating in remote areas in more accessible prisons, but given the large distances involved in Western Australia, such a policy is unfeasible. However, analysis shows that Western Australia actually appears less prone to house remote resident prisoners in remote prisons. In Western Australia 20% of assessed prisoners originated in remote areas. This is three times the proportion of prisoners actually imprisoned in remote areas, which is a higher ratio than the national average.

## Wage costs

104 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.

## Data and method

105 SDC groups are derived from a combination of ABS and State provided data. ABS data provide the number of prisoners by Indigenous status and age (five groups), updated on an annual basis.

106 Socio-economic status is derived from State court defendant data, which uses five IRSEO groups for the Indigenous population, and five NISEIFA groups for the non-Indigenous population.<sup>8</sup>

107 SES is imputed by splitting the number of prisoners for each Indigenous and age group combination on a weighted population basis according to the relative SES rates for Indigenous and non-Indigenous defendants.

108 The regional costs weight is derived from prisoner cost data provided by States.

## Component calculations

109 Table 19-13 shows the calculation of total assessed expenses for the component in 2018-19.

**Table 19-13 Prison assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
SDC assessed (\$m)	1,700	1,130	1,209	630	379	126	62	255	5,493
Wages cost factor	1.007	0.993	0.995	1.020	0.976	0.968	1.022	1.033	1.000
<b>Assessed expenses (\$m)</b>	<b>1,710</b>	<b>1,121</b>	<b>1,202</b>	<b>642</b>	<b>370</b>	<b>122</b>	<b>63</b>	<b>263</b>	<b>5,493</b>
<b>Assessed expenses (\$pc)</b>	<b>213</b>	<b>172</b>	<b>238</b>	<b>247</b>	<b>212</b>	<b>230</b>	<b>148</b>	<b>1,073</b>	<b>218</b>

Note: Regional costs effects are included in SDC assessed expenses.

Source: Commission calculation.

## Category calculations

110 Table 19-14 brings the assessed expenses for each component together to derive the total assessed expenses for each State for the category. It shows at the component level how each disability assessment moves expenses away from an EPC distribution to obtain assessed expenses.

<sup>8</sup> Data available for New South Wales, Queensland, Western Australia, South Australia and Northern Territory. These are States for which Indigenous status of defendants is available.

Table 19-14 Justice assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
<b>Police</b>									
Equal per capita	450	450	450	450	450	450	450	450	450
Indigenous status	1	-20	11	6	-7	19	-12	231	0
Population dispersion	-23	-31	20	37	13	101	-61	559	0
Indigenous disadvantage	-1	-1	1	2	1	-7	-2	30	0
Non-Indigenous disadvantage	1	-2	2	-10	15	24	-38	-21	0
Age	-1	3	-2	0	-4	-12	5	20	0
Wages	3	-3	-3	10	-12	-19	7	42	0
National capital	0	0	0	0	0	0	22	-1	0
<b>Assessed police expenses</b>	<b>431</b>	<b>397</b>	<b>478</b>	<b>497</b>	<b>457</b>	<b>556</b>	<b>371</b>	<b>1,309</b>	<b>450</b>
<b>Criminal courts</b>									
Equal per capita	114	114	114	114	114	114	114	114	114
Indigenous status	1	-11	6	3	-3	10	-6	123	0
Population dispersion	-3	-1	0	3	0	0	-3	85	0
Indigenous disadvantage	0	0	0	2	1	-8	-1	-5	0
Non-Indigenous disadvantage	1	-1	0	-5	11	4	-25	-17	0
Age	-1	2	-1	-1	-4	3	2	18	0
Wages	1	-1	-1	2	-3	-4	2	10	0
<b>Assessed expenses</b>	<b>113</b>	<b>102</b>	<b>119</b>	<b>119</b>	<b>116</b>	<b>119</b>	<b>82</b>	<b>329</b>	<b>114</b>
<b>Other legal services</b>									
Equal per capita	95	95	95	95	95	95	95	95	95
Population dispersion	0	0	0	0	0	0	0	2	0
Wages	1	-1	0	2	-2	-3	2	3	0
<b>Assessed expenses</b>	<b>95</b>	<b>94</b>	<b>94</b>	<b>97</b>	<b>93</b>	<b>92</b>	<b>97</b>	<b>100</b>	<b>95</b>
<b>Prisons</b>									
Equal per capita	218	218	218	218	218	218	218	218	218
Indigenous status	2	-42	23	13	-14	40	-25	484	0
Population dispersion	-9	-4	0	11	-2	-2	-10	315	0
Indigenous disadvantage	1	-1	0	6	4	-27	-3	-8	0
Non-Indigenous disadvantage	1	-1	1	-7	16	6	-38	-27	0
Age	-2	2	-3	1	-5	3	3	58	0
Wages	1	-1	-2	5	-6	-8	3	33	0
<b>Assessed expenses</b>	<b>213</b>	<b>172</b>	<b>238</b>	<b>247</b>	<b>212</b>	<b>230</b>	<b>148</b>	<b>1,073</b>	<b>218</b>
<b>Total assessed expenses</b>	<b>853</b>	<b>765</b>	<b>930</b>	<b>959</b>	<b>877</b>	<b>996</b>	<b>698</b>	<b>2,811</b>	<b>878</b>

Note: The EPC expenses and assessed expenses are total spending per capita. The amounts for each disability are redistributions from an EPC assessment.

Source: Commission calculation.

## Infrastructure assessment

- 111 States require infrastructure to support service delivery. State infrastructure requirements are assessed in the Investment category. The main driver of investment in Justice related infrastructure is growth in the weighted number of justice service users, which is a combination of offenders, defendants and prisoners, and the general population using police services and other legal services. It is calculated using State's shares of Justice assessed expenses excluding court and prison regional costs, wage costs and national capital influences.
- 112 Interstate differences in construction costs are also recognised.
- 113 For a description of the Investment assessment, see Chapter 24 Investment.

## Other issues considered by the Commission

- 114 There were a number of other issues considered by the Commission, largely in response to concerns raised by States. These issues related to the method for measuring existing disabilities or requests for new disabilities that were not included in the 2015 Review assessment. The main reasons for not assessing certain disabilities identified by States are:
- the conceptual case for a disability has not been established
  - an assessment would not be material, that is, redistribute more than \$35 per capita for any State<sup>9</sup>
  - data are not available to make a reliable assessment.

## Major city effects

- 115 New South Wales identified three areas where it sought to have disabilities recognised. It argued that Sydney's status as Australia's most globalised city and largest financial hub makes it a target for terrorism as well as complex crime, especially organised crime and cybercrime. It also houses a disproportionate number of federal prisoners.
- 116 New South Wales argued it is the State most exposed to threats of terrorism and there are material costs associated with providing the necessary infrastructure and intelligence across police, courts and corrections to combat terrorism threats.
- 117 The Commission considers that New South Wales needs to provide an above average level of service in providing counter-terrorism services, but that such a case might be made for the other States with large cities, such as Victoria and perhaps Queensland, as well as arguably by the ACT due to the co-location of national government institutions.
- 118 Expense data provided by New South Wales showed their Investigation and Counter Terrorism unit within the New South Wales Police spent an average of \$227 million per year in 2015-16 and 2016-17. Even if all work in this cost centre was dedicated to counter-terrorism and no other State had any counter-terrorism related needs, this would only redistribute \$29 per capita, which is not material.

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<sup>9</sup> The Commission has set a materiality threshold for including a disability. The materiality test applies to the total impact the disability has on the redistribution across all revenue or expense categories in which it is assessed. To be included, a disability assessment must redistribute more than \$35 per capita away from an EPC assessment for any State.

- 119 In the absence of reliable data on the relative risk of terrorism between States and on expenditure regarding counter-terrorism activities, the Commission cannot make an assessment. The available evidence indicates that even if an assessment could be made it is unlikely to be material.
- 120 Likewise, the Commission has no way of ascertaining what constitutes a complex crime or measuring it. For example, two crimes recorded under the same offence classification may use vastly different resources to collect evidence and identify the offender, depending on the circumstances of the crime. With increasing complexity of crime there is also the likelihood of no offender being proceeded against, thereby creating a bias in recorded data towards crimes that are simpler to solve.
- 121 While the presence of cybercrime and organised crime units in a police force may be an indication of the presence of complex crime, most States have at least some level of resource dedicated to these functions and, following the logic in paragraph 118, it appears unlikely that this would be material, even after aggregating these different drivers for more complex policing.
- 122 In regard to corrections, federal prisoners nationally represent only 2% of total prisoners. ABS data suggest that New South Wales has nearly 60% more federal prisoners per capita than the national average. Assuming federal prisoners cost the same as other prisoners, and that the Commonwealth contributes no funding, an assessment would redistribute less than \$3 per capita towards New South Wales.
- 123 Other than on federal prisoners, there is no reliable assessment of the relative impacts that these factors have on different States, or the amount of money involved. However, it appears very unlikely that any assessment would be material, even in aggregate.

## **Border patrol**

- 124 Queensland was concerned that not all service delivery challenges are captured in the current or proposed model, in particular the additional border patrol duties required in the Torres Strait. Queensland argued for the Commission to investigate border protection requirements and costs involved in meeting these obligations. Western Australia expressed similar concerns regarding the length of coastline it is required to police and argues these costs stem from a failure of delivery of Commonwealth services, particularly the work of the AFP.
- 125 Police costs data provided by Queensland allocate less than \$3 million to aircraft and boat expenses in Far North Queensland. The costs of providing aircraft and boat expenses in Far North Queensland, or any other similar costs, are part of the expenses that are used to measure the effect that remote populations have on policing costs. While not all such areas are coastal, State shares of borders needing patrolling are likely to be broadly similar to State shares of remote regions, and given the relatively small amounts of money involved are unlikely to be materially different.
- 126 Western Australia has not provided evidence of the amount of money it spends on border patrol. It has not provided evidence that the Commonwealth provides a lower standard of service along its coastline than along the coastline of other States. As such, the Commission is not in a position to consider a disability, other than that already measured by the effect of remoteness on police costs.

## Cross-border

- 127 The ACT argued that it provides cross-border policing services to other States, particularly New South Wales.
- 128 Table 19-15 shows fewer New South Wales residents committed offences or are defendants in the ACT than the number of ACT residents offending or being defendants in New South Wales. Therefore, the Commission has concluded that there is no case for a cross-border assessment.

**Table 19-15 Cross-border proceedings and defendants, New South Wales and ACT**

	2015-16	2016-17
	No.	No.
<b>Count of proceedings</b>		
NSW residents offending in the ACT, excl breach of bail and traffic	244	238
NSW residents offending in the ACT, all offences	458	443
ACT residents offending in NSW, excl breach of bail and traffic	686	658
<b>Count of defendants</b>		
NSW residents appearing as defendants in the ACT	624	681
ACT residents appearing as defendants in NSW	863	744

Source: New South Wales Treasury and ACT Treasury.

## Split of lower and higher courts

- 129 Victoria suggested that higher and lower courts could be assessed separately to account for the differing Indigenous profiles.
- 130 Table 19-16 shows that the proportion of defendants who do not state (or are not asked) their Indigenous status is very high in the lower courts. Using the approach described in paragraphs 61-62 to distribute non-response on a population basis, there is very little difference in the Indigenous status profile of higher and lower courts, and allowing for differentiation is not material.

**Table 19-16 Indigenous status response, selected States, 2016-17**

	Indigenous	Non-Indigenous	Not stated	Total
	%	%	%	'000
Higher courts	15	79	5	12
Lower courts				
Traffic offences	—	—	100	138
Other offences	21	71	7	223
Total lower courts	13	44	43	361
<b>Total courts</b>	<b>13</b>	<b>45</b>	<b>41</b>	<b>374</b>

Note: Data from New South Wales, Queensland, South Australia and the Northern Territory.

Source: ABS 2018, *Criminal Courts, Australia, 2016-17*, cat. no. 4513.0. Tables 2 & 13.

## Culturally and linguistically diverse prisoners

- 131 New South Wales argued that it has a higher than average proportion of culturally and linguistically diverse (CALD) population and this adds complexity and cost to the provision of corrective and other justice services.
- 132 There are difficulties in collecting information that both define a CALD prisoner and a relative cost weight. The only known CALD information on prisoners is country of birth.<sup>10</sup> The Commission considers being born overseas is not an adequate way to define the CALD population, as many people born overseas have good English and do not require an interpreter. Likewise, there are many people born in Australia, particularly the Indigenous population in the Northern Territory, who require additional resources due to cultural and linguistic differences.
- 133 Additionally, the Commission would need access to detailed prisoner cost information to determine any cost weight.
- 134 The data indicate that those born in a non-main English speaking country offend at a rate that is lower than the non-Indigenous Australian born population.<sup>11</sup> This lower use rate will most likely offset, to some degree, any additional cost of CALD prisoners. This offsetting of lower use and higher cost is comparable to that seen in other services, such as hospitals.

## Separate assessment of non-custodial corrective services

- 135 Non-custodial corrective service recipients, such as those undergoing parole or community service orders, have a different SDC profile from prisoners, and represent about 62% of people in the corrective services system, but only 15% of total corrective service costs. Queensland and Victoria recommended a different assessment of the two groups, rather than using the prison population profile for both.
- 136 The Commission used ABS published data<sup>12</sup> to determine the age and Indigenous profile of the non-custodial population. The same SES weights (based on defendant data) were used as there is no other practical alternative. Productivity Commission data<sup>13</sup> were used to determine the proportional split of custodial and non-custodial operating expenses.
- 137 A split assessment would redistribute \$27 per capita less to the Northern Territory, which is not material.

## Illicit drug consumption as a driver of crime

- 138 Western Australia asked for community drug consumption, specifically methamphetamine, to be included as an additional disability as a driver of crime. It said it has some of the highest methamphetamine consumption in the country which is implicated in increasing family violence cases.
- 139 The Commission has not made an adjustment for this because, while Western Australia has methamphetamine use above the national average, it is not clear:

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<sup>10</sup> ABS 2016, *Prisoners in Australia 2016*, cat. no. 4517.0.

<sup>11</sup> Non-main English speaking includes all countries with the exception of United Kingdom, Ireland, South Africa, Canada, United States, New Zealand and Australia.

<sup>12</sup> ABS 2018, *Corrective Services, Australia, June quarter 2018*, cat. no. 4512.0, Table 4.

<sup>13</sup> Productivity Commission, *Report on Government Services 2018*, Chapter 8, Table 8A.2.

- that given methamphetamine prices in Western Australia are very similar to other States,<sup>14</sup> supply and access to methamphetamine is different from other States
- whether policy differences between States have contributed to the consumption of methamphetamine including, but not limited to, use of drug courts, funding of drug rehabilitation centres, housing and other social welfare policies, and funding of mental health services
- the extent to which the socio-demographic profile used in the assessment captures differences in methamphetamine use
- whether other States face similar justice-related issues with other drugs, or with other aspects of policing
- how to determine how much crime is a result of methamphetamine use and how this compares to the national average.

140 Western Australia budgeted \$42.5 million in 2019-20 for the Methamphetamine Action Plan, a cost of about \$16 per capita. While this may not represent the total cost of methamphetamine to the Western Australian budget, it is the only available guide to expenditure. Based on that expenditure, even if no other State had any methamphetamine related costs, and none of Western Australia's high use was related to either its socio-demographic profile or policy decisions, Western Australia does not face materially higher costs than other States.

## Effect on the GST distribution

141 Table 19-17 shows the extent to which the assessment for this category differs from an EPC assessment of Justice expenses. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements. In per capita terms, the largest negative redistributions affect the ACT followed by Victoria and the largest positive redistribution is the Northern Territory.

**Table 19-17 Illustrative redistribution from an EPC assessment, Justice, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-202	-733	263	212	-1	63	-76	475	1,013
\$ per capita	-25	-112	52	81	-1	118	-180	1,933	40

Note: The redistribution is the difference from an EPC assessment of category expenses.

Source: Commission calculation.

142 Table 19-18 shows the main reasons for the redistributions for each State. New South Wales, Victoria and the ACT have below average shares of people in remote areas where policing costs are most expensive. They also have below average shares of population groups who attract more attention from justice services, especially Indigenous people in the case of Victoria and the ACT. The other States generally have an above average share of at least some of these higher cost population groups, leading to higher than average costs overall.

<sup>14</sup> Australian Criminal Intelligence Commission 2018, *Illicit Drug Data Report 2016-17*, p. 152.

Table 19-18 Major reasons for the illustrative redistribution, Justice, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Indigenous status	33	-471	198	57	-41	37	-18	206	530
Population dispersion	-281	-234	103	135	20	52	-31	236	546
Indigenous disadvantage	-3	-17	5	26	10	-23	-3	4	45
Non-Indigenous disadvantage	31	-21	15	-56	73	18	-43	-16	136
Age	-25	49	-29	3	-22	-3	4	24	79
Wages	45	-37	-27	48	-39	-18	6	22	121
National capital	-3	-2	-2	-1	-1	0	9	0	9
<b>Total</b>	<b>-202</b>	<b>-733</b>	<b>263</b>	<b>212</b>	<b>-1</b>	<b>63</b>	<b>-76</b>	<b>475</b>	<b>1,013</b>

Source: Commission calculation.

## Changes since the 2019 update

143 Table 19-19 breaks down the total changes since the 2019 Update into the source of change.

Table 19-19 Changes to the GST redistribution between the 2019 Update and the 2020 Review

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Method and data changes	4	-53	5	4	25	33	-23	6	76
Data revisions	2	2	-1	-1	0	-1	-1	-1	5
State circumstances	15	-8	-6	-14	-4	4	-2	14	33
<b>Total</b>	<b>21</b>	<b>-59</b>	<b>-1</b>	<b>-10</b>	<b>21</b>	<b>36</b>	<b>-26</b>	<b>19</b>	<b>114</b>

Source: Commission calculation.

## Method and data changes

144 There have been a number of method changes associated with this category since the 2015 Review. These are:

- In police,
  - the split between ‘specialised’ and ‘community’ expenses has been removed, including the discount previously applied to specialised policing expenses
  - police costs are assessed using cost weights derived from a regression analysis of police districts predicting police costs per capita, and incorporating an assessed offenders measure using age, SES and Indigenous status
  - no separate regional costs factor has been applied, as regional costs are implicitly captured within the model
  - new offender data underpins the police assessment including replacing Australian Institute of Criminology sourced age data with State-sourced data
  - there are minor changes to the way the number of offenders are assessed. The non-Indigenous population will be assessed against five SES groups, rather than three, and offender rates have now been assessed for the 0-14 and 65+ year age groups, rather than assessing a zero offender rate for these age groups.



- In courts and other legal services,
  - in place of having a Courts component split into criminal and civil courts sub-components, two separate components have been identified — criminal courts and other legal services
  - the split between disability-assessed criminal courts and EPC-assessed other legal services has been revised with an increase to the weight of other legal services
  - within the criminal court assessment, Indigenous status non-response has been allocated in proportion to population shares, rather than responding criminal court defendant shares
  - new defendant data underpins the criminal court assessment including replacing ABS sourced-age and Indigenous data with State-sourced age and Indigenous data
  - defendant rates have now been assessed for the 0-14 and 65+ year age groups, rather than assessing a zero defendant rate for these age groups
  - regional costs have been measured directly from court cost data, rather than extrapolated on the basis of police regional costs.
- In prisons,
  - regional costs have been measured directly from prison cost data, rather than using police regional costs
  - imprisonment rates have now been assessed for the 0-14 and 65+ year age groups, rather than assessing a zero offence rate for these age groups
  - the defendant data used to impute SES for prisons is based on a new set of revised State-sourced data.

145 Collectively, these changes have reduced the GST requirement for Victoria and the ACT, increasing it for the other States.

## Data revisions

146 Data revisions had a small effect on the GST redistribution.

## Changes in State circumstances

147 Between 2015-16 and 2018-19, incarceration rates for the Indigenous population have risen faster than for the non-Indigenous population. Changes in wage costs have also affected State circumstances.

## Updating the assessment

148 As required by the terms of reference, the assessment will incorporate the latest available data in each annual update. This will allow the assessment to reflect changes in State circumstances.

- The Commission will update the following data annually:
  - prisoner data sourced from the ABS Prison Census
  - juvenile detention data sourced from AIHW

- estimated resident population data sourced from the ABS.
- Some of the assessment data are not readily available on an annual basis or remain stable over time. During the review period, the Commission will not be updating:
  - offender data used in the police assessment
  - police cost data used in the police assessment
  - defendant data used in the criminal court and prison assessment
  - expense data to determine the GFS split of criminal courts and other legal services.

# 20 Roads

## Summary of the assessment

The Roads assessments cover State spending on the maintenance and construction of roads, bridges and tunnels, and other related services. State roads expenses and investment in road infrastructure are assessed separately.

The Commission has made separate assessments of State expenses on rural roads, urban roads, and bridges and tunnels. The Commission has assessed higher costs for States with:

- longer road networks — for example, those with larger rural areas need to spend more on maintenance and repairs than other States
- greater traffic volumes, as they require greater spending on traffic control and safety measures (such as signage and traffic lights)
- greater heavy vehicle use, which causes greater pavement wear and tear that increases maintenance to restore the pavement to acceptable service standards
- longer bridge and tunnel length — those with greater length need to spend more on maintenance and repairs than other States.

The Commission has made a similar assessment for roads investment. Urban population growth also drives investment in urban roads. For a description of the investment assessments, see Chapter 24 Investment.

The Roads expenses assessment also recognises the differences between States in wage costs and, for bridges, tunnels and rural roads, the higher costs of providing services in more remote locations. In the Investment assessment, interstate differences in construction costs are also recognised.

## Service overview

- 1 State expenditure on roads was \$18.7 billion in 2018-19, representing 7.3% of total State expenditure (Table 20-1). State spending on this function is based on the National Transport Commission (NTC) expenditure reporting categories and comprises expenses for:
  - road maintenance, which corresponds to NTC categories A and B
  - bridges and tunnels maintenance and rehabilitation, which corresponds to NTC category C
  - road rehabilitation, which corresponds to NTC category D
  - road and bridges/tunnels construction, which corresponds to NTC category F
  - other road related expenses, which correspond to NTC categories E, G and H.
- 2 Other road related expenses cover road safety, traffic management and other transport activities (such as the administration of driver licensing, motor vehicle registration, heavy vehicle regulation and road transport planning administration).
- 3 State recurrent roads expenses and investment in roads infrastructure are assessed separately.

Table 20-1 Roads expenditure by State, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Expenses (\$m)	2,479	2,039	1,152	1,141	418	158	58	201	7,646
Investment (\$m)	4,894	1,820	2,392	938	396	120	151	351	11,062
<b>Total roads expenditure (\$m)</b>	<b>7,373</b>	<b>3,860</b>	<b>3,545</b>	<b>2,078</b>	<b>815</b>	<b>278</b>	<b>209</b>	<b>551</b>	<b>18,708</b>
Expenses (\$pc)	308	312	228	438	240	298	137	817	304
Investment (\$pc)	609	279	474	360	227	226	357	1,428	440
<b>Total roads expenditure (\$pc)</b>	<b>917</b>	<b>591</b>	<b>702</b>	<b>798</b>	<b>467</b>	<b>523</b>	<b>493</b>	<b>2,245</b>	<b>743</b>
Proportion of total expenditure (%)	8.7	6.5	6.8	7.3	5.0	5.0	3.9	8.8	7.3

Note: Expenditure shown on a gross basis.

Source: Commission calculation using State budget data.

4 Table 20-2 shows the share of State expenditure on roads from 2015-16 to 2018-19.

Table 20-2 Roads expenditure, all States, 2015-16 to 2018-19

	2015-16	2016-17	2017-18	2018-19
Total expenditure (\$m)	12,729	15,540	17,558	18,708
Proportion of total expenditure (%)	6.0	6.8	7.2	7.3

Note: Expenditure shown on a gross basis.

Source: Commission calculation using Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.

5 User charges were \$2.3 billion in 2018-19 and include fines, license fees and tolls (Table 20-3). In this category, user charges are assessed on an equal per capita (EPC) basis in the Other revenue category.

Table 20-3 Roads, user charges, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Revenue (\$m)	821	446	558	249	175	29	28	16	2,320
Revenue (\$pc)	102	68	110	95	100	55	66	64	92

Notes: User charges for some States appear high because they may include some user charges that could not be separated out but likely should be classified to the Transport category.

User charges refer to revenue from the sale of goods and services classified in GFS to economic type framework (ETF) 112.

Source: Commission calculation using ABS GFS and State budget data.

## State roles and responsibilities

- 6 State governments fund and maintain the highways and other major roads for which they are responsible.
- 7 State governments also provide some supplementary financial support for the roads that are the responsibility of local governments. Where they take on responsibility for minor local roads, they also fund these services. The reasons for, and nature of, this funding are discussed in more detail in the Local roads section.
- 8 In addition to maintaining bridges and tunnels on State roads, some States fund part or all of the cost of maintaining some bridges on roads that are the responsibility of local governments, for example bridges with heritage value, high replacement cost or technical significance.

- 9 States receive roads-related revenue from vehicle registrations, stamp duty and user charges (such as licence fees, tolls and fines and the sale of goods and services, such as number plates). Vehicle registrations and stamp duty are assessed in the Motor taxes category while user charges are assessed in the Other revenue category.
- 10 Depending on the contractual arrangements surrounding privately operated roads, States may receive various payments from the operators. These may be paid in cash, but are generally paid as promissory notes.

## Commonwealth roles and responsibilities

- 11 In addition to general revenue assistance, the Commonwealth provides funding to the States for roads through national partnership payments (NPPs). Table 20-4 shows the main Commonwealth payments to the States for roads maintenance and investment in 2018-19.

Table 20-4 Commonwealth payments to the States for Roads, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Infrastructure Investment program									
Investment - NNR (\$m)	864	98	832	274	868	63	0	0	2,999
Maintenance (\$m)	95	61	90	50	29	8	1	17	350
Off-network - Road (\$m)	55	1	52	69	79	10	0	17	282
Western Sydney Infrastructure Plan (\$m)	246	0	0	0	0	0	0	0	246
Other (\$m)	84	23	104	89	142	11	7	100	560
<b>Total (\$m)</b>	<b>1,344</b>	<b>182</b>	<b>1,078</b>	<b>482</b>	<b>1,118</b>	<b>91</b>	<b>8</b>	<b>134</b>	<b>4,437</b>
<b>Total (\$pc)</b>	<b>167</b>	<b>28</b>	<b>213</b>	<b>185</b>	<b>642</b>	<b>171</b>	<b>19</b>	<b>544</b>	<b>176</b>

Note: Table shows major payments only. Commonwealth Own Purpose Expenses (COPEs) are not included. Payments that the Commission treats as 'no impact' are included in the table.

Source: Commonwealth Final Budget Outcome, 2018-19.

- 12 The Commonwealth funds roads projects under the *National Land Transport Act 2014* through the *National Partnership on Land Transport Infrastructure Projects*. The objective of this NPP is to provide a national transport system that is safer for users, drives national productivity and economic growth, accommodates population growth and supports competitive markets and employment opportunities. This is provided through payments for National Network Roads (NNR).
- 13 Commonwealth roads funding to the States in 2018-19 comprises \$4.1 billion for road construction, including that relating to NNR, and \$350 million for maintenance.
- 14 The Commonwealth also provides payments through the States for purposes outside State responsibilities, such as \$764 million in untied local roads grants in 2018-19.
- 15 The complete list of Commonwealth payments and their treatment is available on the [Commission website](https://cgc.gov.au) (<https://cgc.gov.au>).<sup>1</sup>

<sup>1</sup> Only 50% of payments for investment in the national network affect the grant distribution. For more information, see Chapter 5 Commonwealth payments.

## Category structure

- 16 The assessment of Roads expenses is undertaken in three components:
  - rural roads
  - urban roads
  - bridges and tunnels.
- 17 Components allow different disability assessments to apply to different types of roads.
- 18 Table 20-5 shows the category's assessment structure, the size of each component and the disabilities that apply.

**Table 20-5 Category structure, Roads, 2018-19**

Component	Component expense	Disability	Influence measured by disability
\$m			
<b>Rural roads</b>	3,727	Length and use	Recognises that the length of the rural road network, traffic volume and heavy vehicle use influence the cost of providing road maintenance services in rural areas.
		Regional costs	Recognises the differences in the cost of providing services to different areas within a State (applied to road length only).
		Wage costs	Recognises the differences in wage costs between States.
<b>Urban roads</b>	3,462	Length and use	Recognises that the length of the urban road network, traffic volume and heavy vehicle use influence the cost of providing road maintenance services in urban areas.
		Wage costs	Recognises the differences in wage costs between States.
<b>Bridges and tunnels</b>	457	Length and use	Recognises that the length of bridges and tunnels and heavy vehicle use influence the cost of providing bridges and tunnel maintenance services.
		Regional costs	Recognises the differences in the cost of providing services to different areas within a State.
		Wage costs	Recognises the differences in wage costs between States.

Note: This table only includes roads expenses. It does not include Roads investment.

Source: Commission calculation using ABS GFS and State budget data.

## Category and component expenses

- 19 The main data sources for calculating category expenses are Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.<sup>2</sup>
- 20 Data on State expenses, as reported to the NTC, are used to derive the component weights of the Roads category, and for the urban and rural roads investment assessments. The component weights are then applied to ABS GFS expenses. (The NTC data do not exactly align with GFS data.) Table 20-6 shows the NTC categories and the Australia-wide total reported expenditure for each category in 2018-19.

<sup>2</sup> Unless otherwise stated, category and component expenses for the first two assessment years are sourced from ABS GFS. States provide data for the most recent assessment year because GFS data are not available in time for the annual update.

Table 20-6 NTC State expenditure data, 2018-19

	Rural	Urban	Bridges	Total
	\$m	\$m	\$m	\$m
A: Servicing and operating	400	534	-	934
B: Road pavement and shoulder construction				
B1: Routine maintenance	508	176	-	684
B2: Periodic surface maintenance	493	307	-	800
C: Bridge maintenance/rehabilitation (a)	-	-	320	320
D: Road rehabilitation	616	312	-	928
E: Low-cost safety/traffic	645	1,135	-	1,780
F: Asset extension/improvements				
F1: Pavement improvements	1,848	1,518	-	3,366
F2: Bridge improvements (a)	391	652	-	1,043
F3: Land acquisition, earthworks, other extensions/improvement expenditure	1,204	3,087	-	4,290
G: Other miscellaneous activities				
G1: Corporate services	-	-	-	768
G2: Enforcement of heavy vehicle regulatory costs	78	73	-	151
G3: Vehicle registration	-	-	-	324
G4: Driver licensing	-	-	-	183
G5: Loan servicing	-	-	-	90
H: Other road-related payments				
H1: Financial assistance to councils for work on council managed arterials (b)	-	-	-	453
H2: Payments to councils for contract work on State managed roads (b)	-	-	-	458
H3: Spending on local access roads in unincorporated areas	-	-	-	10
H4: Direct spending on council managed local access roads	-	-	-	317
H5: Any other direct State spending on local access roads	-	-	-	104
<b>Total</b>	<b>6,182</b>	<b>7,794</b>	<b>320</b>	<b>17,002</b>

Note: Loan servicing spending (G5) does not contribute to the component weight calculations.

(a) Expenditure on tunnels also falls under these categories.

(b) While the National Transport Commission (NTC) reports these categories separately, the expenses are also included in the expenses for categories A to G. Hence, these expenses are double-counted in this presentation.

Source: State expenses reported to the NTC for 2018-19.

21 The urban and rural roads components include expenses for:

- A: Servicing and operating
- B: Road pavement and shoulder construction
- D: Road rehabilitation
- E: Low-cost safety/traffic
- G2: Enforcement of heavy vehicle regulatory costs
- H3: Spending on local access roads in unincorporated areas
- H4: Direct spending on council managed local access roads
- H5: Any other direct State spending on local access roads.

- 22 The bridges and tunnels component includes spending on:
- C: Bridge maintenance/rehabilitation.
- 23 Expenses relating to other road related payments have been distributed proportionately between all components. This includes spending on:
- G1: Corporate services
  - G3: Vehicle registration
  - G4: Driver licensing.
- 24 The roads investment assessment includes:
- F: Asset extension/improvements.
- 25 G5: Loan servicing is assessed in the Other expenses category.
- 26 NTC expenses relating to category G (excluding G2) have been reallocated on a proportional basis amongst the urban roads, rural roads and bridges/tunnels components. Local roads expenses (categories H3 to H5) have been reallocated on a proportional basis between the rural roads and urban roads components.

## Assessment approach

- 27 The following section describes the assessment approach for the Roads category. The roads infrastructure assessment is discussed later in the chapter.

## Conceptual framework

- 28 In the rural roads and urban roads components, the Commission recognises that the cost of maintaining roads is affected by the following influences:
- road length
  - traffic volume
  - heavy vehicle use.
- 29 The selection of these three influences and their relative weights in the Roads assessment is based on the work of the NTC, which is responsible for determining heavy vehicle charges.<sup>3</sup>
- 30 As part of that responsibility, the NTC has developed a cost allocation matrix that splits the cost of maintaining roads between attributable costs and non-attributable costs.
- Attributable costs are those that vary with the volume of traffic on roads, including heavy vehicle use. These costs would not be incurred if traffic volume fell to zero.
  - Non-attributable costs are those incurred regardless of the volume of traffic, which is essentially influenced by road length. Some non-attributable costs such as those relating to corporate services are spread across the entire Roads assessment.
- 31 The NTC's approach and results reflect its considerable expertise, and it is an evidence-based approach for identifying the relative importance of the drivers of roads expenses.

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<sup>3</sup> National Transport Commission (NTC) PAYGO cost allocation formulae, available on the NTC website (<https://ntc.gov.au/heavy-vehicles/heavy-vehicle-charges/>).



- 32 Table 20-7 provides the recurrent assessment cost allocation for the relevant NTC categories. The cost allocation is discussed in further detail below.

**Table 20-7 Roads recurrent cost allocation based on NTC cost allocation formulae**

		Road length	Road traffic volume	Road heavy vehicle use	Bridge and tunnel length	Bridge and tunnel heavy vehicle use	Local roads	Other services
		%	%	%	%	%	%	%
A	Servicing and operating	0	100	0	0	0	0	0
B1	Routine maintenance	24	38	38	0	0	0	0
B2	Periodic surface maintenance	30	10	60	0	0	0	0
C	Bridge maintenance/rehab	0	0	0	67	0	33	0
D	Road rehabilitation	55	0	45	0	0	0	0
E	Low-cost safety/traffic	0	100	0	0	0	0	0
G1	Corporate services	0	0	0	0	100	0	0
G2	Enforcement of HV regulations	0	0	100	0	0	0	0
G3	Vehicle registration	0	0	0	0	100	0	0
G4	Driver licensing	0	0	0	0	100	0	0
H3-H5	Spending on local access roads	0	0	0	0	0	0	100

Source: NTC PAYGO cost allocation formulae.

- 33 **Traffic volume.** The NTC recognises that traffic volume has an impact on the cost of maintaining roads because:
- roads with expected high traffic volumes are usually built to higher standards and therefore will cost more to maintain
  - roads with high traffic volumes have a higher level of traffic control and safety measures (such as signage, traffic lights and worker protection requirements during maintenance work), which cost more.
- 34 In its cost allocation matrix, the NTC attributes the stated share of the following categories to traffic volume:<sup>4</sup>
- servicing and operating expenses (100%)
  - routine maintenance of road pavement and shoulder (38%)
  - periodic surface maintenance of sealed road pavement and shoulder (10%)
  - low-cost safety and traffic improvements (100%).
- 35 **Heavy vehicle use.** The NTC recognises in its cost allocation matrix that heavy vehicles cause more wear and tear to roads than cars. This is mainly due to their weight and number of axles and trailers. In contrast, the weight of a car has no or little impact on roads. Heavy vehicle use results in minor and major maintenance to restore the road pavement to acceptable service standards. There are also regulatory costs.

<sup>4</sup> The NTC directly attributes these costs to the impact of passenger car equivalent-kilometres and vehicle kilometres travelled, which the Commission aggregates to the impact of traffic volume.

- 36 In its cost allocation matrix, the NTC attributes the stated share of the following categories to heavy vehicle road use:<sup>5</sup>
- routine maintenance of road pavement and shoulder (38%)
  - periodic surface maintenance of sealed road pavement and shoulder (60%)
  - road rehabilitation (45%)
  - heavy vehicle regulatory costs (100%).
- 37 **Road length.** The non-attributable costs are essentially related to road length. However, the NTC considers that the geographic location of the road, climate and topography can affect costs differentially.
- 38 In its cost allocation matrix, the NTC attributes the stated share of the following categories to road length:
- routine maintenance of road pavement and shoulder (24%)
  - periodic surface maintenance of sealed road pavement and shoulder (30%)
  - road rehabilitation (55%).
- 39 The NTC assumes, in its cost allocation formula, that the share of attributable and non-attributable costs are the same for all road types. However, the NTC recognises that urban roads are generally built to higher standards than rural roads and are therefore more costly to maintain.
- 40 Urban road length is essentially driven by the number and size of urban centres. In contrast, rural road length is mainly driven by the geographical size and the dispersion of population centres. For example, the ACT is a compact jurisdiction where the road network comprises mostly roads within the Canberra urban area. By contrast, Queensland has a large network of urban roads because of its many urban population centres. Furthermore, since those centres are scattered across a large land area, it also has a large network of rural roads connecting them.
- 41 State policy choices, both historical and current, on the number of alternative routes between urban centres and the degree to which States give responsibility for roads to local government, may also affect the length of State government roads.
- 42 **Bridges and tunnels.** The NTC cost matrix recognises recurrent bridge and tunnel maintenance and rehabilitation as well as investment in bridge and tunnel improvements.
- 43 Bridges and tunnels cost more to build and maintain than roads. They are required because of topological features such as waterways and, in some cases, changes in elevation. States also respond to safety issues and the complexity of their road and rail networks by building bridges and tunnels over or under other sections of the networks to avoid intersections. The total length of these structures is a primary driver of bridge and tunnel expenses.
- 44 Other influences on bridge and tunnel maintenance expenses and investment are the size of a State's road network, which increases the likelihood of bridges and tunnels across the

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<sup>5</sup> The NTC directly attributes these costs to the impact of equivalent standard axle-kilometres, average gross mass-kilometres and heavy vehicle kilometres travelled, which the Commission aggregates to the impact of heavy vehicle use.

networks; and traffic volume, including heavy vehicle use, which influence the type and size of bridges and tunnels built, and the maintenance costs.

## Measurement of the rural and urban road disabilities

### Rural road length

- 45 The Commission could not use the actual State road length to measure States' needs because State road classifications vary. Because of this, the Commission needs to split the rural road network between roads that are, on average, the responsibility of State governments and roads that are, on average, the responsibility of local governments.
- 46 To achieve this, the Commission has developed an assessed rural State road network using an algorithm that measures rural road lane-kilometres by:
- connecting all ABS Urban Centres and Localities (UCLs)
  - connecting significant mines and regions of oil and gas extraction to their nearest port
  - connecting ports to their nearest UCL
  - connecting national parks to their nearest UCL.
- 47 The algorithm was run across the Pitney Bowes routable 'RouteFinder Links' dataset using its RouteFinder software to select the appropriate roads for inclusion. This dataset includes all accessible roads regardless of whether States classify them as State or local roads.<sup>6</sup>
- 48 The initial lane-kilometre measure assumes two lanes per road.<sup>7</sup> Using State collected data, road lengths were adjusted to reflect the existence of additional lanes.
- 49 Victoria would have preferred the use of actual State rural road length and encouraged the Commission to investigate the possibility of assessing the actual rural road length, with a consistent definition of State roads. While the use of a national classification would be preferred, as noted above, no such classification exists at this stage. However, the Commission notes that work is being done by the Transport and Infrastructure Council to develop a national classification. The Commission will monitor the progress of this work. If a national classification is implemented and road length measures are available during the period covered by this review, the Commission may consider using them when they become available.
- 50 Western Australia considered that it is average policy for States to provide significant funding to local governments, and this funding is concentrated in States with high needs. As such, the connectivity analysis should cover more than just State-type roads, in order to cover properly the circumstances in all States.
- 51 State funding for local roads represents only 2% of State total roads spending. In some cases, it appears that the funding is for local governments to perform work for a State purpose. For example, Western Australia has a policy of allocating maintenance responsibility for some State-type roads to local governments. In this case, the spending is for State roads and should be allocated to the rural and urban roads components. In any case, the Commission

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<sup>6</sup> Four-wheel drive roads, restricted access roads and access roads to private property were not considered to be broadly accessible and were excluded.

<sup>7</sup> This assumption was made because lane information is not available for a small proportion of State roads. However, checks showed that it can be safely assumed these roads had no more than two lanes.

was unable to develop a policy neutral measure for assessing local roads. The Commission considers State roads disabilities are a reasonable proxy for assessing State spending on local roads.

- 52 Western Australia did not support including a measure based on lane-kilometres rather than road-kilometres as it did not consider this to be a policy neutral measure. It noted that adding extra lanes is only a partial measure of how States respond to increasing traffic. Western Australia considered that traffic volume sufficiently captures needs for additional lanes.
- 53 An investigation of State spatial data shows that in rural areas, all roads with more than two lanes are identified by the algorithm and tend to be on highways and freeways. This pattern indicates that the decision to provide additional lanes is primarily driven by need rather than policy choice. While States also use overtaking lanes and broader shoulders to account for the increasing traffic, these measures tend to be in areas with a lower traffic threshold than those requiring additional lanes. Furthermore, while traffic volume influences the number of lanes on these roads, the maintenance costs for these roads is influenced by more than just traffic volume. The NTC methodology, which the Commission uses to attribute road costs to different influences, distinguishes between road length and use. The Commission considers additional lane kilometres to be a reasonable measure of need that is not unduly policy affected.
- 54 **Roads between UCLs.** Roads between UCLs were measured by:
- connecting all UCLs with a population of more than 1,000 using the fastest driving route to all adjacent<sup>8</sup> UCLs with a population over 1,000
  - connecting all UCLs with a population less than 1,000 to their nearest two UCLs with a population of more than 1,000 using the fastest connection.<sup>9</sup>
- 55 Actual State road networks, excluding State defined local roads, were used to determine the parameters for deciding what connections States are responsible for on average. All roads within UCLs with populations over 40,000 were excluded, as these are considered urban roads.
- 56 The two-step approach reflects that smaller UCLs tend to have fewer connections to other UCLs than larger ones. Table 20-8 shows the average number of State roads that intersect the borders of UCLs of different sizes and that connect other UCLs.<sup>10</sup> In the case of the Northern Territory, the 0.7 average connection for UCLs with a population less than 400 means that some UCLs are not connected to a State road but a local road.
- 57 Table 20-8 shows that UCLs with a population of less than 1,000 have on average about two connections. Smaller UCLs tend to lie along a single State managed road. Larger UCLs commonly have radial connections to surrounding UCLs, resulting in several connections.

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<sup>8</sup> Adjacency was defined as centres with an adjacent voronoi polygon border. A voronoi polygon partitions a plane with points into convex polygons such that each polygon contains exactly one generating point and every point in a given polygon is closer to its generating point than to any other.

<sup>9</sup> The connections were calculated using PitneyBowes RouteFinder software and the PitneyBowes RouteFinder Links dataset.

<sup>10</sup> Local type roads in unincorporated areas were excluded.

Table 20-8 Average number of State managed roads intersecting UCL borders

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Average
<b>Population of:</b>									
0 to 400	1.6	1.8	1.3	1.2	2.0	1.4	1.0	0.7	1.5
400 to 700	1.9	2.4	1.4	1.3	2.9	1.9	0.0	1.0	1.9
700 to 1,000	2.6	3.1	1.8	1.3	3.8	2.2	0.0	1.1	2.3
1,000 to 4,000	3.3	3.8	2.4	2.0	4.0	3.4	0.0	1.4	3.1
4,000 to 7,000	3.4	5.2	3.8	2.4	4.5	1.8	0.0	6.0	3.8
7,000 to 10,000	4.5	7.2	3.9	3.0	3.0	0.0	0.0	0.0	4.9
10,000 and above	14.2	15.6	18.5	14.6	14.5	24.0	0.0	15.5	15.7
Less than 1,000	1.9	2.3	1.5	1.3	2.6	1.8	1.0	0.9	1.8
More than 1,000	5.3	6.6	4.8	4.3	5.8	6.3	0.0	3.3	5.4
Less than 4,000	2.4	2.8	1.8	1.4	3.0	2.2	1.0	1.0	2.2
More than 4,000	8.8	11.2	9.8	8.6	9.2	14.1	0.0	12.3	9.8

Note: The average number of intersections is calculated as the average number of State-defined State road segments intersecting Urban Centre Localities (UCL) borders of the same population size grouping. A segment is a stretch of road with individual attributes in State spatial data. In most cases road lengths are broken into a number of short segments with new segments starting at intersections. A single road running through a UCL will generally consist of two or more segments and be counted as two connections (from the points where two separate segments cross the border). Inspection of State spatial data indicates that these instances are in the minority and that the analysis presents a reliable indicator of UCL connectivity.

Source: Commission calculation using State roads spatial data.

- 58 Most States supported this approach. However, Western Australia and the ACT considered that including only two connections to UCLs with a population of less than 1,000 was insufficient and that additional connections should be provided.
- 59 Western Australia argued that an average of 1.2/1.3 connections for its State was not realistic because the analysis did not include all State-type roads. It implied that some roads that are classified as local roads in its State are effectively State-type roads.
- 60 States have different policies on how they classify roads as State or local. The Commission aims to capture what States do on average. Western Australia has lower average connections than other States because it classifies more roads as local than other States. Even if an adjustment were made to Western Australia's State road network to include some local roads, it is highly unlikely that the average connection would increase from two to three or four. The map provided by Western Australia only shows the south-west of Western Australia. It does not include the more remote areas of the State, which have fewer connections. In any case, the algorithm is not expected to exactly replicate State road networks.
- 61 Western Australia also argued that the analysis was flawed because if a road consisting of one segment intersects a UCL border twice, it is counted as one connection.
- 62 In some cases, one road segment may go through a UCL but may intersect its border more than once due to the vagaries of UCL borders and road design.<sup>11</sup> The Commission has adjusted its analysis to allow for this, but it is possible that the results will include some over-counts and under-counts of connections.

<sup>11</sup> See the footnote to Table 20-8 for details of how road segments affect the calculation.

- 63 In addition to the connectivity analysis in Table 20-8, the reasonableness of two connections was confirmed by visual inspections of maps. Importantly, adding more connections result in total State-type road lengths that are much greater than the State-defined State road length. For example, a preliminary test of including four connections included 9% more kilometres across Australia than there are actual State-defined State roads.
- 64 **Roads to mines, ports and national parks.** States are generally responsible for roads to significant areas such as mines (including oil and gas basins), ports and national parks, which warrants their inclusion in the algorithm.
- 65 The Commission sourced spatial data on the location of mines and ports from Geoscience Australia.<sup>12</sup> Significant mines were those with a significance score of two or above in the Geoscience dataset. Geoscience Australia also provided spatial data on the locations of gas processing plants as a proxy for important points in Australia's oil and gas basins.<sup>13</sup> The majority of mining production is assumed to be exported and as such, connections have been added to ports rather than UCLs. Spatial information on the location of national parks was sourced from the PitneyBowes StreetPro dataset. These parks were connected to their nearest UCL.<sup>14</sup>
- 66 New South Wales and Victoria raised concerns with the inclusion of roads to mines, given that the private sector owns and maintains some of these roads.
- 67 Roads to oil and gas basins include the Strzelecki Track, as argued for by South Australia.
- 68 The Commission recognises that some mining roads are owned and maintained by the private sector.<sup>15</sup> However, there is no reliable information on the length of privately funded roads to mines, or the location of the mining tenement gate, to make an adjustment. The Commission has investigated the possibility of discounting the length of roads to mines, but decided not to do so because it was not material. A 50% discount to these roads redistributes less than \$6 per capita for any State, as shown in Table 20-9.

**Table 20-9 GST effect of applying a 50% length discount to roads to mines, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	4	3	-2	-4	0	1	0	-1	8
\$ per capita	1	0	0	-2	0	1	0	-5	0

Source: Commission calculation.

- 69 The Commission also investigated roads to other areas of significance raised by States. The following areas were not connected either because the available data were not sufficiently reliable and comprehensive, and/or because such roads were not considered appropriate for inclusion.
- Grain bins. No national dataset indicating the location of grain bins was identified.

<sup>12</sup> Geoscience Australia (<http://www.australianminesatlas.gov.au/mapping/downloads.html>). These data relate to mines that were operating in 2015, and ports that were operating in 2009. These are the best available data that have been identified, [accessed 24/10/19].

<sup>13</sup> These processing plants are shown on the [Geoscience Australia website](http://www.ga.gov.au/scientific-topics/energy/resources/petroleum-resources/gas) (<http://www.ga.gov.au/scientific-topics/energy/resources/petroleum-resources/gas>), [accessed 24/10/19].

<sup>14</sup> The PitneyBowes StreetPro dataset incorporates PSMA Australia data including that relating to National Parks.

<sup>15</sup> During the Western Australian State visit, the Main Roads Department told the Commission that mining companies contribute to the cost of maintaining roads.

- Mining exploration. While current mineral exploration tenements for most States were identified,<sup>16</sup> they cover vast areas with no clear points to which roads should be connected. In any case, the Commission was not convinced that these types of roads would be better classified as private roads.
- Hydro power stations. The location of hydro power stations could not be identified with sufficient precision to connect them to the road network.
- Wind farms. Wind farm locations could not be identified with sufficient precision to connect them to the road network.
- Areas of agricultural or tourism importance. The Commission was unable to identify comparable and reliable datasets of these areas.

70 **Rural road length estimates.** Table 20-10 shows the measures of rural road lane-kilometres the Commission has decided to adopt for the 2020 Review. The table shows the contribution of roads to significant areas to the total measure of road length.

**Table 20-10 Estimated rural road lane-kilometres, 2020 Review**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	km	km	km	km	km	km	km	km	km
Lane-kilometres	68,110	38,665	64,478	46,283	27,294	7,567	183	27,346	279,926
To ports	13	44	240	517	224	71	0	116	1,224
To mines	668	382	3,424	4,110	1,191	0	0	677	10,452
To national parks (a)	6,985	1,496	13,913	3,894	2,597	1,035	162	1,177	31,260
Additional lanes	1,627	555	527	532	512	192	21	188	4,155
<b>Total</b>	<b>77,402</b>	<b>41,142</b>	<b>82,582</b>	<b>55,336</b>	<b>31,819</b>	<b>8,865</b>	<b>366</b>	<b>29,505</b>	<b>327,017</b>
	%	%	%	%	%	%	%	%	%
Lane-kilometres	24.3	13.8	23.0	16.5	9.8	2.7	0.1	9.8	100.0
To ports	1.0	3.6	19.6	42.2	18.3	5.8	0.0	9.5	100.0
To mines	6.4	3.7	32.8	39.3	11.4	0.0	0.0	6.5	100.0
To national parks (a)	22.3	4.8	44.5	12.5	8.3	3.3	0.5	3.8	100.0
Additional lanes	39.2	13.4	12.7	12.8	12.3	4.6	0.5	4.5	100.0
<b>Total</b>	<b>23.7</b>	<b>12.6</b>	<b>25.3</b>	<b>16.9</b>	<b>9.7</b>	<b>2.7</b>	<b>0.1</b>	<b>9.0</b>	<b>100.0</b>

Note: The lane-kilometre measure assumes two lanes per road.

(a) Queensland has by far the greatest length of roads connecting national parks to the network. This result was interrogated further and the Commission has concluded that this accurately represents need as, on average, national parks in Queensland tend to be further from the arterial road network than those of other States.

Source: Commission calculation using State road spatial data.

## Urban road length

71 State populations within urban centres are used as a proxy for urban road lengths because there is currently no reliable and policy neutral alternative. Urban centres are defined as ABS UCLs of 40,000 or more. This definition is used because it best matches the geography used by the ABS Survey of Motor Vehicle Use (SMVU) and the NTC. Table 20-11 shows the State shares of urban population.

<sup>16</sup> Geoscience Australia, Mineral Exploration Legislation, Reporting Guidelines and Exploration, see: <https://www.ga.gov.au/scientific-topics/minerals/mineral-exploration/legislation-tenements>, [accessed 19/02/2020].

**Table 20-11 Urban population by State, December 2018**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Urban population ('000)	6,019	5,163	3,789	2,064	1,215	266	421	128	19,063
Shares (%)	31.6	27.1	19.9	10.8	6.4	1.4	2.2	0.7	100.0

Source: ABS estimated resident population (ERP) December 2018 (scaled from June 2018).

- 72 The Commission considered a number of alternatives for measuring urban road length.
- Adjustment to the State actual urban road network to ensure the inclusion of roads commonly classified as State roads and the exclusion of roads commonly classified as local roads to reflect average policy.
  - Use of the length of roads identified by the rural road algorithm that were excluded from the measure because they were in urban areas.
  - Roads routed between city suburbs according to a variety of parameters.
- 73 While many States supported the use of adjusted actual road length, this approach was not feasible because it required substantial judgment about which roads to include and exclude.
- 74 In developing the rural road network algorithm, some key roads within urban centres were identified and subsequently removed from the calculation of rural road lengths. The Commission considered using these deleted roads as a measure of urban road length. However, an examination of these roads compared with the actual State roads showed that this method tends to miss too many State-type roads in the largest urban centres.
- 75 Urban road length was also estimated using routing methods similar to that outlined in the rural road length section but with connections between suburb locations<sup>17</sup> rather than UCLs. Again, this measure was found to routinely miss many State-type roads in urban centres. It also included many local type roads. Furthermore, there was no discernible relationship with State actual urban road length. As a result, this method was not pursued further.
- 76 As with rural roads the Commission will monitor steps to develop a national functional classification of roads as this may provide an alternative approach for measuring urban road lengths.

## Traffic volume

- 77 The assessment of traffic volume is based on total vehicle kilometres travelled (VKT) data from the Bureau of Infrastructure, Transport and Regional Economics (BITRE). Total VKT measures the total distance travelled by all vehicles. This measure treats a kilometre travelled by a car the same as a kilometre travelled by a heavy truck.
- 78 The traffic volume data from BITRE are based on the SMVU.<sup>18</sup> BITRE adjust the SMVU data<sup>19</sup> and smooths it using averages from several survey years. BITRE also make adjustments to remove data relating to travel on local roads and to split the data between travel on urban and rural roads. Rural and urban traffic volume by State are shown in Table 20-12.

<sup>17</sup> These suburb locations were included in the PitneyBowes StreetPro dataset.

<sup>18</sup> It uses the SMVU (ABS Cat. No. 9208.0) dataset 'Total distance travelled by area of operation'. This ensures that the traffic data reflect all travel in a State, not just travel by vehicles registered in that State.

<sup>19</sup> BITRE adjusts the SMVU data using data such as fuel sales, off-road use, fleet fuel use modelling and traffic data from monitored networks in cities.



79 This method was supported by States.

**Table 20-12 Traffic volume in rural and urban areas by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Rural traffic volume ('000 vkt)	12,210	9,550	9,609	4,761	4,339	1,204	0	582	42,255
Urban traffic volume ('000 vkt)	38,669	34,642	26,066	13,617	7,001	2,428	2,661	881	125,966
State share of rural (%)	28.9	22.6	22.7	11.3	10.3	2.8	0.0	1.4	100.0
State share of urban (%)	30.7	27.5	20.7	10.8	5.6	1.9	2.1	0.7	100.0

Source: Bureau of Infrastructure, Transport and Regional Economics, vkt data.

## Heavy vehicle use

- 80 The assessment of heavy vehicle use is based on average gross mass-kilometres (AGM-km) data from BITRE.
- 81 AGM-km for each State is estimated by applying Australian AGMs for each aggregated BITRE vehicle class (derived from NTC trend data<sup>20</sup>) to the kilometres travelled by aggregated class of heavy vehicle in each State. As with the traffic volume measure, the heavy vehicle travel data have been adjusted to remove travel on local roads and to split the data between urban and rural roads. This measure captures both weight and use of heavy vehicles, which addresses Victoria's concerns that use was not captured.
- 82 In this review, the Commission reduced the number of vehicle classes from five to three. The three vehicle classes into which the data are aggregated are light vehicles (passenger and commercial vehicles weighing less than 4.5 tonnes), articulated trucks and other heavy vehicles. A trend AGM weight is applied to articulated trucks and other heavy vehicles as shown in Table 20-13.

**Table 20-13 Trend average gross mass by aggregated BITRE vehicle classes, 2020 Review**

	Trend AGM
	Tonnes
Light vehicles	—
Articulated trucks	43.0
Other heavy vehicles	9.0

Source: NTC trend data.

- 83 The Commission decided to classify light commercial vehicles with passenger vehicles, instead of treating them as a separate class of heavy vehicles. This is because light commercial vehicles did not match the definition of heavy vehicles (vehicles over 4.5 tonnes). Victoria did not support this change, arguing that there was not enough evidence to support the view that passenger cars and light commercial vehicles have similar weight. However, light commercial vehicles have average gross mass under 4.5 tonnes, which is similar to passenger cars. Vehicles under this weight are not considered sufficient to damage roads under the NTC methodology.<sup>21</sup>

<sup>20</sup> The NTC trend data are based on the ABS Survey of Motor Vehicle Use (SMVU) data using the 7 year trend to 2018. Trend data are used to derive trend AGMs for the vehicle classes in the BITRE data.

<sup>21</sup> National Transport Commission (2014). *2014 Heavy Vehicle Charges Determination*. p. xv.

- 84 The Commission also combined the previously separate rigid and other trucks, and buses classes because their trend AGM are very similar. Most States supported these changes. This simplification does not come at the cost of fiscal equalisation, as argued by the Northern Territory, because the change is not material, as shown in Table 20-14.

**Table 20-14 Effect on the GST redistribution of simplifying trend AGM categories**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	10	-1	-10	0	4	-2	-1	-1	15
\$ per capita	1	0	-2	0	3	-4	-3	-4	1

Source: Commission calculation.

- 85 Western Australia was not satisfied with the Commission's reasons for not assessing separately the impact on road maintenance of very heavy trucks such as road trains, which related to concerns about data reliability and State policy influences. Western Australia said the only question was whether the available data were sufficiently reliable and fit for the purpose. The Commission accepts the advice from BITRE that its VKT data could not reliably be disaggregated to the level required for an assessment of very heavy vehicles. Very heavy vehicles are included in the measure of heavy vehicle use.
- 86 Rural and urban heavy vehicle use by State, calculated by applying AGM trend weights in Table 20-13 to traffic volume data by vehicle class, are shown in Table 20-15.

**Table 20-15 Heavy vehicle use in rural and urban areas by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Rural heavy vehicle use (million AGM-km)	49,113	33,291	37,844	25,931	18,984	4,341	0	2,735	172,238
Urban heavy vehicle use (million AGM-km)	79,942	59,724	52,955	22,116	12,853	4,051	1,607	1,573	234,821
State share of rural (%)	28.5	19.3	22.0	15.1	11.0	2.5	0.0	1.6	100.0
State share of urban (%)	34.0	25.4	22.6	9.4	5.5	1.7	0.7	0.7	100.0

Source: NTC trend data and BITRE vkt data.

## Rural roads component

### Rural road length, traffic volume and heavy vehicle use

- 87 The assessments of the rural road length, traffic volume and heavy vehicle use disabilities are described above.<sup>22</sup>
- 88 Using NTC data, the disability weights for 2018-19 are as follows:
- 22.2% for rural road length
  - 47.0% for traffic volume
  - 30.8% for heavy vehicle use.

### Regional costs

- 89 Differences in the cost of providing services to different regions within a State affect State expenses. The sourcing of road construction and maintenance quarry materials is unlikely to

<sup>22</sup> See Table 20-10, Table 20-12 and Table 20-15.

have any relationship to remoteness because these materials are often sourced locally, but the greater distances in remote areas does generally affect the transport of plant and equipment as well as other inputs. A regional cost gradient cannot be readily measured, but the conceptual case for one is valid.

- 90 New South Wales considered that using the general regional cost gradient that averages the costs for admitted patients and schools is a poor proxy that significantly overstates regional costs for rural roads.
- 91 New South Wales provided information that normal business practice by NSW Roads and Maritime Services is to base much of the everyday road maintenance equipment in maintenance depots regionally distributed across the State. It is only more specialised, costly, equipment that is deployed from metropolitan and regional centres. New South Wales also commented that the cost of deploying this equipment in regional and rural areas is similar to that of urban areas where additional costs are incurred due to congestion.
- 92 The Commission accepts that the general regional cost gradient is most likely less applicable to road maintenance expenses than to other categories. The Commission is concerned that rural roads in more remote areas are often built to lower standards compared with rural roads in more populated areas, such as highways, and that traffic volume is generally lower, although some of these roads can be used by heavy vehicles.
- 93 The Commission has applied a 25% discount to the general regional cost gradient. It considers that, in the absence of category specific regional costs data, this gradient best proxies regional costs relating to road maintenance. The discontinuation of the unsealed roads assessment was also a reason for this reduction because unsealed roads are less costly to maintain and are mostly located in remote areas and this lower cost is no longer accounted for.
- 94 For a description of the method see Chapter 28 Geography.

## **Wage costs**

- 95 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.

## **Component calculations**

- 96 Table 20-16 shows the calculation of total assessed expenses for the rural roads component in 2018-19. Total assessed expenses are the sum of road length, traffic volume and heavy vehicle use assessed expenses multiplied by the regional costs and wage costs factors.

Table 20-16 Rural roads component assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Road length (lane-km)	77,402	41,142	82,582	55,336	31,819	8,865	366	29,505	327,017
Road length (\$m)	196	104	209	140	81	22	1	75	828
Traffic volume ('000 vkt)	12,210	9,550	9,609	4,761	4,339	1,204	0	582	42,255
Traffic volume (\$m)	506	396	398	197	180	50	0	24	1,751
Heavy vehicle use (million AGM-km)	49,113	33,291	37,844	25,931	18,984	4,341	0	2,735	172,238
Heavy vehicle use (\$m)	327	222	252	173	127	29	0	18	1,148
Regional costs factor	0.982	0.941	1.056	1.079	1.026	0.984	0.922	1.133	1.000
Wage costs factor	1.006	0.994	0.996	1.018	0.979	0.972	1.019	1.029	1.000
<b>Assessed expenses (\$m)</b>	<b>1,026</b>	<b>708</b>	<b>861</b>	<b>526</b>	<b>378</b>	<b>97</b>	<b>1</b>	<b>128</b>	<b>3,727</b>
<b>Assessed expenses (\$pc)</b>	<b>128</b>	<b>109</b>	<b>170</b>	<b>202</b>	<b>217</b>	<b>183</b>	<b>2</b>	<b>522</b>	<b>148</b>

Source: Commission calculation using PitneyBowes RouteFinder links dataset and software, NTC trend data and BITRE vkt data.

## Urban roads component

### Urban road length, traffic volume and heavy vehicle use

- 97 The assessments of the urban road length, traffic volume and heavy vehicle use disabilities are detailed above.<sup>23</sup>
- 98 Using NTC data, the disability weights for 2018-19 are as follows:
- 12.1% for urban road length
  - 69.6% for traffic volume
  - 18.3% for heavy vehicle use.

### Regional costs

- 99 The Commission has not applied a separate regional costs factor to urban roads expenses because there is no clear conceptual case that the location of major urban centres would affect the cost of road maintenance.

### Wage costs

- 100 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.

### Component calculations

- 101 Table 20-17 shows the calculation of total assessed expenses for the urban roads component in 2018-19. Total assessed expenses are the sum of road length, traffic volume and heavy vehicle use assessed expenses multiplied by the wage costs factors.

<sup>23</sup> See Table 20-11, Table 20-12 and Table 20-15.

Table 20-17 Urban roads component assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Urban population ('000)	6,019	5,163	3,789	2,064	1,215	266	421	128	19,063
Road length (\$m)	132	113	83	45	27	6	9	3	418
Traffic volume ('000 vkt)	38,669	34,642	26,066	13,617	7,001	2,428	2,661	881	125,966
Traffic volume (\$m)	740	663	499	261	134	46	51	17	2,411
Heavy vehicle use (million AGM-km)	79,942	59,724	52,955	22,116	12,853	4,051	1,607	1,573	234,821
Heavy vehicle use (\$m)	216	161	143	60	35	11	4	4	633
Wage costs factor	1.006	0.994	0.996	1.018	0.979	0.972	1.019	1.029	1.000
<b>Assessed expenses (\$m)</b>	<b>1,094</b>	<b>932</b>	<b>722</b>	<b>372</b>	<b>191</b>	<b>61</b>	<b>66</b>	<b>25</b>	<b>3,462</b>
<b>Assessed expenses (\$pc)</b>	<b>136</b>	<b>143</b>	<b>143</b>	<b>143</b>	<b>110</b>	<b>116</b>	<b>155</b>	<b>100</b>	<b>138</b>

Source: Commission calculation using ABS estimated resident population December 2018, NTC trend data and BITRE vkt data.

## Bridges and tunnels

102 The assessment of the bridges and tunnel length disability is detailed below.

103 Using NTC data, the disability weights for 2018-19 are as follows:

- 67% for bridge and tunnel length
- 33% for heavy vehicle use.

### Structure length

104 The bridges and tunnels length component is measured using actual lengths of bridges and tunnels managed by State governments. These lengths are calculated using open source and State provided data. Only structures of at least four metres in length were included to ensure comparability across datasets. These lengths are shown in Table 20-18.

Table 20-18 Estimated bridge and tunnel length by State, 2020 Review

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	km	km	km	km	km	km	km	km	km
Bridge length	204	133	199	51	28	23	12	13	664
Tunnel length	11	0	0	2	1	0	0	0	14
<b>Total length</b>	<b>216</b>	<b>133</b>	<b>199</b>	<b>53</b>	<b>29</b>	<b>23</b>	<b>12</b>	<b>13</b>	<b>678</b>
<b>Shares (%)</b>	<b>31.8</b>	<b>19.7</b>	<b>29.3</b>	<b>7.8</b>	<b>4.3</b>	<b>3.4</b>	<b>1.8</b>	<b>1.9</b>	<b>100.0</b>

Source: Commission calculations using State provided data (2018 and 2019) and data from State Road authorities' websites (2018).

105 These measurements do not result in a material assessment for bridge and tunnel maintenance expenses. However, the assessment is material when this disability measure is applied to the Investment assessment.

106 The assessment does not take into account differences in bridge and tunnel size and complexity. Given the variability in structure descriptions at this level of detail, it is not clear how such differences could be reliably measured. The Commission could not measure lane-kilometres because not all State bridge and tunnel datasets included this information.

- 107 Culverts have not been incorporated into the measure of bridge and tunnel needs because the culvert data are not consistently recorded by the States or in the NTC data.
- 108 The Commission considers that the number and length of bridges and tunnels are mostly driven by topological features such as waterways and, in some cases, changes in elevation. They are also due to safety issues and the complexity of the road networks. They would not be significantly affected by policy influences. The number and length of bridges and tunnels are separate from other geographic and climatic factors. Previous attempts to measure these influences have proven difficult. The Commission considers that including a bridges and tunnels disability improves the assessment.
- 109 New South Wales said that bridge and tunnel infrastructure is significantly more expensive to build and maintain compared to an earthwork road formation. It estimated that a metre of bridge maintenance costs about 20 times that of a metre of road and that a metre of tunnel maintenance and operation costs about 35 times that of a road.
- 110 The Commission recognises that tunnels are more costly to maintain than bridges. However, the Commission does not have reliable information to make a cost adjustment. In any case, applying a 200% weighting to the length of tunnels, as indicated by New South Wales, would not be material as shown in Table 20-19.

**Table 20-19 GST effect of a tunnel weighting of 200%, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	4	-3	-1	0	0	0	0	0	4
\$ per capita	0	0	0	0	0	0	0	0	0

Source: Commission calculation.

- 111 Western Australia did not support the bridges and tunnels assessment because other geographic-specific structures, including floodways (a widespread feature of Western Australia), are not included in the assessment and this could lead to a biased assessment. It also considered that if floodways cannot be incorporated, the cost of road structures including floodways should be reallocated to the relevant urban and rural road components. However, it considered that if floodways are not included and bridge and tunnel length is retained, this length should be deducted from the synthetic network lane kilometres.
- 112 The Commission did not have information on the number of floodways and State spending on them to make a separate assessment.
- 113 The cost of maintaining floodways is captured in the rural and urban roads assessments. In the absence of relevant information, the assessment assumes that the cost of maintaining floodways is the same as other roads. Floodways are less costly than bridges and tunnels. Main Roads Western Australia's technical standards<sup>24</sup> say that floodways are commonly utilised in rural roadways with relatively low traffic volume and where it is impractical or uneconomical to construct a bridge or culvert.

<sup>24</sup> Mainroads Western Australia, *Floodways* (May 2019, D11#194387), see <https://www.mainroads.wa.gov.au/BuildingRoads/StandardsTechnical/RoadandTrafficEngineering/DrainageWaterways/Pages/Floodways.aspx>, [accessed 19/02/2020]

- 114 The Commission considers that it is simpler and more transparent to assess bridges and tunnels as a separate component. Removing bridge and tunnel length from the assessed rural road network is not material, as shown in Table 20-20.

**Table 20-20 GST effect of removing bridge and tunnel length from road length, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	0	0	0	0	0	0	0	0	1
\$ per capita	0	0	0	0	0	0	0	1	0

Source: Commission calculation.

## Heavy vehicle use

- 115 The assessment of the heavy vehicle use disabilities for bridges and tunnels uses AGM-km data from BITRE, the same as that for roads, but without the rural/urban disaggregation. These use rates are shown in Table 20-21.

**Table 20-21 Estimated total heavy vehicle use by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Total heavy vehicle use (million AGM-km)	129,055	93,015	90,799	48,047	31,837	8,392	1,607	4,308	407,059
State share (%)	31.7	22.9	22.3	11.8	7.8	2.1	0.4	1.1	100.0

Source: BITRE vkt data.

- 116 All States supported this approach or did not comment.

## Regional costs

- 117 The Commission has applied a regional costs factor to bridge and tunnel expenses based on the length of bridges and tunnels by remoteness regions.
- 118 Consistent with the rural road assessment, the Commission has applied the general regional cost gradient to assessed bridge and tunnel length expenses.

## Wage costs

- 119 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method see Chapter 27 Wage costs.

## Component calculations

- 120 Table 20-22 shows the calculation of total assessed expenses for the bridges and tunnels component in 2018-19. Total assessed expense is the sum of bridge and tunnel length, and heavy vehicle use assessed expenses multiplied by the regional costs and wage costs factors.

Table 20-22 Bridges and tunnels component assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Structure length (km)	216	133	199	53	29	23	12	13	678
Length assessed expenses (\$m)	97	60	90	24	13	10	5	6	306
Heavy vehicle use (million AGM-km)	129,055	93,015	90,799	48,047	31,837	8,392	1,607	4,308	407,059
Heavy vehicle use (\$m)	48	34	34	18	12	3	1	2	151
Regional costs factor	0.987	0.978	1.022	1.040	0.999	1.020	0.970	1.161	1.000
Wage costs factor	1.006	0.994	0.996	1.018	0.979	0.972	1.019	1.029	1.000
<b>Assessed expenses (\$m)</b>	<b>145</b>	<b>93</b>	<b>124</b>	<b>43</b>	<b>24</b>	<b>13</b>	<b>6</b>	<b>8</b>	<b>457</b>
<b>Assessed expenses (\$pc)</b>	<b>18</b>	<b>14</b>	<b>25</b>	<b>17</b>	<b>14</b>	<b>25</b>	<b>14</b>	<b>34</b>	<b>18</b>

Source: Commission calculation using State data.

## Category calculations

- 121 Table 20-23 brings the assessed expenses for each component together to derive the total assessed expenses for each State for the category. It shows at the component level how each disability assessment moves expenses away from an EPC distribution to obtain assessed expenses.



Table 20-23 Roads category assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
<b>Rural roads</b>									
Equal per capita	148	148	148	148	148	148	148	148	148
Road length	-9	-17	8	21	13	9	-31	271	0
Traffic volume	-7	-9	9	6	34	24	-70	29	0
Heavy vehicle use	-5	-12	4	21	27	9	-46	29	0
Regional costs	-1	-1	1	3	0	-2	0	30	0
Wage costs	1	-1	-1	4	-5	-5	0	15	0
<b>Assessed expenses</b>	<b>128</b>	<b>109</b>	<b>170</b>	<b>202</b>	<b>217</b>	<b>183</b>	<b>2</b>	<b>522</b>	<b>148</b>
<b>Urban roads</b>									
Equal per capita	138	138	138	138	138	138	138	138	138
Road length	0	1	0	1	-1	-6	5	-5	0
Traffic volume	-4	6	3	4	-19	-8	24	-27	0
Heavy vehicle use	2	0	3	-2	-5	-5	-15	-8	0
Wage costs	1	-1	-1	2	-2	-3	3	3	0
<b>Assessed expenses</b>	<b>136</b>	<b>143</b>	<b>143</b>	<b>143</b>	<b>110</b>	<b>116</b>	<b>155</b>	<b>100</b>	<b>138</b>
<b>Bridges and tunnels</b>									
Equal per capita	18	18	18	18	18	18	18	18	18
Length	0	-3	6	-3	-5	8	1	11	0
Heavy vehicle use	0	-1	1	1	1	0	-5	1	0
Regional costs	0	0	0	0	0	0	0	4	0
Wage costs	0	0	0	0	0	-1	0	1	0
<b>Assessed expenses (a)</b>	<b>18</b>	<b>14</b>	<b>25</b>	<b>17</b>	<b>14</b>	<b>25</b>	<b>14</b>	<b>34</b>	<b>18</b>
<b>Total assessed expenses</b>	<b>282</b>	<b>265</b>	<b>338</b>	<b>361</b>	<b>341</b>	<b>324</b>	<b>171</b>	<b>656</b>	<b>304</b>

Note: Table may not add due to interactions between disabilities and rounding. The equal per capita (EPC) expenses and assessed expenses are total spending per capita. The amounts for each disability are redistributions from an EPC assessment.

(a) While the assessment of bridge and tunnel expenses is not material, the contribution of this disability to the investment assessment is material.

Source: Commission calculation.

## Infrastructure assessment

122 States require infrastructure to support service delivery. State infrastructure requirements are assessed in the Investment category. The main driver of investment in roads related infrastructure is growth in traffic volume and heavy vehicle use across both the rural and urban road networks. Population growth also drives investment in roads, and bridges and tunnels. Interstate differences in construction costs are also recognised.

123 Roads investment needs are assessed using capital stock factors derived from the recurrent roads assessment sub-component factors.<sup>25</sup> These factors are combined into a single factor each for rural roads and urban roads using weights derived from NTC category expenses.

<sup>25</sup> Capital stock factors are the ratio of assessed to average per capita expenses.

Table 20-24 provides the investment assessment cost allocation for the relevant NTC categories.

**Table 20-24 Roads investment cost allocation based on NTC cost allocation formulae**

		Road length	Road traffic volume	Road heavy vehicle use	Bridge and tunnel length	Bridge and tunnel use
		%	%	%	%	%
F1	Pavement improvements	55	0	45	0	0
F2	Bridge improvements	0	0	0	85	15
F3	Land acquisition, earthworks, other extensions/improvements	90	10	0	0	0

Source: NTC PAYGO cost allocation formulae.

- 124 The Commission splits roads investment between rural and urban investment using a weighted average of rural and urban investment expenditure from NTC data (with a weight of 33%) and State provided data (with a weight of 67%), as shown in Table 20-25.

**Table 20-25 Average urban/rural split of gross roads capital expenditure, 2016-17 to 2018-19**

	Urban	Rural
	%	%
State data	46 (x 0.67)	54 (x 0.67)
NTC data	57 (x 0.33)	43 (x 0.33)
<b>Weighted average</b>	<b>49</b>	<b>51</b>

Source: Commission calculation based on NTC and State collected data.

- 125 New South Wales considered the Commission should rely wholly on NTC data to allocate investment between urban and rural roads, which is the approach used for the recurrent expense assessment.<sup>26</sup>
- 126 The Commission uses a weighted average of State and NTC data in the Investment assessment due to inconsistencies in the definition of urban areas between the NTC and the Commission, and to provide greater consistency between the investment and stock data.
- 127 The NTC data are based on a broader definition of urban areas than that of the Commission and, therefore, the State investment and stock data. The NTC definition is dated and no longer supported by the ABS since the 2011 Census. The Commission's definition is consistent with current ABS geography. Retaining the old ABS definition was not an option for the Commission because it is no longer supported by the ABS.
- 128 The Commission definition is tighter geographically than that used by the NTC because the Commission's definition cover less of the hinterland surrounding urban areas than the NTC definition. This is why the proportion of urban investment is lower under the Commission definition.
- 129 Given these inconsistencies, the Commission considers it more prudent to retain the averaging of NTC and State data.

<sup>26</sup> Currently, the NTC is the only source of data for splitting roads recurrent expenses between urban and rural roads.

130 Table 20-26 shows the calculation of total assessed investment for rural and urban roads for 2018-19. The stock factors for each of these investment components are calculated using the recurrent length, traffic volume, heavy vehicle use, and bridges and tunnels disabilities.

**Table 20-26 Roads investment assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
<b>Rural roads</b>									
Assessed opening stock	38,814	22,817	37,575	22,656	13,862	4,135	460	9,624	149,944
Assessed closing stock	40,127	23,637	38,871	23,397	14,317	4,287	476	9,951	155,063
Assessed change in stock	1,313	820	1,296	741	455	152	16	327	5,119
Cost factor	0.985	0.831	1.120	1.260	0.998	0.865	0.874	1.269	1.000
<b>Assessed investment</b>	<b>1,212</b>	<b>615</b>	<b>1,401</b>	<b>907</b>	<b>436</b>	<b>126</b>	<b>10</b>	<b>412</b>	<b>5,119</b>
<b>Urban roads</b>									
Assessed opening stock	22,869	18,594	15,280	7,485	4,355	1,221	1,399	590	71,794
Assessed closing stock	24,743	20,229	16,567	8,050	4,682	1,322	1,512	630	77,737
Assessed change in stock	1,874	1,635	1,287	565	327	101	114	40	5,943
Cost factor	1.025	0.969	0.980	1.033	0.994	0.967	1.035	1.115	1.000
<b>Assessed investment</b>	<b>1,923</b>	<b>1,587</b>	<b>1,263</b>	<b>584</b>	<b>326</b>	<b>98</b>	<b>118</b>	<b>44</b>	<b>5,943</b>
<b>Total assessed investment</b>	<b>3,135</b>	<b>2,202</b>	<b>2,664</b>	<b>1,491</b>	<b>762</b>	<b>224</b>	<b>127</b>	<b>456</b>	<b>11,062</b>

Source: Commission calculation.

131 Interstate differences in construction costs are also recognised.

132 For a description of the Investment assessment, see Chapter 24 Investment.

## Other issues considered by the Commission

133 There were a number of other issues considered by the Commission, largely in response to concerns raised by States. These issues related to the method for measuring existing disabilities or requests for new disabilities that were not included in the 2015 Review assessment. The main reasons for not assessing certain disabilities identified by States are:

- the conceptual case for a disability has not been established
- an assessment would not be material, that is, redistribute more than \$35 per capita for any State<sup>27</sup>
- data are not available to make a reliable assessment.

## Unsealed rural roads

134 The Commission discontinued the 2015 Review's adjustment for the lower cost of maintaining unsealed roads. The Commission could not find sufficiently comprehensive and reliable data to measure the length of unsealed roads across States and the relative cost of maintaining unsealed and sealed roads.

<sup>27</sup> The Commission has set a materiality threshold for including a disability. A disability assessment must redistribute more than \$35 per capita away from an equal per capita assessment for any State to be included. The materiality test applies to the total impact the disability has on the redistribution of funds across all revenue or expense categories in which it is assessed.

- 135 Victoria acknowledged the difficulties in measuring unsealed road length but considered that the conceptual case for the recognition of the lower maintenance costs associated with unsealed roads justified an adjustment for unsealed roads. It considered that an average cost weight should be applied to unsealed roads with such roads being defined using the best data that is fit for purpose.
- 136 The Commission notes Victoria's views but it does not have the information necessary to measure the length of unsealed roads in each State. The 2019 Update unsealed rural roads assessment was only material for the Northern Territory, as shown in Table 20-27.

**Table 20-27 Unsealed roads assessment, GST redistribution, 2019 Update**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	36	15	-12	-10	-2	6	0	-31	56
\$per capita	4	2	-2	-4	-1	10	0	-127	2

Source: Commission calculation

## Density and congestion

- 137 The ACT argued the Commission should investigate whether a relationship exists between urban density and roads expenditure. The Commission considers that the ACT did not establish a conceptual case for the issue to be pursued.
- 138 New South Wales also wrote that the assessed cost of maintaining the urban road network should reflect differential costs arising from congestion in urban areas. However, the Commission considers that traffic volume and heavy vehicle use would capture a large proportion, if not all, of the effect of congestion on the cost of maintaining urban roads. There would be the possibility of double counting needs if a measure of congestion was introduced.

## Local roads

- 139 The Commission has removed the 2015 Review local roads assessment and has re-allocated the expenses on a proportional basis to the rural and urban roads components. As such, the total scope of roads expenses is not affected by the removal of the local roads assessment.
- 140 In the 2015 Review, the local roads assessment aimed to measure State needs to maintain local roads in areas where there is no local government (unincorporated areas) or where there is insufficient population for the local government to support road maintenance. These categories are defined by the NTC as:
- H3: spending on local access roads in unincorporated areas
  - H4: direct spending on council managed local access roads
  - H5: any other direct State spending on local access roads.
- 141 Table 20-28 shows that combined State spending (H3, H4 and H5) in 2018-19 was \$431 million. Of this, only \$10 million was classified under H3. The three main expense items were New South Wales' H4 spending (\$113 million), Western Australia's H4 spending (\$99 million) and Queensland's H5 spending (\$77 million). In the case of the H4 category (direct spending on council managed local access roads), the table shows that 36% of the spending is in New South Wales and another 31% in Western Australia. This suggests a State policy influence and/or a classification issue.

- 142 For Western Australia, this seems confirmed by Main Roads Western Australia, which suggested to Commission staff that ‘the general driver for this spend (H4) relates to its role to provide a whole of network solution and some expenditure directly on local roads is required so there is good integration with the State network’.<sup>28</sup> Another possible explanation is that Western Australia may be classifying some roads as local roads that other States would classify as State roads.

**Table 20-28 NTC local roads expenditure under the H3, H4 and H5 categories, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
H3	3	0	0	1	0	0	0	6	10
H4	113	64	0	99	41	0	0	0	317
H5	0	0	77	1	0	0	0	26	104
<b>Total</b>	<b>116</b>	<b>64</b>	<b>77</b>	<b>102</b>	<b>41</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>431</b>
	%	%	%	%	%	%	%	%	%
H3	28.1	0.0	0.0	14.0	0.0	0.0	0.0	57.8	100.0
H4	35.7	20.2	0.0	31.3	12.8	0.0	0.0	0.0	100.0
H5	0.0	0.0	73.4	1.2	0.0	0.0	0.0	25.3	100.0
<b>Total</b>	<b>26.9</b>	<b>14.8</b>	<b>17.8</b>	<b>23.6</b>	<b>9.4</b>	<b>0.0</b>	<b>0.0</b>	<b>7.5</b>	<b>100.0</b>

Source: National Transport Commission expenditure data, 2018-19.

- 143 Information from States indicates that only a small portion of spending reported against H3, H4 and H5 categories, primarily that of the Northern Territory, relate to the maintenance of local roads in unincorporated areas, or in local government areas where there is insufficient population for local governments to support road maintenance. There may also be some spending in Western Australia and South Australia.
- 144 State spending classified to the H3 category and, for the Northern Territory, to the H5 category in 2018-19 was \$37 million, similar to that of previous years (\$36 million in 2016-17 and \$34 million in 2017-18). For the 2015 Review local roads assessment to be material for one State at \$35 per capita, total State spending would need to be almost \$90 million. At the current level of spending, the Northern Territory has the highest per capita redistribution (about \$14 per capita).
- 145 The Commission considers that this reallocation of H3, H4 and H5 expenses proportionately across rural and urban road sub-components appropriately recognises State needs. The Northern Territory is the only State with substantial per capita spending on local roads in unincorporated and sparsely populated areas. Its relative rural road length needs are similar to those of the 2015 Review local roads assessment.
- 146 Only Western Australia opposed the discontinuation of the local roads assessment. It said the Commission’s explanation for discontinuing the assessment is insufficient. The preceding paragraphs provide further explanation of the Commission’s reasoning. To summarise, the main reasons for not retaining the local roads assessment are:

<sup>28</sup> Email exchange between Commission and Main Roads WA officers, May 2017.

- the higher levels of H4 and H5 spending in a few States appear to be affected by differences in how States classify roads
- the States with higher levels of spending in these categories are assessed to have above average rural road disabilities, which would go some way to capturing local road needs
- a separate local roads assessment applied only to State roads expenses in unincorporated areas or where there is insufficient population for the local government to support road maintenance would be immaterial.

- 147 Queensland would have preferred that the local roads expenses be allocated to the rural road length sub-component and the Northern Territory would have preferred that they be allocated across the rural roads component. However, the Commission considers that reallocating the expenses proportionately across the rural and urban road sub-components reflects where spending is occurring and appropriately recognises State needs.
- 148 Victoria recommended that the Commission use State actual kilometres for local roads, with an appropriate and consistent definition of local roads, as the basis of determining local road length. There is no consistent definition of local roads to support such an assessment.

## Other services expenses

- 149 Other roads services cover expenses on corporate services, vehicle registration and driver licensing (NTC category G expenses). These expenses were assessed EPC in the 2015 Review because a simple and material assessment could not be identified.
- 150 The Commission has reallocated roads corporate services, vehicle registration and driver licensing expenses to all roads components on a proportional basis. New South Wales, Victoria and the ACT did not support this approach. These States said there was no relationship between these expenses and the drivers of road maintenance expenses.
- 151 Reallocating other expenses will ensure that these expenses in the Roads category are treated in the same way as similar expenses in other categories. The Commission considers that expenses on corporate services and regulation are influenced by the same disabilities as those that affect service delivery expenses. As Queensland noted, fixed costs are already captured in the administrative scale assessment, and as such it is conceptually sound that the remaining head office type costs are allocated proportionally to the road category components.
- 152 Other States agreed with this approach or did not comment.

## Physical environment

- 153 Evidence shows that the physical environment does affect the cost of roads maintenance. However, the impact has proven difficult to measure. For example, a consultant employed by the Commission during the 2015 Review was unable to develop a measure of needs that would capture all the relevant physical environment influences. However, the inclusion of the Rawlinsons index in the Investment assessment provides some recognition of physical environment effects.
- 154 Queensland said that the Commission should further consider and employ additional methods, expert advice or data (including State provided data) in arriving at a differential assessment for physical environment expenses.

- 155 The Northern Territory said that the consultant's report provides a sound basis for the development of a physical environment disability.
- 156 The Commission notes that the measure developed by the consultant in the 2015 Review could not capture all the relevant physical environment influences and considers that further attempts at measuring the impact of physical environment are not likely to deliver an improved outcome. As a result, the Commission did not pursue this issue in the 2020 Review.

## Effect on the GST distribution

- 157 Table 20-29 shows the extent to which the assessment for this category moves the distribution of GST away from an equal per capita distribution. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements. In per capita terms, Western Australia, the ACT and the Northern Territory experience the largest redistributions.

**Table 20-29 Illustrative redistribution from an EPC assessment, Roads expenses, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-194	-281	192	161	79	10	-63	95	537
\$ per capita	-23	-41	37	61	45	19	-143	386	21

Source: Commission calculation.

- 158 Table 20-30 provides a summary of the main disabilities contributing to the redistribution from an EPC assessment for this category. While the redistribution of the bridge and tunnel maintenance expense assessment is not material, the bridge and tunnel investment assessment is material.

**Table 20-30 Major reasons for the illustrative redistribution, Roads expenses, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Rural road length	-76	-126	51	61	26	6	-15	73	217
Rural heavy vehicle use	-43	-86	25	61	53	5	-22	8	151
Rural traffic volume	-56	-63	52	18	61	13	-32	7	150
Urban traffic volume	-28	34	15	10	-30	-5	9	-6	68
Other	9	-39	47	11	-30	-9	-4	14	82
<b>Total</b>	<b>-194</b>	<b>-281</b>	<b>192</b>	<b>161</b>	<b>79</b>	<b>10</b>	<b>-63</b>	<b>95</b>	<b>537</b>

Note: Totals may not add due to rounding.

Source: Commission calculation.

- 159 The main reasons for these redistributions are the differences between States in the extent of their assessed rural road networks, urban populations, road use across both rural and urban roads and the extent of their bridges and tunnels.
- 160 The main reasons for the redistributions for each State are:
- New South Wales and Victoria have, in per capita terms, relatively small rural networks, lower rural traffic volume and rural heavy vehicle use. These disabilities are not outweighed by Victoria's above average urban network (proxied by population) and urban traffic volume nor by the above average urban heavy vehicle use in New South Wales.

Consequently, both States are assessed to be able to provide road maintenance services at below average cost.

- Queensland, Western Australia, South Australia, Tasmania and the Northern Territory have above average rural networks, rural traffic volume and rural heavy vehicle use, leading to their above average assessed needs for delivering roads services. All but Western Australia and South Australia also have above average needs relating to bridges and tunnels.
- The ACT has a very small assessed rural network, and rural road use. It also has below average needs relating to urban heavy vehicle use. Consequently, it is assessed to be able to deliver roads services at below average cost.

## Roads investment

161 Table 20-31 shows the extent to which the assessment for this category differs from an EPC assessment of roads investment.

**Table 20-31 Illustrative redistribution from an EPC assessment, Roads investment, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-425	-699	459	363	4	-15	-61	374	1,199
\$ per capita	-51	-102	88	137	2	-27	-139	1,519	46

Source: Commission calculation.

## Changes since the 2019 Update

162 There are a number of method and data changes since the 2019 Update as well as data revisions and changes in State circumstances. Table 20-32 shows the effect of these changes.

**Table 20-32 Changes to the GST redistribution between the 2019 Update and 2020 Review**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Method and data changes	39	-29	66	-70	-5	14	-13	-2	120
Data revisions	-18	22	-14	9	0	3	1	-2	35
State circumstances	1	-4	-2	-2	3	3	-1	2	9
<b>Total</b>	<b>22</b>	<b>-11</b>	<b>50</b>	<b>-63</b>	<b>-1</b>	<b>20</b>	<b>-14</b>	<b>-2</b>	<b>91</b>

Source: Commission calculation.

## Method and data changes

- 163 The Commission has re-estimated its rural road length measure. New road connections have been added to mines, ports and national parks. The number of lanes on roads is also taken into account. The assessment of unsealed roads has been removed.
- 164 The local roads assessment has been discontinued and the local roads expenses have been reallocated proportionately to the urban and rural road components.
- 165 Bridges and tunnels expenses are now assessed using actual lengths of bridges and tunnels that are State managed, measured across comparable structures.



- 166 The number of heavy vehicle classes has been reduced from five to three. Light commercial vehicles are now classified with passenger vehicles.
- 167 Other services expenses have been reallocated proportionately across the rural roads, urban roads and bridges and tunnels components.
- 168 State spatial data on bridges, tunnels and roads have been used to build the assessment.

## Data revisions

- 169 Data on light vehicle VKT in rural areas were revised up in Victoria and down in New South Wales and Queensland, resulting in GST revenue being redistributed to Victoria and away from New South Wales and Queensland. Rural heavy vehicle VKT were revised up in Western Australia, resulting in GST revenue being redistributed to that State.

## Changes in State circumstances

- 170 Changes in State circumstances had a small effect on the GST distribution (\$9 million). The change in distribution is mainly due to changes in the relative proportions of State expenses on urban and rural roads.

## Updating the assessment

- 171 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.
- The Commission will update the following data annually or biennially:
    - NTC State expenses data used to weight disabilities (annually)
    - road use data from the BITRE (annually)
    - urban population used for the urban road length disability (annually)
    - urban-rural split, based on a six-year average of SMVU data (biennially).
  - Some of the assessment data are not readily available on an annual basis, or remain stable over time. These data will not be updated during the review period:
    - the assessed rural road network and the data underlying this method
    - NTC heavy vehicle weights, which will only be updated if the NTC updates its heavy vehicle determinations
    - data on bridge and tunnel length.

# 21 Transport

## Summary of the assessments

The Transport assessments cover State spending on bus, rail (passenger and freight), and ferry services, ports and other maritime related services, and air transport. State transport expenses (including depreciation) and net investment in transport infrastructure are assessed separately.

### Transport expenses

This includes State spending on transport services including subsidies to transport operators, the cost of passenger concessions, administration expenses and student transport expenses. User charges, mainly passenger fares, and other revenue are netted off against recurrent expenses.

Separate assessments are made of urban and non-urban transport net expenses.

States' urban transport expenses are assessed using a blended approach that recognises:

- urban population (with a weight of 25%), recognising that the cost of State provided urban transport services increases with urban centre population size
- urban centre characteristics (with a weight of 75%), recognising that population density, passenger numbers by mode of transport, the presence of ferry services, commuter distance travelled to work, and topography affect State urban transport expenses.

Non-urban transport expenses are assessed on an EPC basis with a general regional cost gradient applied.

Wage costs differences between States are recognised in both components.

### Transport net investment

This includes State spending on transport infrastructure to support service delivery. Separate assessments are made of net urban transport investment and non-urban transport investment.

States' urban transport investment expenses are assessed using a blended approach that recognises:

- urban population squared (with a weight of 25%), recognising that the cost of urban passenger transport infrastructure increases with the square of urban centre population
- urban centre characteristics (with a weight of 75%), recognising that population density, passenger numbers by mode of transport, the presence of ferry services, commuter distance travelled to work, and topography affect State investment in urban transport infrastructure.

The assessment of investment in non-urban transport is based on growth in total population.

For a description of the investment assessments, see Chapter 24 Investment.

## Service overview

- 1 State expenditure on transport was \$22.3 billion in 2018-19, representing 8.6% of total State expenditure (Table 21-1). State transport expenses (including depreciation) and net

investment in transport infrastructure are assessed separately. State spending on this function comprises expenditure relating to bus (including school bus services), heavy (passenger and freight) and light rail, ferry services, ports and other maritime related services, and air transport. State transport expenses (or recurrent expenses) include subsidies paid to transport operators, the cost of passenger concessions, administration expenses and student transport expenses. User charges, mainly passenger fares, are netted off recurrent expenses.<sup>1</sup>

- 2 For this assessment, the State sector includes general government agencies responsible for transport services and public non-financial corporations (PNFCs) responsible for urban passenger transport.
- 3 Roads expenses are assessed in the Roads category (refer to Chapter 20 Roads).

**Table 21-1 Transport expenditure by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Expenses (\$m)	6,880	3,506	2,678	1,386	534	96	175	84	15,339
Net investment (\$m)	4,935	745	1,003	13	169	-4	27	81	6,968
<b>Total transport expenditure (\$m)</b>	<b>11,814</b>	<b>4,251</b>	<b>3,681</b>	<b>1,399</b>	<b>702</b>	<b>92</b>	<b>202</b>	<b>165</b>	<b>22,307</b>
Expenses (\$pc)	856	537	530	532	306	180	414	343	610
Net investment (\$pc)	614	114	199	5	97	-7	63	329	277
<b>Total transport expenditure (\$pc)</b>	<b>1,470</b>	<b>651</b>	<b>729</b>	<b>537</b>	<b>403</b>	<b>174</b>	<b>477</b>	<b>672</b>	<b>886</b>
Proportion of total expenditure (%)	13.9	7.1	7.1	4.9	4.4	1.7	3.9	2.6	8.6

Note: Expenses shown on a net basis. Recurrent expenses include urban and non-urban transport expenses. Investment expenses are net of depreciation and only includes urban transport investment.

Source: Commission calculation using State budget data.

- 4 Table 21-2 shows the share of State expenditure on transport from 2015-16 to 2018-19.

**Table 21-2 Transport expenditure, all States, 2015-16 to 2018-19**

	2015-16	2016-17	2017-18	2018-19
Total expenditure (\$m)	16,167	18,715	20,708	22,307
Proportion of total expenditure (%)	7.6	8.2	8.4	8.6

Note: Expenses shown on a net basis.

Source: Commission calculation using Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.

- 5 User charges were \$3.1 billion in 2018-19 and is primarily fare revenue from urban passenger transport (Table 21-3). In the expense assessment, user charges are deducted from expenses so that the assessment only applies to net transport expenses.

**Table 21-3 Transport, user charges, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Revenue (\$m)	1,370	949	360	230	96	14	28	12	3,059
Revenue (\$pc)	170.4	145.4	71.3	88.3	55.1	26.3	66.1	48.9	121.6

Note: User charges refer to revenue from the sale of goods and services classified in GFS to economic type framework (ETF) 112.

Source: Commission calculation using ABS GFS and State budget data.

<sup>1</sup> Net investment is gross fixed capital expenditure less depreciation.

## State roles and responsibilities

- 6 States fund the following urban and non-urban services and infrastructure.
  - Rail passenger services.
    - Urban rail passenger services in the larger cities of Sydney, Melbourne, Brisbane, Perth and Adelaide. These include extensive underground rail in Sydney and Melbourne.
    - Non-urban rail passenger services in New South Wales, Victoria, Queensland and Western Australia.
  - Bus services in all capital cities and major urban centres in all States.
  - Light rail or tram services in Sydney, Melbourne, Adelaide, the Gold Coast, Newcastle and the ACT.
  - Coach services connecting regional centres with each other and the capital city in all States except the ACT. In New South Wales, Victoria and Queensland, these services may complement or replace rail services.
  - Ferry services in nearly all States.
- 7 While States make the policies on services, fares and infrastructure, the services are delivered under contracts by State-owned statutory corporations, private sector service providers and, in a few cases, State departments or local governments.
- 8 States differ considerably in the way they provide urban transport services. In capital cities, States use a mix of direct general government provision, service delivery through PNFCs or contracting with private providers to deliver services. In Queensland, the Brisbane City Council operates bus services. In large regional centres, services are provided through PNFCs or private providers. In smaller centres, States generally provide services by contracting with private providers. However, the level of private provision is only significant in New South Wales and Victoria.
- 9 A mix of private providers and PNFCs operate non-urban services such as bus and rail passenger transport, rail freight and ports.
- 10 States fund concessions to certain groups of users, via reduced fares.
- 11 Queensland, Western Australia, South Australia, Tasmania and the Northern Territory also subsidise air services in remote areas, to ensure access to essential services.

## Commonwealth roles and responsibilities

- 12 The Commonwealth's primary role is as a funder of nationally significant infrastructure projects. Infrastructure Australia, which is an independent statutory body with a mandate to prioritise and progress nationally significant infrastructure, determines which nationally significant projects should be included on the *Infrastructure Priority List*. However, the Commonwealth has discretion to decide which projects receive funding.
- 13 Table 21-4 shows the main Commonwealth payments to the States for rail infrastructure in 2018-19. All payments are for capital purposes.

Table 21-4 Commonwealth payments to the States for Rail infrastructure, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Infrastructure investment program									
Rail investment (\$m)	0	6	0	164	20	13	0	0	203
National rail program (\$m)	27	0	2	1	220	0	0	0	250
<b>Total (\$m)</b>	<b>27</b>	<b>6</b>	<b>2</b>	<b>164</b>	<b>240</b>	<b>13</b>	<b>0</b>	<b>0</b>	<b>453</b>
<b>Total (\$pc)</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>63</b>	<b>138</b>	<b>25</b>	<b>0</b>	<b>0</b>	<b>18</b>

Note: Table shows major payments only. Commonwealth Own Purpose Expenses (COPEs) are not included. Payments that the Commission treats as 'no impact' are included in the table.

Source: Commonwealth Final Budget Outcome, 2018-19.

- 14 Chapter 5 Commonwealth payments provides the complete list of Commonwealth payments and their treatment.<sup>2</sup> The treatment of Commonwealth payments for investment in National Rail Network projects is also discussed in that chapter.

## Category structure

- 15 The assessment of State transport expenses is considered in the following two components:<sup>3</sup>
- urban transport
  - non-urban transport.
- 16 Components allow different disability assessments to apply to sub-functions.
- 17 Table 21-5 shows the category's assessment structure, the size of each component and the disabilities that apply.

<sup>2</sup> Most Commonwealth payments to the States affect the grant distribution but some do not. The Commission refers to payments that affect the grant distribution as 'impact' payments. For more information, see Chapter 5.

<sup>3</sup> The urban transport investment assessment is discussed below.

Table 21-5 Category structure, Transport, 2018-19

Component	Component expense	Disability	Influence measured by disability
	\$m		
Urban transport	14,550	Urban centre characteristics (weighted 75%)	Demand for and cost of providing urban transport, and city specific characteristics, using population-weighted density, the use and presence of a public transport mode, distance to work and topography.
		Urban population (weighted 25%)	The proportion of the State population living in urban centres.
		Wage costs	Recognises the differences in wage costs between States.
Non-urban transport	789	Equal per capita	This is an equal per capita assessment.
		Wage and regional costs	Recognises the differences in wage costs between States and in the cost of providing services to different areas within a State.

Note: This table only includes transport expenses. It does not include Transport investment.

Source: Commission calculation using ABS GFS and State budget data.

## Category and component expenses

- 18 The main data sources for calculating category and component expenses are Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.<sup>4</sup> The Commission produces consolidated tables of general government sector and PNFC spending and investment in urban passenger transport.
- 19 In this review, the Commission decided to include student transport expenses in the urban transport component, instead of the Schools category. This is because student transport expenses are difficult to identify and distinguish general passenger transport expenses. In addition, the Commission has no reliable information to split student transport expenses between urban and non-urban areas. Given that 85% of the Australian population lives in urban areas (using the urban transport definition of urban area), it is reasonable to assume that the vast majority of these expenses would be in urban areas. Consequently, all urban passenger and student transport expenses are allocated to the urban transport component.

## Assessment approach

### Urban transport

- 20 Expenses for this component include consolidated operating expenses (including depreciation expenses) for the general government and PNFC sectors on passenger transport within urban centres, net of revenues.
- 21 The urban transport component is assessed using a blended approach that recognises:
  - the proportion of State populations living in urban centres, with a weight of 25%

<sup>4</sup> Unless otherwise stated, category and component expenses for the first two assessment years are sourced from ABS GFS. States provide data for the most recent assessment year because GFS data are not available in time for the annual update.

- the effect of urban centre characteristics on the cost of providing urban transport as measured by an econometric model developed by consultants engaged by the Commission in this review, with a weight of 75%.
- 22 The Commission's decision to blend the urban transport assessment is based on two main data-related issues:
- concerns about the reliability of net urban transport expense data provided by the States, which informed the regression model as the dependent variable
  - for policy neutrality and data availability reasons, several proxy variables are used in the model to capture supply and demand.
- 23 With the exception of New South Wales, all jurisdictions agreed that the econometric model in the urban transport assessments should not apply in full. New South Wales argued that the Commission is discounting the validity of an empirically strong methodology for unfounded reasons. It contended that the lack of bias demonstrated by the consultants in the process of evaluating the proposed model should be evidence enough that the proxy variables used in the model are fit for purpose.
- 24 In an analysis of actual and undiscounted assessed expenses, New South Wales noted that assessed expenditure for jurisdictions with the largest urban centres is already underestimated. In this case, it agreed that the gap between actual and assessed expenses is likely to be the result of differences in jurisdictional policy. Blending the assessment with an urban population model increases this gap even further for New South Wales and Victoria. New South Wales argued that such an outcome cannot be attributed to policy differences between jurisdictions. New South Wales provided extensive evidence in support of its arguments.
- 25 The Commission notes New South Wales' concerns. However, the issue is the reliability of data used to estimate assessed expenses from the model for the reasons stated above.
- 26 Victoria argued that blending the urban transport assessment benefits New South Wales more than any other State, but this assertion is incorrect. Blending the recurrent assessment by 25% reduces New South Wales' GST share by 24%, compared with a reduction of 17% for Victoria. In the case of the investment assessment, blending by 25% reduces New South Wales' GST share by 8% while Victoria's GST share increases by 18%.
- 27 Tasmania and the ACT argued that a discount should be applied to the assessment, rather than a blend. The Commission considers that applying a discount (using total population shares or an EPC assessment), as opposed to a blend (using urban population shares), would result in an inferior outcome. A blend based on urban population broadly captures the service delivery population, whereas a discount attributes needs to the entire State population regardless of where they live, and hence, whether they make any use of public transport services.
- 28 Queensland, Tasmania and the Northern Territory supported the retention of a separate student transport assessment. Tasmania noted the new urban transport assessment does not contain any specific variable that accounts for the level of student transport services. The consultants rejected including student numbers as a variable because it did not improve the explanatory power of the model. The 2015 Review student transport assessment was marginally material and based on unreliable expense data. In the absence of reliable data,

the Commission decided it would be impractical to develop a separate student transport assessment.

## Urban population

- 29 The service population for urban transport services is the population living in urban centres. Table 21-6 shows urban population shares for each State.

**Table 21-6 State urban population, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Urban population ('000)	6,864	5,684	4,144	2,272	1,441	351	421	154	21,330
Total population ('000)	8,038	6,527	5,051	2,606	1,743	532	423	246	25,166
Shares (%)	85.4	87.1	82.1	87.2	82.7	66.1	99.3	62.8	84.8

Note: Urban population is defined in paragraph 69.

Source: Commission calculation using ABS estimated resident population (ERP) data.

## Urban centre characteristics

- 30 In this review, the Commission engaged expert consultants<sup>5</sup> to review the urban transport assessments. The Commission and almost all States agree that the outcome of this work represents an improvement over the 2015 Review methodology in capturing State needs for urban transport expenses.
- 31 The urban centre characteristics recognised in the urban transport assessment are the following:
- population density
  - numbers of public transport passengers (separately assessed for bus/light rail and heavy rail)
  - the presence of ferry services
  - distance to work
  - topography.
- 32 The effect of these urban centre characteristics on the cost of providing urban transport is measured through an econometric model, specified as:
- $$exp_i = \beta_0 + \beta_1 dense_i + \beta_2 dist_i + \beta_3 slope_i + \beta_4 \ln(pax_{i,train}) + \beta_5 \ln(pax_{i,bus+light\ rail}) + \beta_6 D_{i,ferry}$$
- 33 The dependent variable ( $exp_i$ ) is net per capita State expenses on public transport by urban centres. The Commission collected the net expenses data from States in a special data return in late 2017.
- 34 The independent variables of the model are described below.
- Population-weighted density (PWD) ( $dense_i$ ) depicts demand. It is calculated as the sum of density of each Statistical Area Level 1 (SA1) in all urban centres and localities (UCL) within a significant urban area (SUA) weighted by the SA1 population share of the UCLs in the SUA.

<sup>5</sup> The consultants were Jacobs and Synergies Economic Consulting. Their [stage 1](#) and [stage 2](#) reports are available on the Commission's website, (<https://cgc.gov.au/>).



- Median commuter distance to work (*dist<sub>i</sub>*) represents network complexity and the characteristics of individual urban centres. It is a derived data item based on the 2016 Census data, measured as the distance travelled (shortest path of the road network) between an individual's usual residence and place of work.
- Mean land slope (*slope<sub>i</sub>*) accounts for jurisdictional topography, as measured by the average mean slope of the urban areas. The data were generated from a spatial analysis process developed by Geoscience Australia using ArcGIS v.10.0 and Feature Manipulation Engine (FME) 2012.
- Passengers by public transport mode (*pax<sub>i,train</sub>* and *pax<sub>i,bus+light rail</sub>*) represents mode availability (level of service) and congestion. Heavy rail passengers are considered separately from bus and light rail passengers. These data are derived using the 2016 Census enumeration of persons by place of usual residence reporting their method of travel to work. The functional form of the model is reflected by considering the logarithm for both variables.
- A dummy variable to indicate the presence or absence of a ferry service (*D<sub>i,ferry</sub>*) is included to account for the presence of this public transport service in an urban centre.

- 35 A number of States, notably Victoria and Tasmania, were concerned that some variables, such as student numbers and income, were not included in the consultants' preferred model. Tasmania considered that the demand associated with off-peak public transport users, such as concession passengers, is not appropriately captured. It argued the model disproportionately emphasises the demand of commuters at the expense of non-work related commutes. Furthermore, excluding a variable that captures low socio-economic status means that the impact of public transport use for purposes other than commuting is not measured, since the Census 'journey to work' dataset only measures the public transport use by employed persons.
- 36 The consultants tested a range of variables, including student numbers and socio-economic status (SES). These and other variables suggested by States were not included when they did not improve the explanatory power of the model. Influences such as overseas visitors as raised by Victoria could not be modelled due to lack of data.
- 37 In addition, while SES may influence the need for public transport, its relationship to use is not clear. For example, outer-urban areas of Australian capital cities have a relatively higher concentration of low SES people. These areas can generally be described as transport disadvantaged areas – where accessibility to public transport is low and forced car ownership is relatively high.<sup>6</sup>
- 38 Queensland, Western Australia and Tasmania were concerned that there is a risk of multicollinearity, double counting of demand, or both in the final model. However, the consultants' selection of variables aimed to minimise multicollinearity and double counting, as explained in their stage 2 report.
- 39 **Population density.** This variable captures the demand for services. International literature shows that demand for public transport is expected to be higher in cities with high densities

<sup>6</sup> A. Hurni, *Marginalised groups in Western Sydney: The experience of sole parents and unemployed young people*, 2007. In G. Currie, J. Stanley & J. Stanley (Eds.), *No way to go: Transport and social disadvantage in Australian communities* (pp. 10.1-10.11). Melbourne: Monash University Press.

than in those with lower densities. Population density is not only related to urban population but also to the surface area of urban centres. Surface area influences public transport demand in the following ways:

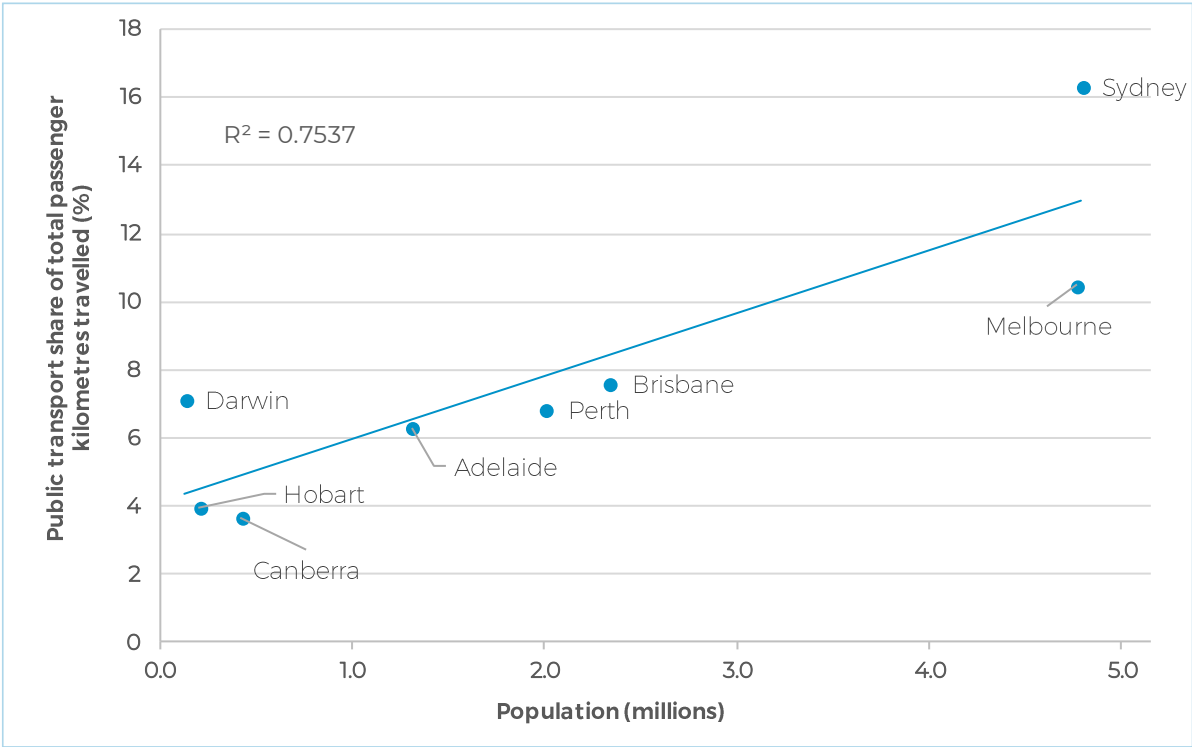
- The more dense an urban centre becomes, the higher the use of public transport because the use of private road vehicles tends to decline due to higher costs related to parking and heavy traffic conditions (congestion).
- The Australian experience shows that large urban sprawl encourages people to have their own private transport because accessibility to the public transport network is poorer and travel distances are longer. This reduces the use of public transport.<sup>7,8</sup>
- The relationship between population density and public transport use is reflected in the major cities' transport plans. For example, Plan Melbourne 2017 – 2050 states that high-density residential developments will be used to deliver more housing closer to public transport. The South East Queensland Regional Plan 2017 states that 60% of population growth in South East Queensland will be accommodated within existing urban areas and there would be a strong focus on concentrating the additional housing closer to public transport. The Perth METRONET program is seeking to support a more compact urban form that will make public transport use more viable.
- There is evidence that, in the Australian context, population density is a better measure of demand for public transport than population. Figure 21-1 shows the relationship between the public transport share of total passenger kilometres travelled and population for the eight capital cities. While there is a good overall correlation, it appears that population size alone does not explain the difference in public transport use between Sydney and Melbourne. These two cities have similar population levels but markedly different use of public transport. Figure 21-2 shows the relationship with population density instead of population. The correlation is stronger (higher R squared) and population density explains better the difference in public transport use between Sydney and Melbourne.

- 40 South Australia argued that population density is not a reliable indicator of urban transport needs. It said that the two most densely populated urban centres (Melbourne and Sydney) have vastly different per capita expenses. However, the Commission notes that Sydney's population density is markedly higher than that of Melbourne, which largely explains the higher per capita expenses in Sydney compared with Melbourne.

<sup>7</sup> C. Polat, *The Demand Determinants for urban Public Transport Services: A Review of Literature*. Journal of Applied Sciences, 2012, 12: 1211-1231.

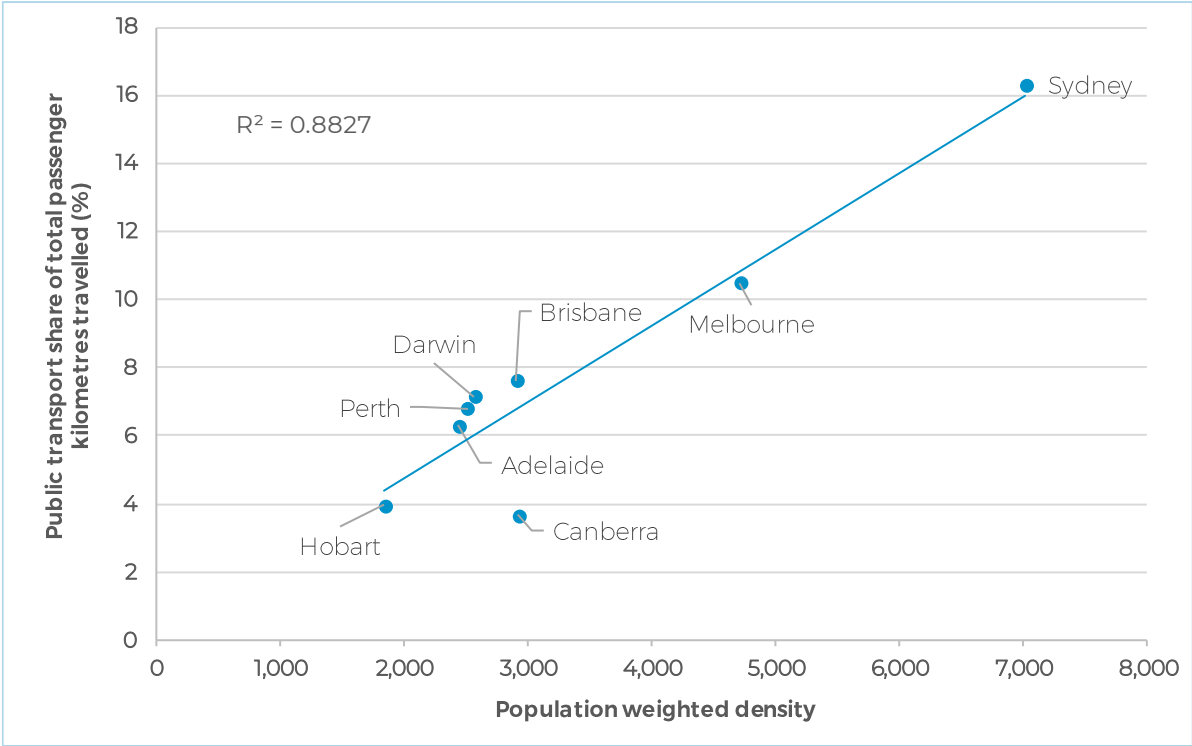
<sup>8</sup> *Outer Urban Public Transport: Improving accessibility in lower-density areas*, Infrastructure Australia, October 2018. [Infrastructure Australia website](https://www.infrastructureaustralia.gov.au/), (<https://www.infrastructureaustralia.gov.au/>), [accessed 10/02/2020]

Figure 21-1 Relationship between public transport share of total passenger kilometres travelled and population, 2018-19



Source: Commission calculation based on Bureau of Infrastructure, Transport and Regional Economics (BITRE) and ABS data.

Figure 21-2 Relationship between public transport share of total passenger kilometres travelled and population density, 2018-19

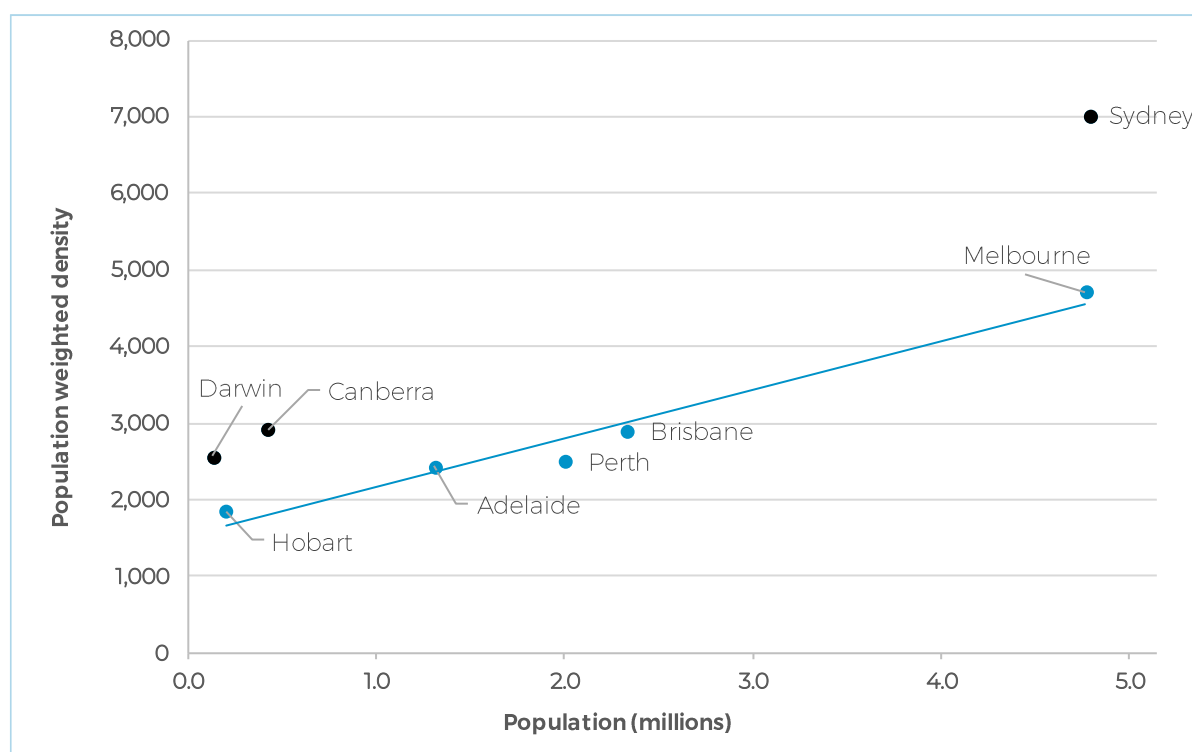


Source: Commission calculation based on BITRE and ABS data.

41 Another concern held by Western Australia and South Australia is that population density is, to some extent, the result of State policies.

- 42 Figure 21-3 compares population density for the capital cities. It shows a strong relationship between population density and population for Melbourne, Brisbane, Perth, Adelaide and Hobart while Sydney, Darwin and Canberra are comparatively dense.

**Figure 21-3 Population weighted density versus population, 2018-19**



Note: Linear relationship excludes Darwin, Canberra and Sydney.

Source: Commission calculation using ABS data.

- 43 Sydney stands out as having a significantly higher population density than the other capital cities. New South Wales considered that Sydney's high population density was effectively the result of:
- topographical constraints and national parks that limit the availability of greenfield residential land
  - historical and current policies. New South Wales said that State governments are adopting policies that aim to minimise expenses associated with urban growth. It argued that, for some jurisdictions, cost minimisation may be achieved through urban sprawl while others may opt for more aggressive urban densification policies. In the case of Sydney, urban infill policies are a necessity due to geographic constraints and associated infrastructure costs.
- 44 A 2013 Bureau of Infrastructure, Transport and Regional Economics (BITRE) report<sup>9</sup> concluded that the four larger States had similar policies in terms of limiting urban sprawl for their capital cities and increasing population density in and around activity centres. The report noted that, between 2001 and 2011, rates of infill development in Perth have been well below the strategic plan targets, but Sydney, Melbourne and Brisbane have been tracking

<sup>9</sup> Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2013, *Population growth, jobs growth and commuting flows—a comparison of Australia's four largest cities*, Report 142, Canberra ACT, Chapters 4 and 10.

above their long-term infill targets. It added that the shift towards higher density forms of housing was most pronounced in Sydney.

- 45 Table 21-7 shows the population density and population growth for the capital cities between 2000-01 and 2018-19.

**Table 21-7 Population weighted density and population growth for capital cities, 2000-01 to 2018-19**

	Population weighted density 2000-01	Population weighted density 2018-19	Population growth 2000-01 to 2018-19	Density growth 2000-01 to 2018-19
	Person/sqkm	Person/sqkm	%	%
Sydney	4,967	6,925	31.9	39.4
Melbourne	2,909	4,649	46.3	59.8
Brisbane	2,124	2,832	41.2	33.4
Perth	2,119	2,477	43.5	16.9
Adelaide	2,121	2,393	18.1	12.8
Hobart	1,646	1,724	20.4	4.7
Canberra	2,247	2,918	33.3	29.8
Darwin	2,052	2,479	32.9	20.8
<b>Average</b>	<b>2,523</b>	<b>3,300</b>	<b>33.4</b>	<b>27.2</b>

Source: Commission calculation.

- 46 The rate of increase of population density gives some indication of longer-term urban densification strategies. Perth, for example, has exhibited strong population growth from 2000-01 to 2018-19, but weak growth in population density, suggesting policies (historical or current) that encouraged sprawling urban development. Sydney, in comparison, experienced a lower level of population growth but above average growth in population density. This is consistent with BITRE findings, and suggests more aggressive urban densification strategies in Sydney than in Perth, reflecting the particular circumstance of each city.
- 47 In its submission, New South Wales emphasised that its densification policy is not unique relative to other States. It presented evidence that there is consensus between the States regarding planning policy on urban consolidation. The difference is that while other jurisdictions have incorporated an urban growth boundary to limit urban sprawl, the topography surrounding Sydney means that it has effectively already grown to the limits of its boundary. As a result, Sydney's circumstances are such that urban infill, and subsequent densification, is the only development strategy available to it.
- 48 The Commission considers that Sydney's high population density relative to that of other capital cities is mainly due to non-policy influences and historical policies. Undoubtedly, Sydney's past and present policies have some level of influence. Nevertheless, Melbourne experienced the strongest growth in population density between 2000-01 and 2018-19, not Sydney. Brisbane and Canberra also experienced relatively strong growth in density.
- 49 Overall, the Commission considers that the majority of the differences in population density are due to circumstances outside current State control. There is not strong evidence that policies in Sydney have deviated significantly from other fast growing capital cities dealing with the consequences of increasing congestion. It is difficult to know to what extent the densification policies are influenced by circumstances outside or within State control. Even if

policy influences were large enough to warrant adjustments, the Commission does not have the information necessary to make them.

- 50 South Australia argued that the relationship between cost recovery (revenue) and population density is not appropriately represented in the preferred model. The capacity to raise fare revenue is in fact taken into account in the econometric model because it uses expenses net of fare revenue as the dependent variable. A consultancy prepared for New South Wales concluded that among the capital cities, Sydney has the greatest capacity to raise fare revenue because of higher density and increased congestion.<sup>10</sup>
- 51 **Passenger numbers.** Passenger numbers are used to capture the supply or level of public transport services, and also are proxies for urban congestion. Table 21-8 provides the shares of journey to work by public transport by urban centre population size. It shows that the use of public transport for commuting increases with urban centre size. The use of public transport in the five urban centres with a population over 1 million is significantly higher than those of smaller urban centres.

**Table 21-8 Share of journey to work by public transport by urban centre size**

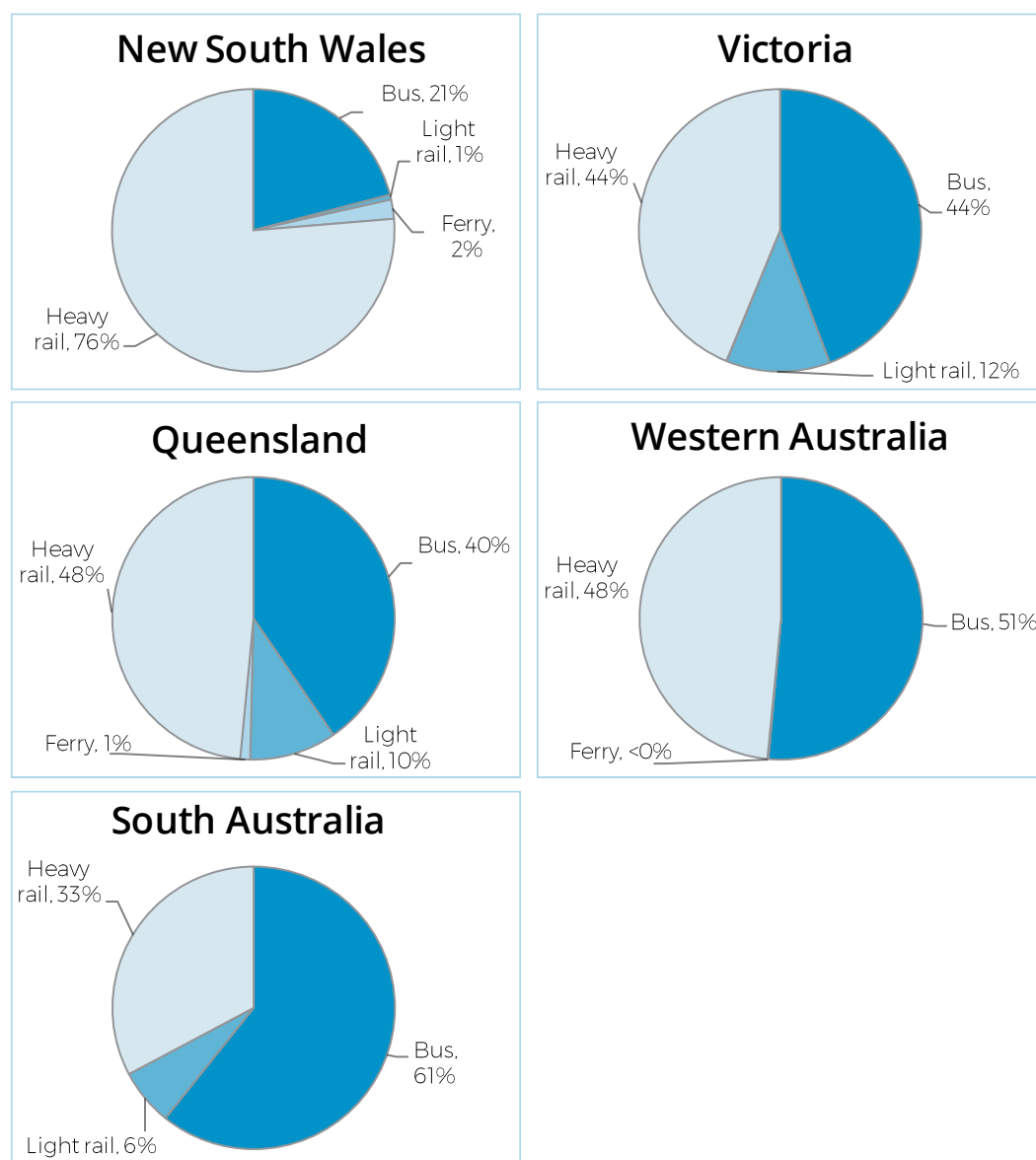
	> 1 million	0.25 to 1 million	0.1 to .25 million	0.05 to .1 million	< 0.05 million
	%	%	%	%	%
Share of journey to work by public transport	19.2	5.8	3.6	1.6	1.4

Source: Commission calculation based on the 2016 Census.

- 52 A higher level of public transport use in large urban centres is attributable to the presence of heavy rail. As urban centres become sufficiently large, the Commission considers that the introduction of heavy rail into the public transport mode mix becomes unavoidable. This is consistent with New South Wales' submission, which argued that heavy rail is recognised as a critical element of building an agglomeration economy because it is the most cost-effective form of mass transport. It presented evidence that there is a strong positive correlation between a city's passenger rail task, density levels and economic productivity. The presence of heavy rail in large urban centres is average State policy and consistent with international experience.
- 53 A jurisdiction installs a heavy rail network out of necessity to cope with increasing burdens on the transport system both to take passengers further outside the Central Business District (CBD) and increase mobility within an environment that is less conducive to private vehicle use. High per capita net expenses in cities with heavy rail reflect the fact that heavy rail networks are vastly more expensive to implement and operate.
- 54 Figure 21-4 presents urban transport net expenses by transport mode for States with heavy rail. It shows that heavy rail expenses dominate State transport budgets as capital city population and density increase.

<sup>10</sup> VLC Consultancy prepared for New South Wales Treasury, February 2019, page 1. See also paragraphs 89 and 90. The report is available on the [Commission's website](https://cgc.gov.au/), (<https://cgc.gov.au/>).

Figure 21-4 Urban transport net expenses by transport mode for States with heavy rail, average of 2013-14 to 2015-16



Source: 2020 Review State data return.

- 55 The Commission recognises that the number of public transport passengers is not a policy neutral measure of needs. For example, Queensland provided evidence that State policies (fares, concessions or service frequency, for example) can affect the number of passengers using its public transport services. The Commission has addressed this policy neutrality concern by using average passenger numbers grouped by urban centre population size and the availability of heavy rail.
- 56 The regression coefficients for the passenger number variables are derived using actual heavy rail, bus, and light rail passenger numbers. However, the passenger numbers used in the regression model that estimates each State's assessed expenses uses modelled passenger numbers. Commission analysis has shown that the rate of public transport use is related to both urban centre size and whether or not heavy rail is present in that urban centre. Table 21-9 presents the public transport use patterns for all SUAs aggregated by population and State data on the presence or absence of heavy rail.

Table 21-9 Urban public transport use rates by urban centre size and mode

Population range	Heavy Rail	Bus/light rail users (a)	Heavy rail users (a)	Public transport users (a) (b)	Public transport users, shares of total (c)
		%	%	%	%
0 - 50,000	No	1.4	0.0	1.4	0.7
50,001 - 100,000	No	1.6	0.0	1.6	0.4
100,001 - 200,000	No	4.1	0.0	4.2	1.1
200,001 - 1,000,000	No	5.6	0.0	5.6	1.2
200,001 - 1,000,000	Yes	2.1	3.2	5.3	3.1
1,000,001 - 2,500,000	Yes	6.2	6.1	12.5	22.5
2,500,001 - 5,000,000	Yes	6.3	16.5	23.1	70.9

Note: Urban population in the Census year as defined by the Transport assessment.

(a) Use is the number of public transport passengers relative to total commuter population, this includes private and active transport.

(b) This number includes ferry passengers.

(c) Share of total public transport users by urban centre size.

Source: Commission calculation based on 2016 Census data.

- 57 The Commission considered two methods to derive assessed passenger numbers. The first method used regression analysis of passenger numbers by remoteness areas to derive assessed passenger numbers. However, upon further investigation, the Commission found that for some urban areas (especially those in regional areas), the regressions did not produce sensible results. This led the Commission to consider an approach based on urban centre size and the presence of heavy rail in an urban centre. This method proved simpler and the outcomes are more consistent with what States do.
- 58 Queensland and Western Australia did not support the revised method for modelling passenger numbers. Queensland considered that the former method better captures policy concerns. Western Australia questioned the validity of the passenger number variable because the two methods produce very different micro-level results but very similar assessment outcomes. The Commission considers that both models are policy neutral but the method based on urban centre size and the presence of heavy rail in an urban centre produces better results overall. The Commission does not accept Western Australia's logic. While some changes may be large in percentage terms, in absolute terms they are not, and this is what drives the GST distribution.
- 59 Western Australia was uncomfortable with the use of passenger numbers to represent mode availability in a transport network, arguing that this variable does not capture excess supply within a network. The Commission does not intend for the Transport assessment to capture excess supply, which is most likely to be the result of State policy decisions on the timing of new transport infrastructure projects and timetabling. The regression model assumes that the level of supply is in equilibrium with the level of demand for all jurisdictions. The use of passenger numbers quantifies the average level of occupancy for each mode and urban centre size.
- 60 **The presence of ferry services.** A dummy variable is used to recognise the presence or absence of ferry services in a jurisdiction. The decision to introduce a ferry service into a public transport network is to address complex jurisdictional topography and to complement other transport modes. Since the scale of ferry usage is not necessarily related to the overall level of transport demand in an urban centre, the assessment uses a dummy variable to indicate the presence or absence of this service rather than passenger numbers.



- 61 Western Australia considered that the use of the ferry dummy variable is inappropriate and will not achieve fiscal equalisation. It said that Western Australia has limited ferry services compared to New South Wales and Queensland. However, Western Australia is assessed at the same ferry expenditure per capita as New South Wales and Queensland.
- 62 Western Australia is given the capacity to provide the average level of ferry services, which is consistent with fiscal equalisation.
- 63 The ACT did not support the addition of a ferry dummy variable to the model, arguing that the standard error of the dummy variable for ferry services is significantly higher than the standard error for the other independent variables. It considered that the relatively low commuter usage of ferry services on a national basis indicates that the omission of this mode of transport would not profoundly affect the validity of the assessment.
- 64 The Commission notes the concerns of the ACT. The Commission has added the ferry variable to capture all transport modes and this was supported by the consultants.
- 65 **Distance to work.** The assessment uses median distance to work to capture network complexity. Public transport costs increase with urban sprawl and distance. For example, larger cities, both in terms of population and geographical size, require more complex multi-modal interchanges and bus route networks. Distance to work can also go some way to capture topographical features within jurisdictions.
- 66 **Topography.** Topography has affected the historical development of public transport modes and networks as well as the restructuring and expansion of current networks. For example, many rail lines today reflect the technical constraints on curves and gradients that existed when the line was first built, leaving many modern cities with a rail network that was spatially determined by the passenger needs of the mid-19th century. For bus services, networks are influenced by creeks, valleys, and rocky outcrops, creating discontinuous streets, one-way streets, and cul-de-sacs.
- 67 Topography also affects operating costs. In the case of rail, curves and gradients to overcome topographical features reduce operating speed, increase travel time, affect passenger comfort and reduce patronage. In addition, topographically difficult terrain usually results in increased maintenance and operating costs. For bus services, bus stops are required at closer spacing in steeper areas or in areas with topographical barriers to ensure continuing coverage. Closer stops increase dwell time (the time a bus or train spends at a scheduled stop without moving), reduce overall operating speeds, increase total travel time and reduce patronage.<sup>11</sup>
- 68 Some States said that additional topographic variables should have been investigated, such as waterways, soil type and mountains. Upon investigation, a variable to capture waterways did not improve the model. While the presence of mountains and the existence of different soil types may affect the cost of public transport provision, the Commission did not have the information to test their effects on costs.

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<sup>11</sup> Rhonda Daniels and Corinne Mulley, *Planning Public Transport Networks—The Neglected Influence of Topography*, Journal of Public Transportation, Vol. 15, No. 4, 2012. [National Center for Transit Research website](https://www.nctr.usf.edu/), (https://www.nctr.usf.edu/), [accessed 10/02/2020].

## Definition of urban centres

- 69 States generally supported defining urban centres included in the assessment and their populations using ABS UCLs contained within SUAs. While the definition of urban centres may not capture perfectly the population serviced by the urban transport networks, the Commission has adopted it because it is policy neutral. This was supported by the 2020 Review consultants in their stage 1 and stage 2 reports.
- 70 Based on the consultants' findings, the Commission has treated Newcastle, Wollongong, the Central Coast, the Sunshine Coast, the Gold Coast and Geelong as separate cities, rather than amalgamating them with their capital cities.
- 71 While States generally supported this approach, Queensland strongly opposed it. Queensland argued that satellite cities should be amalgamated with their capital city. This would more accurately reflect the State's true transport task and mitigate issues of the SUA dataset used to frame urban centres. It said that, for planning and policy purposes, South-East Queensland is considered a single region.
- 72 Queensland used 2016 Census data on place of work by usual residence in Queensland to show that there were a significant number of people commuting to Brisbane from satellite cities, including by public transport.
- 73 In addition, Queensland said that the current SUA boundary used to define urban centres causes inconsistent treatment of similar areas. It provided examples of regions at the Statistical Area Level 2 (SA2) within the Sydney SUA that have similar proportions of population commuting to the CBD as some SA2s within the Gold Coast SUA. Queensland concluded that some SA2s should be reallocated from the Gold Coast SUA to the Brisbane SUA.
- 74 The consultants were specifically tasked to address the definition of urban areas and the treatment of satellite cities. They started their investigation by noting that the ABS defines a SUA as follows:

The regions of the SUA structure are constructed from whole SA2s. They are clusters of one or more contiguous SA2s containing one or more related urban centres joined using the following criteria:

- they are in the same labour market
  - they contain related urban centres where the edges of the urban centres are less than 5 km apart defined by road distance
  - they have an aggregate urban population exceeding 10,000 persons
  - at least one of the related urban centres has an urban population of 7,000 persons or more.<sup>12</sup>
- 75 The consultants concluded that the ABS has in effect already made some economic judgments about the relationship between SA2s when aggregating them to form SUAs. The

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<sup>12</sup> ABS 2017, "DESIGN OF SUA", *Australian Statistical Geography Standard (ASGS): Volume 4 - Significant Urban Areas, Urban Centres and Localities, Section of State*, cat no. 1270.0.55.004

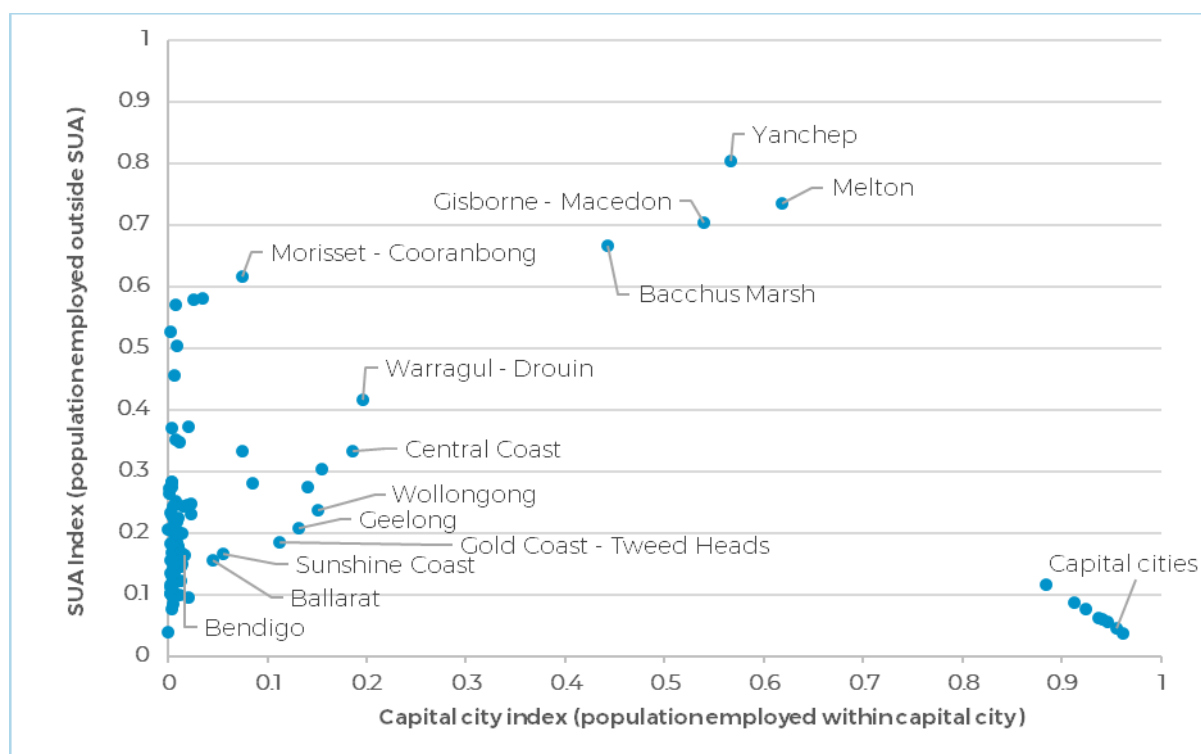
question in their view was therefore whether any SUAs should be combined. That is, whether any SUAs should be considered as having a sufficiently integrated labour market with the neighbouring capital city.

76 The consultants considered that the best way to proceed was to apply criteria that assess if SUAs exist that could be considered labour market integrated satellites to a capital city. They constructed a suite of employment self-sufficiency indices. An SUA should be considered a satellite to a capital city if:

- it has a relatively high outside SUA dependency index value (that is, a high proportion of people working outside the SUA)
- it has a relatively high dependency to the capital city index value (that is, a high proportion of people working within the capital city SUA).

77 Figure 21-5 shows, for each SUA, the relationship between the proportion of the population employed outside the SUA and the proportion of the population employed within the capital city.

**Figure 21-5 Self-sufficiency indices for all SUAs, 2016**



Source: Commission calculation based on advice from the Commission's consultants for the stage 2 report.

78 Figure 21-5 clearly shows the Gold Coast and the Sunshine Coast have a greater degree of self-sufficiency than most large satellite cities. Based on the indices the consultants concluded that:

- Sydney's surrounding SUAs are not satellites to Sydney and should be treated separately
  - the SUAs of Gisborne-Macedon, Melton and Bacchus Marsh could be considered labour market integrated satellites to Melbourne based on their self-sufficiency index values
  - Brisbane's surrounding SUAs are not satellites to Brisbane and should be treated separately
  - Yanchep should be considered a satellite to Perth.
- 79 The Commission considers the methodology used by the consultants to be robust and the supporting data reliable and has followed the consultants' recommendations.
- 80 The Commission does not support reallocating SA2s between SUAs. It would go against the judgment of the ABS in its construction of SUAs. The Commission accepts the ABS definitions of SUA as evidence-based and policy neutral. Reallocating SA2s would amount to 'cherry picking' and it would be difficult to do so in a consistent way. In addition, urban transport expenses would need to be reallocated between SUAs, which would involve considerable additional judgment.
- 81 The Commission also disagrees with Queensland that the self-sufficiency indices are too simplistic. Queensland argued that a network's entire transport task should be considered, rather than focusing on one aspect of the transport task related to the labour force — labour market integration. Furthermore, applying a threshold to the self-sufficiency indices means that the transport burden placed on capital city networks by neighbouring SUAs is not comprehensively accounted for. However, it is unclear how expenses could be disaggregated to accommodate Queensland's proposal in a way that is consistent and policy neutral. The consultants have confirmed that the method that they have proposed is standard practice for transport economists and superior to those proposed in their stage 1 report.
- 82 The Commission has included all SUAs in the urban transport assessment. This increases the number of urban centres from 65 to 106<sup>13</sup> compared with the 2015 Review assessment where only SUAs with population over 20,000 were included. The vast majority of SUAs have a population above 10,000 and the majority have public transport services.<sup>14</sup> This change will better reflect what States do.
- 83 However, some States, notably Victoria and Queensland, could not provide financial data separately for all SUAs. As a result, the consultants used data for 70 SUAs in their econometric analysis. The consultants noted in the stage 2 report that the population of the SUAs omitted from the model represented only 3.8% of Australia's urban population. While the omission of any SUA from consideration in the modelling is not ideal, the consultants did not report any bias towards a particular State in an analysis of the model's residuals.
- 84 The consultants' analysis included rail expenses for the five satellite cities of Sydney and Brisbane. Victoria argued that, based on its experience, heavy rail was not a form of transport used within non-capital city SUAs.
- 85 The decision to include the five non-capital city SUAs' rail expenses reflects what States do. The number of stops in the satellite cities of Sydney and Brisbane suggest that these

<sup>13</sup> The ABS defines 101 SUAs, but five of them are cross-border SUAs. The Commission splits these five SUAs to reflect their State location.

<sup>14</sup> The Mildura – Wentworth and Echuca – Moama SUAs are split between New South Wales and Victoria. The population is below 10,000 for both SUAs on the New South Wales side.

networks are complex enough to service a need other than regional transport. The data request sent to States sought data disaggregated to at least the SUA level. The Commission has not been able to consider the inclusion of Geelong, Ballarat and Bendigo in the modelling because Victoria was unable to provide the necessary expense data. Nevertheless, as noted earlier the Commission is confident that these omissions do not bias the results.

## Calculating assessed expenses using the urban transport model

- 86 The regression model is calculated with the independent variables presented above and per capita expense data for 69 jurisdictions as the dependent variable. Table 21-10 presents the coefficients for this model.

**Table 21-10 Urban transport model regression coefficients**

Variable	Coefficient
No.	
Intercept	-128.63
Population density (persons/sqkm)	0.08
Heavy rail passengers	12.31
Bus and light rail passengers	5.60
Mean slope	6.92
Distance to work	3.07
Ferry dummy variable	13.86

Source: Commission calculation.

- 87 For each urban centre, per capita assessed expenses are derived by multiplying the coefficients with the urban centre's variable values and then summing the results. Assessed expenses for each State are then calculated as the sum of assessed per capita expenses for each urban centre multiplied by the urban centre's population. In cases where the assessed per capita net expenses for a jurisdiction is less than \$20, it is assigned a minimum value of \$20. This minimum value is based on Commission staff analysis of State data returns.<sup>15</sup>
- 88 The ACT asked for the regression coefficients to be recalculated after the 2021 Census. To do this, the Commission would need to collect new State net expense data by SUA to update the dependent variable of the model. The collection and quality auditing of these data in this Review took several months. The Commission does not consider it practical to gather these data during an update, but may consider recollecting this State data for a review.
- 89 Queensland and South Australia remain concerned that the assessment still suffers from a lack of data points, as with the 2015 Review approach. They argued that Australia has too few major cities to develop a model that appropriately captures State needs so that the model is disproportionally informed by only a small number of large cities.
- 90 The vast majority of public transport expenses are incurred in the five largest capital cities (89%, of which 66% are in Sydney and Melbourne). Therefore, it is to be expected that the five largest cities should be the major determinants of the GST distribution. The limited number of data points is a constraint faced by the Commission in assessing needs for urban transport expenses. However, the lack of data points should not limit the Commission from recognising

<sup>15</sup> The minimum per capita value was assigned to 17 SUAs. These centres have populations ranging from about 5,400 to 30,000, with an average population of 13,000.

the evidence that larger cities have greater per capita needs. The issue for the Commission is to ensure that these needs are captured in a policy neutral way that reflects what States do on average. The Commission considers that this assessment is the best available way to achieve this.

## Regional costs

- 91 A separate regional costs factor is not applied to urban transport expenses because those costs are already captured in the econometric model, which includes urban centres in different remoteness areas.

## Wage costs

- 92 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method see Chapter 27 Wages costs.

## Component calculations

- 93 Table 21-11 shows the calculation of total assessed expenses for the component in 2018-19.

Table 21-11 Urban transport component assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<b>Assessed expenses</b>									
Urban centre characteristics (\$m)(a)	4,685	3,248	1,469	829	492	50	111	29	10,912
Urban population (\$m)(b)	1,171	969	707	387	246	60	72	26	3,637
Wage costs factor	1.006	0.994	0.996	1.018	0.979	0.972	1.019	1.029	1.000
<b>Assessed expenses (\$m)</b>	<b>5,888</b>	<b>4,189</b>	<b>2,165</b>	<b>1,237</b>	<b>721</b>	<b>106</b>	<b>186</b>	<b>57</b>	<b>14,550</b>
<b>Assessed expenses (\$pc)</b>	<b>733</b>	<b>642</b>	<b>429</b>	<b>475</b>	<b>414</b>	<b>200</b>	<b>439</b>	<b>233</b>	<b>578</b>

(a) 75% weight

(b) 25% weight

Source: Commission calculation.

## Non-urban transport

- 94 Non-urban transport expenses include capital and operating subsidies for passenger and freight transport.
- 95 The Commission has assessed non-urban transport expenses EPC, except for adjustments for regional and wage costs. The Commission has investigated alternative policy neutral indicators but has been unable to find a more appropriate broad indicator that is material for the four most populous States, which accounted for 96% of total spending in 2017-18.
- 96 Rail passenger services accounted for 71% of 2017-18 non-urban net transport expenses. Only the four most populous States have such expenses and they are concentrated in Victoria and Queensland, as shown in Table 21-12. This reflects that the three largest States, and to a lesser extent Western Australia, provide inter-city and regional train services. Therefore, the assessment should capture populations that are most likely to be serviced by non-urban passenger rail.

Table 21-12 Non-urban transport net expenses, 2017-18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Rail passenger	117	590	333	16	0	0	0	0	1,056
Rail freight	47	0	34	8	0	8	0	0	97
Bus	0	0	59	34	5	14	0	0	112
Water transport	0	0	135	47	23	1	0	1	207
Air transport	0	0	0	5	0	1	0	7	13
<b>Total</b>	<b>164</b>	<b>590</b>	<b>561</b>	<b>110</b>	<b>28</b>	<b>24</b>	<b>0</b>	<b>8</b>	<b>1,485</b>

Source: ABS GFS.

- 97 In the 2015 Review, the Commission concluded that the population living outside capital cities broadly captures the size of the transport task. While this may appear a reasonable indicator, the assessment mainly moves GST away from Victoria. Victoria has significant non-urban rail passenger expenses because the provision of rail passenger services to its satellite cities is mainly classified as non-urban expenses, while similar expenses in New South Wales and Queensland are mainly classified as urban.
- 98 A reason for these different classifications of expenses would be that the satellite cities of Sydney and Brisbane are large, have many rail stations within their urban areas, and relatively few stations between the satellite cities and the capital city. In contrast, the satellite cities of Melbourne are smaller, have few stations within them and many in between them and Melbourne.
- 99 These three States appear to follow similar policies of providing commuter train connections to their satellite cities. However, differences in the spatial distribution of populations around Sydney, Melbourne and Brisbane meant it was not possible to identify a policy neutral indicator that would capture each State's circumstances. Furthermore, it is apparent that the 2015 Review methodology is not reasonable. The Commission was concerned that the 2015 Review assessment is material only for Tasmania and the ACT (\$36 per capita and \$52 per capita, respectively), which provide virtually no non-urban rail passenger services. The 2015 Review assessment is immaterial (less than \$35 per capita) for those States that incur the majority of expenses.
- 100 Queensland disagreed with the Commission's decision. It argued that needs differ between States, using itself and the ACT as an example. It proposed a suite of indicators that could be combined to measure needs. However, based on the information provided by Queensland, an assessment using the proposed measures would not be material.

## Regional costs

- 101 Differences in the cost of providing services to different regions within a State affect State expenses. Non-urban transport services are those provided outside urban centres. The greater distances in remote areas affect transport costs. A regional cost gradient cannot be readily measured, but the conceptual case for one is valid.
- 102 As such, the Commission has retained the application of the general cost gradient to non-urban transport expenses. For a description of the method, see Chapter 28 Geography.
- 103 Victoria argued that the current regional costs factor may not be appropriate to apply to the non-urban transport assessment. Subsidy payments are likely to reflect the costs faced by

regional operators, rather than costs faced by States in providing schools education and police services. It added that the factor is immaterial in this assessment.

104 The Commission acknowledges that it would be preferable to apply a non-urban transport specific regional cost gradient. However, in the absence of one, the Commission considers that a general cost gradient would capture regional costs reasonably well.

105 While the regional costs assessment may not be material in this component, it is material across all assessments. The Commission's usual approach is to assess a disability for a category or component if there is a conceptual case for it and if the disability is material across all assessments.

## Wage costs

106 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wages costs.

## Component calculations

107 Table 21-13 shows the calculation of total assessed expenses for the component in 2018-19.

**Table 21-13 Non-urban transport component assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<b>Assessed expenses</b>									
Equal per capita (\$m)	252	205	158	82	55	17	13	8	789
Regional costs factor	0.996	0.994	1.004	1.009	1.004	1.009	0.992	1.107	1.000
Wage costs factor	1.006	0.994	0.996	1.018	0.979	0.972	1.019	1.029	1.000
<b>Assessed expenses (\$m)</b>	<b>253</b>	<b>202</b>	<b>158</b>	<b>84</b>	<b>54</b>	<b>16</b>	<b>13</b>	<b>9</b>	<b>789</b>
<b>Assessed expenses (\$pc)</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>32</b>	<b>31</b>	<b>31</b>	<b>32</b>	<b>36</b>	<b>31</b>

Source: Commission calculation.

## Category calculations

108 Table 21-14 brings the assessed expenses for each component together to derive the total assessed expenses for each State for the category. It shows at the component level how each disability assessment moves expenses away from an equal per capita (EPC) distribution to obtain assessed expenses.



Table 21-14 Transport category assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
<b>Urban transport</b>									
Equal per capita	578	578	578	578	578	578	578	578	578
Urban centre characteristics	149	64	-143	-116	-151	-340	-172	-314	0
Urban population	1	4	-5	4	-4	-32	25	-37	0
Wage costs	4	-4	-2	8	-9	-6	8	6	0
<b>Assessed expenses</b>	<b>733</b>	<b>642</b>	<b>429</b>	<b>475</b>	<b>414</b>	<b>200</b>	<b>439</b>	<b>233</b>	<b>578</b>
<b>Non-urban transport</b>									
Equal per capita	31	31	31	31	31	31	31	31	31
Regional costs	0	0	0	0	0	0	0	3	0
Wage costs	0	0	0	1	-1	-1	1	1	0
<b>Assessed expenses</b>	<b>31</b>	<b>31</b>	<b>31</b>	<b>32</b>	<b>31</b>	<b>31</b>	<b>32</b>	<b>36</b>	<b>31</b>
<b>Total assessed expenses</b>	<b>764</b>	<b>673</b>	<b>460</b>	<b>507</b>	<b>445</b>	<b>231</b>	<b>471</b>	<b>269</b>	<b>610</b>

Note: Table may not add due to interactions between disabilities and rounding.

Source: Commission calculation.

## Infrastructure assessment

- 109 States require infrastructure to support service delivery. State infrastructure requirements are assessed in the Investment category.
- 110 In this category, the Commission assesses infrastructure needs through a net investment assessment rather than a gross investment assessment. The urban transport model was developed using net expenses including depreciation. Consequently, a gross investment assessment is not possible.
- 111 As with the expense assessment, the urban transport investment assessment is blended. However, instead of using an assessment based on urban population, the blend is based on an assessment that uses the square of urban population. This approach recognises:
- the proportion of State populations living in urban centres through the population-squared model, with a weight of 25%
  - the effect of urban centre characteristics on the cost of providing urban transport, with a weight of 75%.
- 112 As such, the main drivers of investment in urban transport infrastructure is growth in the factors that affect recurrent service delivery expenses, that is, urban centre characteristics and urban population. Interstate differences in construction costs are also recognised.
- 113 The decision to use the recurrent service delivery disabilities in the infrastructure assessment is based on advice from the consultants. In their analysis, they determined that the recurrent expense model is also suitable to assess investment needs. They argued that a system in 'equilibrium', one that appropriately grows with demand while meeting all maintenance requirements, should have operating and capital costs that are closely correlated. This is supported by data provided by the States and overseas public transport expenditure data. The Commission supports their analysis.

- 114 For non-urban transport infrastructure, the main driver is total population because the Commission could not identify an appropriate broad indicator to capture needs.
- 115 Western Australia and the ACT disagreed with the proposal to blend the urban transport infrastructure assessment using the population-squared model. They argued that if the Commission accepts that the recurrent and investment models should be similar because they have the same underpinning drivers, then blending the recurrent expense model with the population-squared model combines contradictory functional forms. The Commission disagrees with this analysis.
- 116 While the econometric model was developed for recurrent expenses, the variables used in that model, such as population density and passenger numbers, would also be relevant to investment needs. By using the econometric model for recurrent expenses to estimate investment needs, the Commission implies that the relationship of per capita asset values to population is the same as that of per capita net expenses to population; that per capita investment tends to show a slower rate of growth for larger cities.
- 117 In the 2015 Review, the Commission concluded that the relationship of per capita asset values to population was linear, indicating that per capita asset values continue to increase as population increases. This led the Commission to adopting the population-squared model. This relationship was different to that of per capita recurrent expenses to population, which was log linear, implying a slower rate of growth in per capita expenses for larger cities. This led the Commission to adopt different models for recurrent and capital expenditure in the 2015 Review.
- 118 While the functional forms of the population-squared model from the 2015 Review and the recurrent model for this Review are different, they are not contradictory, since they both suggest that per capita assets increase with urban centre size.
- 119 Data on the value of transport assets collected for this Review support the findings of the 2015 Review regarding the relationship between city size and per capita assets. This suggests some uncertainties about whether the 2020 Review econometric model captures capital expenditure needs sufficiently well. While there is strong evidence that per capita asset values increase as city size increases, the rate of this decrease is less clear. The Commission will further consider this issue in the next methodology review. For this Review, the Commission considers that blending the 2020 Review recurrent model with the 2015 Review population-squared model allows the resulting model to better capture investment needs.
- 120 Table 21-15 shows the State shares of the urban transport assessed closing stocks of infrastructure for 2018-19.

**Table 21-15 State shares of assessed urban transport infrastructure, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	%	%	%	%	%	%	%	%	%
Urban population-squared (25% weight)	39.6	40.2	10.1	6.8	2.9	0.1	0.3	0.0	100.0
Urban centre characteristics (75% weight)	42.9	29.8	13.5	7.6	4.5	0.5	1.0	0.3	100.0
Combined investment assessment	42.1	32.4	12.6	7.4	4.1	0.4	0.8	0.2	100.0

Source: Commission calculation.

- 121 Table 21-16 shows the calculation of assessed investment for the urban transport component in 2018-19.

Table 21-16 Assessed investment in urban transport component, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Assessed opening stock	49,870	37,690	14,886	8,921	4,933	427	981	264	117,973
Assessed closing stock	52,589	40,440	15,777	9,253	5,124	453	1,045	260	124,941
Assessed investment	2,720	2,750	891	332	191	26	63	-4	6,968
Cost factor	1.018	0.985	0.969	1.028	0.988	0.985	1.061	1.155	1.000
<b>Assessed investment</b>	<b>2,771</b>	<b>2,712</b>	<b>865</b>	<b>342</b>	<b>190</b>	<b>25</b>	<b>67</b>	<b>-4</b>	<b>6,968</b>

Source: Commission calculation.

122 For a description of the urban and non-urban transport investment assessments, see Chapter 24 Investment.

## Other issues considered by the Commission

### Economies of scale

- 123 Several States raised concerns about the appropriate functional form of the model. The Commission asked the 2020 Review consultants to investigate this issue. They determined that while evidence from international literature suggested that the model should exhibit some economies of scale, little of it was specific to the Australia context. As such, they considered that, to some extent, the functional form was an open question. They determined that State data suggested evidence of economies of scale in the provision of both rail and bus services. Taking the logarithm of passenger numbers in the model recognises that the rate of per capita expenses decreases as the size of an urban centre grows. This suggests that Australia's most populous cities are approaching economies of scale for urban transport.
- 124 Western Australia argued that the consultants' work is based on the false assumption that per capita expenses increase with urban centre size, providing data that showed passenger kilometre cost decreasing with population. The Commission disagrees that this is evidence that per capita costs should not increase with urban centre size. While the cost of a passenger kilometre may decrease with urban centre size, the overall transport task increases with urban centre size. This is because larger urban centres tend to have proportionally higher use of public transport (see Figure 21-1).

### Assessing urban transport needs EPC

- 125 Western Australia argued for an EPC assessment of urban transport expenses for a range of reasons:
- policy and disability are entangled
  - there is no clear conceptual basis for a service standard or underlying disabilities
  - international evidence provides no guidance
  - there are concerns with the reliability of the method and the data not being fit for purpose
  - the consultants' model does not isolate the underlying factors and State expenditure is not policy neutral
  - policy neutral drivers of needs cannot be identified.

- 126 It also argued that public transport is unlike remote area services because the former is the result of State policies and the latter due to an underlying need.
- 127 The Commission strongly disagrees that an EPC assessment of urban transport could be appropriate. The Commission cannot ignore the significant expenses and investment on urban public transport in Australia's five largest cities, especially Sydney and Melbourne. An EPC assessment would mean that Sydney's per capita urban transport expense requirements are the same as those of, say, Hobart or Broome. This would not pass a reality check.
- 128 Western Australia seems to consider that the difficulties of disentangling policy and disability are more acute for the transport assessment than other areas of State spending. One of the Commission's key tasks is to develop policy neutral assessments. The modelling of passenger numbers in the transport assessment seeks to address the potential for State policies to affect actual passenger numbers. The Commission accepts that population density is not policy free; however, it considers that the policy influences are not sufficient to disregard the influence of population density on the size of the urban transport task. Similar to urban centres, settlement patterns outside major cities reflect a mix of policy and non-policy factors. Past and present government decisions about the level of subsidies for water and electricity services, the location and standard of rural road and rail services, land use and industry assistance (for example, irrigation programs) have affected where people and industry are located. The regional costs assessments recognise the cost disadvantages for providing services outside major cities and the cost advantages of major cities. The Commission considers it is appropriate to recognise any cost disadvantages associated with large cities that are largely due to non-policy influences. In the 10 years to 2017-18, the population in Australia's major cities grew by 21%. Growth in other ABS remoteness areas was 12%.<sup>16</sup> The Commission cannot ignore the distribution of growth and its consequences for State budgets.
- 129 Western Australia's comments imply that it is not possible to measure urban transport needs satisfactorily. However, the consultants did develop a conceptual framework underlying urban public transport services and used it to develop an econometric model to derive assessed expenses for each urban centre.
- 130 Western Australia also suggested that rail expenses should be assessed EPC because there are too few data points. The evidence strongly suggests that it costs significantly more on a per capita basis to provide public transport in major cities with heavy rail networks compared with smaller urban centres. The Commission would not achieve equalisation if it did not recognise the fiscal consequences of the presence of relatively high cost heavy rail services in its assessments.
- 131 Western Australia warned the Commission that adopting a policy-centred rather than cost-centred assessment of urban transport expenses (for example, 'big cities choose to spend more on public transport than small cities') would have ramifications across many other Commission assessments, such as utility subsidies, economic development and mining revenues. It is a long standing practice for the Commission to base its assessments on what States do and average State policy. The Commission considers it is average policy to provide rail passenger transport in large urban centres, in the same way it is average policy for States

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<sup>16</sup> ABS 2019, *Regional Population Growth, Australia, 2017-18*, data cube: Population Estimates by Significant Urban Area (ASGS 2016), 2008 to 2018, cat. no. 3218.0.

with large remote areas to provide electricity subsidies. Observations from Australian and overseas cities show that the majority of larger cities have rail passenger transport.

- 132 The Commission acknowledges the concerns raised by Western Australia regarding the quality of State expense data and the need to rely on proxy variables. To address these concerns, the Commission has chosen to adopt a blended assessment. Blending reduces the impact of the econometric model on the GST distribution.

## New South Wales' urban transport consultancy

- 133 New South Wales engaged its own consultant, Veitch Lister Consulting (VLC), to review the Commission's urban transport assessment and the work of the Commission's consultants.<sup>17</sup> VLC generated separate cost and revenue models for the five largest capital cities using micro-data at the ABS SA2 level. The New South Wales' consultant's findings broadly accord with those of the Commission's consultants. It found that:
- the supply of public transport per capita in Sydney is approximately 33% higher than average, due to higher employment density and increased congestion
  - public transport productivity in Sydney is approximately 3.3% lower than average, which stems from lower bus/tram speeds, shorter bus/tram routes, and longer heavy rail routes
  - revenue per capita in Sydney is approximately 37% higher than average, because of higher density and increased congestion.
- 134 New South Wales' consultant found that Sydney and Melbourne were the only two large capital cities with above average urban transport needs. This is consistent with the results of the Commission's urban transport model.

## Effect on the GST distribution

### Transport expenses

- 135 Table 21-17 shows the extent to which the assessment for this category moves the distribution of GST away from an EPC distribution. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements. In per capita terms, the smaller States experience the largest redistributions, with well below average needs for urban passenger transport services.

**Table 21-17 Illustrative redistribution from an EPC assessment, Transport, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	1,240	397	-762	-259	-277	-202	-57	-80	1,637
\$ per capita	149	58	-146	-97	-156	-370	-130	-327	63

Note: The redistribution is the difference from an EPC assessment. This redistribution is for transport expenses only. Table 20-31 shows the redistribution for the transport investment assessment.

Source: Commission calculation.

- 136 Table 21-18 provides a summary of the main disabilities contributing to the redistribution from an EPC assessment for this category.

<sup>17</sup> Veitch Lister Consulting (VLC), *CGC's Recurrent Transport Assessment Methodology*, Final report, February 2019.

Table 21-18 Major reasons for the illustrative redistribution, Transport expenses, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Urban centre characteristics	1,210	387	-725	-286	-255	-180	-75	-74	1,596
Urban population shares	8	26	-24	11	-6	-17	11	-9	56
Wage costs	23	-15	-13	16	-16	-4	7	2	48
Regional costs	-1	-1	1	1	0	0	0	1	3
<b>Total</b>	<b>1,240</b>	<b>397</b>	<b>-762</b>	<b>-259</b>	<b>-277</b>	<b>-202</b>	<b>-57</b>	<b>-80</b>	<b>1,637</b>

Note: The redistributions from an EPC assessment are illustrative. Disabilities may not add due to rounding.

Source: Commission calculation.

137 The main reasons for these redistributions are the differences between States in the population size of the urban centres (especially the largest ones), the population density of these centres and the presence of rail passenger transport.

138 The main reasons for the redistributions for each State are the following:

- The size of the population of Sydney, its high population density and the presence of rail passenger transport have resulted in above average urban transport needs for New South Wales.
- The size of the population of Melbourne, its high population density (but lower than that of Sydney) and the presence of rail passenger transport have resulted in above average urban transport needs for Victoria.
- The lower population density of Brisbane relative to those of Sydney and Melbourne and the smaller proportion of the State population living in the capital city have resulted in below average urban transport needs for Queensland. These effects were partly offset by the presence of rail passenger transport in Brisbane.
- The lower population density of Perth relative to those of Sydney and Melbourne has resulted in below average urban transport needs for Western Australia. These effects were partly offset by the above average proportion of the State population living in the capital city.
- The lower population density of Adelaide relative to those of Sydney and Melbourne has resulted in below average urban transport needs for South Australia. These effects were partly offset by the presence of rail passenger transport in Adelaide.
- The small size of the population of Hobart, its low population density, the absence of rail passenger transport and the below average proportion of the population living in urban centres have resulted in below average urban transport needs for Tasmania.
- The small size of the population of Canberra, its relatively low population density and the absence of heavy rail passenger transport have resulted in below average urban transport needs for the ACT. These effects were partly offset by an above average proportion of the population living in urban centres.
- The small size of the population of Darwin, its relatively low population density, the absence of heavy rail passenger transport and the smaller than average proportion of the population living in urban centres have resulted in below average urban transport needs for the Northern Territory.

## Transport investment

139 Table 21-19 shows the extent to which the assessment for this category differs from an EPC assessment of transport investment.

**Table 21-19** Illustrative redistribution from an EPC assessment, Transport investment, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	646	873	-576	-414	-309	-123	-39	-58	1,520
\$ per capita	78	128	-110	-156	-174	-227	-89	-236	58

Note: The redistribution is the difference from an EPC assessment of category expenses.

Source: Commission calculation.

## Changes since the 2019 Update

140 There are a number of data and method changes since the 2019 Update as well as changes in State circumstances. Table 21-20 shows the effect of these changes.

**Table 21-20** Changes to the GST redistribution between the 2019 Update and the 2020 Review

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Method and data changes	896	-261	-340	-230	-103	9	11	18	933
Data revisions	-1	0	0	0	0	0	0	0	1
State circumstances	38	44	-27	-29	-17	-5	-1	-3	82
<b>Total</b>	<b>933</b>	<b>-217</b>	<b>-367</b>	<b>-258</b>	<b>-120</b>	<b>4</b>	<b>10</b>	<b>15</b>	<b>962</b>

Source: Commission calculation.

## Method and data changes

141 In this Review, the Commission has introduced a new econometric model to measure State urban passenger transport needs. This model captures a greater range of influences than the population model used in the 2015 Review.

142 The urban transport assessment is now a blended assessment that recognises:

- the proportion of State populations living in urban centres, with a weight of 25%
- the effect of urban centre characteristics on the cost of providing urban transport as measured by an econometric model, with a weight of 75%.

143 Non-urban transport expenses are assessed EPC, except for adjustment for regional and wage costs.

## Data revisions

144 Data revisions had a minor impact on the GST revenue distribution.

## Changes in State circumstances

- 145 Between 2015-16 and 2018-19, urban transport expenses grew by 22%, which resulted in a GST redistribution towards States with above average needs (New South Wales and Victoria), and away from the other States.
- 146 In addition, between 2015-16 and 2018-19, Melbourne and Canberra experienced higher than average growth in population density, redistributing GST revenue towards Victoria and the ACT and away from the other States. For Victoria, this compounded the GST effect due to the high growth in urban transport expenses. For the ACT, the effect of high population density growth did not fully offset the effect of the high growth in urban transport expenses.

## Updating the assessment

- 147 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.
- The following data will be updated annually:
    - population of urban centres
    - population density
    - modelled passenger numbers.
  - The following data will be updated when the 2021 Census information becomes available:
    - actual public transport passenger numbers
    - distance to work.
  - Some of the assessment data will remain stable over time and will not be updated during the Review period:
    - mean slope data.



# 22 Services to industry

## Summary of the assessment

The Services to industry category covers State spending on the regulation and development of businesses and industries, and other economic affairs.

The assessment recognises that States face differing costs for industry regulation but not for spending on business development. The Commission has assessed regulatory expenses for agriculture, forestry and fishing, mining and other industries separately, as States regulate them differently. Higher costs are assessed:

- for the regulation of agriculture, forestry and fishing, in States with above average shares of agricultural production
- for the regulation of mining, in States with above average shares of mining production
- for the regulation of other industries, in States with above average shares of other industries' production.

The assessment also recognises the differences between States in wage costs and, in the case of regulatory expenses, the higher cost of providing services to more remotely located regions.

## Service overview

- The Services to industry category comprises State expenses on the regulation and development of businesses and industries, and other economic affairs. Some spending relates to specific industries including agriculture, forestry, mining, manufacturing, tourism and construction. Other spending relates to all businesses, or to consumers.
  - Examples of regulatory functions include business registration, licensing of tradespeople, livestock identification schemes, chemical and pesticide regulation, building codes, energy market regulation, product safety, occupational health and safety, consumer protection, mine safety, industrial relations and shop trading hours.
  - Examples of business development activities include mineral exploration, geological mapping, agricultural irrigation systems, tourism and trade promotion, marketing, and industry research and development.
- Table 22-1 shows that State expenses on services to industry (net of user charges) were \$5.2 billion in 2018-19, representing 2% of total State expenses.

**Table 22-1 Services to industry expenses by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Total expenses (\$m)	1,469	1,233	790	718	562	107	41	307	5,227
Total expenses (\$pc)	183	189	156	276	322	202	98	1,249	208
Proportion of operating expenses (%)	1.7	2.1	1.5	2.5	3.5	1.9	0.8	4.9	2.0

Note: Expenses shown on a net basis or total expenses less user charges.

Source: Commission calculation using State budget data.

- While this category includes expenses related to a number of the regulatory functions performed by States, it does not include all State regulatory expenses. For example, expenses

for health regulation are included in the Health category. Similarly, the business development expenses in this category do not include all State economic development expenses. These costs are spread across a number of expense categories including Post-secondary education, Services to communities, Other expenses and Investment.

4 Table 22-2 shows the category's level and share of State expenses from 2015-16 to 2018-19.

**Table 22-2 Services to industry expenses, all States, 2015-16 to 2018-19**

	2015-16	2016-17	2017-18	2018-19
Total expenses (\$m)	4,171	4,970	5,039	5,227
Proportion of total operating expenses (%)	2.0	2.2	2.1	2.0

Note: Expenses shown on a net basis.

Source: Commission calculation using Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.

5 As seen in Table 22-3, user charges were around \$1.2 billion in 2018-19, equivalent to 18% of gross services to industry expenses.<sup>1</sup> In this category, user charges are deducted from total category expenses so that the assessment only applies to net expenses. User charges are mainly fees and charges that arise from the discharge of regulatory functions, including licensing and permit fees; charges for soil, plant or animal testing; mine safety and site rehabilitation; chemical and pesticide regulation; and building regulations.

**Table 22-3 Services to industry, user charges, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Revenue (\$m)	191	192	440	240	107	32	14	32	1,249
Revenue (\$pc)	24	29	87	92	62	60	33	129	50

Note: User charges refer to revenue from the sale of goods and services classified in GFS to ETF 112.

Source: Commission calculation using ABS GFS and State budget data.

## State roles and responsibilities

### Regulation

6 All States provide a similar range of services for their agriculture, forestry and fishing industries (collectively referred to as agriculture). The main agriculture regulation activities relate to:

- biosecurity
- animal welfare
- agriculture and veterinary chemicals
- water resource management.

7 Mining industry regulation is a State function and all States have arrangements in place to regulate mining exploration, production and rehabilitation.

8 Other State regulatory responsibilities included in the Services to industry category are listed below:

- business registration

<sup>1</sup> Gross or total expenses are the amount of State spending before the deduction of user charges.

- construction industry regulation
- workplace health and safety regulation
- industrial relations regulation.

9 There are fees and charges associated with many State regulatory functions.

## Business and industry development

- 10 All States engage in activities to promote employment and economic growth. Some programs target businesses, while others support some industries or regions. Activities include investment and trade promotion, regional development programs, major project facilitation, skills development, job creation projects, funding for research and development and support for small businesses.
- 11 All States have a geological survey office, or agency with similar functions, whose role is to support and promote exploration and land use planning. Most States offer mineral exploration grants to support the discovery of new resources and development of their mining industries.

## Commonwealth roles and responsibilities

- 12 The Commonwealth provides funding to States for services to industry programs through National Partnership Payments (NPPs). Table 22-4 shows the main Commonwealth payments to the States for services to industry in 2018-19.

**Table 22-4 Commonwealth payments to the States for Services to industry, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Pest and disease preparedness and response programs (\$m)	0	0	39	1	0	0	0	1	41
Small Business Regulatory Reform (\$m)	39	0	0	0	0	0	0	0	39
SA River Murray Sustainability (\$m)	0	0	0	0	32	0	0	0	32
Other NPPs (\$m)	6	12	16	3	2	0	0	3	42
<b>Total (\$m)</b>	<b>45</b>	<b>12</b>	<b>55</b>	<b>4</b>	<b>33</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>153</b>
<b>Total (\$pc)</b>	<b>6</b>	<b>2</b>	<b>11</b>	<b>2</b>	<b>19</b>	<b>1</b>	<b>1</b>	<b>14</b>	<b>6</b>

Note: The table shows major payments only. Commonwealth Own Purpose Expenses (COPEs) are not included. Payments that the Commission treats as 'no impact' are included in the table.

Source: Commonwealth Final Budget Outcome, 2018-19.

- 13 The complete list of Commonwealth payments and their treatment is available on the [Commission website](https://cgc.gov.au).<sup>2</sup> (<https://cgc.gov.au>).
- 14 Apart from payments to the States, the Commonwealth also provides direct assistance to businesses, industry and local government. The ACT said the Commission should make an adjustment to State business development needs to account for Commonwealth assistance. In principle, if these payments affect a State's fiscal capacity by relieving the State of a need to provide assistance, their effects should be included in the Commission's assessments. In practice, the interstate distribution of these payments is unknown, and it would be difficult to

<sup>2</sup> Most Commonwealth payments to the States affect the grant distribution but some do not. The Commission refers to payments that affect the grant distribution as 'impact' payments. For more information, see Chapter 5 Commonwealth payments.

determine how they affect State fiscal capacities. For these reasons, the Commission does not consider payments by the Commonwealth to third parties in the equalisation process.

## Category structure

- 15 The Services to industry category has four components:
  - agriculture regulation
  - mining regulation
  - other industries regulation
  - business development.
- 16 The components allow different disability assessments to apply to sub-functions.
- 17 Table 22-5 shows the category's assessment structure, the size of each component and the disabilities that apply.

Table 22-5 Category structure, Services to industry, 2018-19

Component	Component expense	Disability	Influence measured by disability
	\$m		
<b>Agriculture regulation</b>	615	Economic environment	Recognises the additional cost of providing regulatory services to the agricultural sector is determined by the level of economic activity in the sector
		Wage costs	Recognises the differences in wage costs between States
		Regional costs	Recognises the higher cost of providing services in more remote areas
<b>Mining regulation</b>	341	Economic environment	Recognises the additional cost of regulating the mining sector is determined by the level of economic activity in the sector
		Wage costs	Recognises the differences in wage costs between States
		Regional costs	Recognises the higher cost of providing services in more remote areas
<b>Other industries regulation</b>	1,553	Economic environment	Recognises the additional cost of regulating other industries is determined by the level of economic activity in the sector and population size
		Wage costs	Recognises the differences in wage costs between States
		Regional costs	Recognises the higher cost of providing services in more remote areas
<b>Business development</b>	2,719	EPC	This is an equal per capita (EPC) assessment. The driver of these expenses is State population
		Wage costs	Recognises the differences in wage costs between States

Note: Expenses shown on a net basis.

Source: Commission calculation.

## Category and component expenses

- 18 The main data sources for calculating category and component expenses are the Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.<sup>3</sup> The category also relies on State data to split GFS gross expenses by industry into these two broad functions — regulation and business development.
- 19 Expenses are allocated to components and sub-components as follows:
- Total category expenses are allocated to industries using GFS data. There are three industry groups:<sup>4</sup>
    - agriculture, forestry and fishing
    - mining
    - other industries.
  - Industry expenses are classified as regulatory or business development based on State-provided data. Table 22-6 shows the proportions of State spending on regulation and business development based on data collected in the 2020 Review.<sup>5</sup>

**Table 22-6** Proportion of State spending on regulation and business development by industry, 2010 and 2020 Reviews

	2020 Review by State								2020 Review	2010 Review
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT		
	%	%	%	%	%	%	%	%	%	%
<b>Agriculture</b>										
Regulation	26	61	51	94	44	80	na	29	50	50
Business development	74	39	49	6	56	20	na	71	50	50
<b>Other industries</b>										
Regulation	52	na	61	54	50	16	72	49	53	37
Business development	48	na	39	46	50	84	28	51	47	63
<b>Mining</b>										
Regulation	63	83	88	78	85	43	na	72	80	na (a)
Business development	37	17	12	22	15	57	na	28	20	na (a)

na Not available

(a) In the 2010 Review, other industries included mining.

Source: Commission calculation using State and GFS data.

- 20 To obtain the split between regulation and business development expenses, the Commission collected data from the States on business development expenses for each industry for 2015-16 to 2018-19. Regulation expenses were calculated as a residual by deducting business development expenses from total industry expenses sourced from GFS. The 2020 Review proportions replace information States provided for the 2010 Review. The

<sup>3</sup> Unless otherwise stated, category and component expenses for the first three assessment years are sourced from Australian Bureau of Statistics (ABS) GFS. States provide data for the most recent assessment year because GFS data are not available in time.

<sup>4</sup> The industries were classified to include the following COFOG-A groups: agriculture — 0472 and 042; mining — 0474 and all 043 except 0435 electricity; and other industries — all other COFOG in division 04 economic affairs except 0435 electricity, 0451 and 0475 communication, and those allocated to agriculture and mining.

<sup>5</sup> For a comparison, the comparable 2010 Review weights are also included in Table 22-6.

Commission considers the new approach is simpler and more reliable because it only requires States to identify business development expenses, which should be readily identifiable in State budgets. The proportions will apply in all updates using 2020 Review methods. Most States supported the new approach or did not comment.

- 21 New South Wales requested that the proportion and allocation of expenses for business development be reviewed, particularly for mining. It said that information provided in the Draft Report appears inconsistent with the claims by some States of their extensive efforts to develop their industries. The Commission excluded some out of scope expenses for mining and added some administered expenses to other industries that resulted in slight changes to the business development proportions.
- 22 Western Australia said that the split of expenses should not be into 'regulation' and 'business development', but rather into 'expenses related to existing industry' (assessed according to sector size) and 'expenses related to new industry' (assessed equal per capita). The Commission considers that there is not sufficient information to take this approach, there is unlikely to be agreement about what constitutes new and existing industries, and that such an approach would be heavily policy influenced.

## User charges

- 23 All revenue generated from user charges are offset against regulation expenses, because the Commission's analysis of what States do indicate that most user charges relate to regulation activities and the same disabilities would apply to both expenses and revenue. No State objected to this approach.

## Assessment approach

- 24 The expenses in this category relate to two broad functions — regulation and business development. For regulation expenses, there are separate assessments for agriculture, mining and other industries because a disaggregate assessment is materially different to an assessment with a single regulation component. In addition, there is a single component for all business development expenses, which are assessed equal per capita (EPC).

## Regulation

- 25 In the 2015 Review, the Services to industry category did not include a separate mining regulation component because it was not material. Mining regulation expenses were assessed in the other industries component. In this review, the Commission found that a separate mining component is justified on materiality grounds.
- 26 In the 2015 Review, the Commission relied on a mix of indicators — sector size, number of businesses and population — to assess the size of the regulation task.
- 27 In the 2020 Review, the Commission has decided to simplify the assessment, with agriculture and mining regulation based solely on sector size as measured by value of output. This approach was based on the premise that business counts tend to be proportionate to the size of the economy, which suggests that production measures alone could be used as a broad indicator for the regulation assessments.
- 28 Most States supported the simplified assessment of regulation expenses. However, New South Wales, Victoria and South Australia contended that value of output should not be the sole indicator of the size of the regulation task for agriculture and mining. They said that a

business counts disability should be included in the agriculture and mining assessments as the number of businesses in a State has a key bearing on the size and complexity, and therefore the cost, of the regulatory task. For example, the cost associated with regulating 100 firms each with an individual turnover of \$1 million is generally significantly higher than the cost of regulating one business with a turnover of \$100 million.

- 29 South Australia provided data on the cost of regulating its mining industry that showed most of its mining regulation costs arise from regulating its many small, low value producers. It also noted that mining production can be subject to significant variations in commodity prices, but this would have little or no effect on the regulation task. New South Wales concurred.
- 30 On the other hand, Western Australia said that the regulatory burden is greater for larger mines due to the complexity and scale of operations. It said that the higher costs of very large mines are incurred not just during the production phase but also during the post-production phase due to rehabilitation arrangements. While rehabilitation would partly relate to past value of production rather than to current levels, States with a large share of current production will also be the States with a large share of past production.
- 31 On balance, there is a conceptual case for including a business count disability in addition to sector size. However, an assessment including a business count disability is not materially different from an assessment based solely on value of production. Hence, the Commission will solely use production measures for agriculture and mining regulation. Table 22-7 shows the results of the materiality test.

**Table 22-7**      **Materiality of including business counts in the agriculture and mining regulation assessments, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Agriculture (\$m)	26	12	-10	-13	1	-11	0	-5
Mining (\$m)	11	4	9	-26	2	3	1	-3
<b>Total (\$m)</b>	<b>38</b>	<b>15</b>	<b>-2</b>	<b>-39</b>	<b>3</b>	<b>-9</b>	<b>1</b>	<b>-8</b>
Agriculture (\$pc)	3	2	-2	-5	1	-22	0	-21
Mining (\$pc)	1	1	2	-10	1	5	3	-10
<b>Total (\$pc)</b>	<b>5</b>	<b>2</b>	<b>0</b>	<b>-15</b>	<b>2</b>	<b>-17</b>	<b>3</b>	<b>-31</b>

Note: The materiality test was based on a 50% weight to business counts in the agriculture assessment and a 33% weight in mining. These weights were based on data from the 2010 Review.

Source: Commission calculation.

## Agriculture regulation

- 32 The assessment of agriculture regulation is based on sector size. It uses the value of agricultural output as the broad indicator of needs.
- 33 **Regional costs.** Differences in the cost of providing services to different regions within a State affect State regulation expenses. There is a general factor to measure the influence of regional costs in components where the disability applies. See Chapter 28 Geography, for a description of the calculation of this factor.
- 34 **Wage costs.** Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.

- 35 **Data and method.** The value of agricultural production is calculated using agriculture, forestry and fishing factor income estimates sourced from the ABS publication, *Australian National Accounts: State Accounts*, cat. no. 5220.0.
- 36 Assessed expenses are calculated by applying State shares of factor income to total agriculture regulation expenses, then applying regional costs and wage costs factors.
- 37 **Component calculations.** Table 22-8 shows the calculation of assessed expenses for the component in 2018-19.

**Table 22-8 Agriculture regulation component assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Sector size (\$m)	135	128	128	91	76	47	0	10	615
Regional costs factor	0.994	0.993	1.003	1.017	1.004	1.006	0.992	1.091	1.000
Wage costs factor	1.005	0.996	0.997	1.013	0.984	0.979	1.014	1.022	1.000
<b>Assessed expenses (\$m)</b>	<b>135</b>	<b>126</b>	<b>127</b>	<b>94</b>	<b>75</b>	<b>46</b>	<b>0</b>	<b>12</b>	<b>615</b>
<b>Assessed expenses (\$pc)</b>	<b>17</b>	<b>19</b>	<b>25</b>	<b>36</b>	<b>43</b>	<b>87</b>	<b>1</b>	<b>48</b>	<b>24</b>

Source: Commission calculation.

## Mining regulation

- 38 The assessment of mining regulation is based on sector size. It uses the value of mining output as the broad indicator of needs.
- 39 **Regional costs and wage costs.** The same approach is taken as for agriculture regulation.
- 40 **Data and method.** The value of mining production is calculated using mining factor income estimates sourced from the ABS publication, *Australian National Accounts: State Accounts*, cat. no. 5220.0.
- 41 Assessed expenses are calculated by applying State shares of factor income from mining to total mining regulation expenses, then applying regional cost and wage cost factors to it.
- 42 **Component calculations.** Table 22-9 shows the calculation of assessed expenses for the component in 2018-19.

**Table 22-9 Mining regulation component assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Sector size (\$m)	34	9	86	191	6	2	0	12	341
Regional costs factor	0.994	0.993	1.003	1.017	1.004	1.006	0.992	1.091	1.000
Wage costs factor	1.005	0.996	0.997	1.013	0.984	0.979	1.014	1.022	1.000
<b>Assessed expenses (\$m)</b>	<b>33</b>	<b>9</b>	<b>84</b>	<b>193</b>	<b>6</b>	<b>2</b>	<b>0</b>	<b>13</b>	<b>341</b>
<b>Assessed expenses (\$pc)</b>	<b>4</b>	<b>1</b>	<b>17</b>	<b>74</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>54</b>	<b>14</b>

Source: Commission calculation.

## Other industries regulation

- 43 The assessment of other industries regulation is based on sector size (75%) and population (25%). The decision to give some weight to population recognises that some regulatory functions target the total population rather than businesses or industries. The main example is consumer protection services including fair trading, rental bond services and civil and administrative appeals tribunals.



- 44 Western Australia said that assessing 25% of other industries regulation using population is not justified as it is not materially different from an assessment using only industry size. While this is so, the materiality test in this circumstance is based on whether the assessment of the relevant expense (in this case 75% of other industry regulation expenses) is materially different to an EPC assessment. Sector size is material across all industries.
- 45 Queensland said the Commission should conduct a more detailed analysis to determine the weights, reflecting tourism, investment and trade regulation. The Commission's attempt to use a more detailed approach in the 2010 Review was criticised by States. They argued that it involved too much judgement in identifying expenses and drivers. The Commission acknowledges that the 75:25 split is a judgement. It implies that States spend about \$15 to \$20 per capita on consumer protection and other services that target the whole population. Overall, this is consistent with the level of State spending on fair trading activities.
- 46 **Regional costs and wage costs.** The same approach is taken as for agriculture regulation.
- 47 **Data and method.** The value of other industries production is calculated using other industry factor income estimates sourced from the ABS publication, *Australian National Accounts: State Accounts*, cat. no. 5220.0.
- 48 Assessed expenses has two sub-components:
- expenses influenced by the size of the sector (75%) — calculated based on State shares of other industries' factor income
  - expenses influenced by population size (25%) — calculated based on State shares of population.
- 49 Regional cost and wage cost factors are applied to the sum of assessed expenses for the two sub-components.
- 50 **Component calculations.** Table 22-10 shows the calculation of assessed expenses for the component in 2018-19.

**Table 22-10 Other industries regulation component assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Economic environment (\$m)	514	382	284	162	93	27	29	21	1,511
Size of sector	394	285	208	122	67	19	22	17	1,134
Population	121	97	76	39	26	8	6	4	378
Regional costs factor	0.994	0.993	1.003	1.017	1.004	1.006	0.992	1.091	1.000
Wage costs factor	1.005	0.996	0.997	1.013	0.984	0.979	1.014	1.022	1.000
<b>Assessed expenses (\$m)</b>	<b>528</b>	<b>392</b>	<b>291</b>	<b>169</b>	<b>94</b>	<b>27</b>	<b>30</b>	<b>21</b>	<b>1,555</b>
<b>Assessed expenses (\$pc)</b>	<b>66</b>	<b>60</b>	<b>58</b>	<b>65</b>	<b>54</b>	<b>51</b>	<b>70</b>	<b>86</b>	<b>62</b>

Source: Commission calculation.

## Business development

- 51 Expenses for this component include business development expenses for agriculture, mining and other industries. Business development expenses account for 50% of agriculture expenses, 20% of mining expenses and 47% of other industries (see Table 22-6), or about 50% of total category expenses.

- 52 Business development expenses are assessed EPC because population is considered the driver. Most States supported or did not comment on this approach.
- 53 Western Australia proposed an assessment of assistance for existing industries using industry activity measures because assistance relates to export and private investment opportunities, and existing industry activity provides a guide to where these opportunities exist. It supported an EPC assessment for assistance to develop new industries.
- 54 In contrast, the Northern Territory said that States with a proportionately larger public sector workforce spend more on business development to facilitate the development and diversification of the private sector. It further argued that States with high levels of private business investment to facilitate growth and development may not require as much business development expenditure.
- 55 The views of Western Australia and the Northern Territory illustrate the challenge for the Commission in identifying a policy neutral driver for business development expenses. Western Australia argued the presence of existing industries provides a partial guide to where business development opportunities are. The presence of an industry would indicate a level of comparative advantage that the State would want to leverage through its development policies. In contrast, the Northern Territory argued the absence of a well-established private sector is the driver. Its economic development policies aim to attract new businesses and industries, to diversify its economy.
- 56 The arguments put by Western Australia and the Northern Territory are plausible from their perspective, but neither State presented evidence that would allow the Commission to form a view on which circumstance results in a greater need for business development.
- 57 The Commission observes that all States have policies to develop their businesses, industries and regions. Some business development activities are broad and common across States, for example, tourism, trade and investment promotion, and business support. Other business development activities have a particular industry focus, for example, agriculture, mining, manufacturing, health or education. States have considerable discretion over the amount and types of programs that receive funding. The Commission considers that population remains the appropriate driver and has therefore retained an EPC assessment of business development expenses. Given this is a deliberative EPC assessment, any related Commonwealth payments should affect State fiscal capacities.
- 58 Drought assistance is a special case. The Commission has not been able to identify a policy neutral driver of drought assistance expenses. State spending on drought assistance is assessed EPC but it is not considered a deliberative EPC assessment. As such, any related Commonwealth payments should not affect State fiscal capacities.

## **Regional costs**

- 59 The Commission considers that most business development activities are based in capital cities and has decided not to apply regional cost disabilities. Most States agreed.
- 60 Western Australia maintained that a regional cost factor should be applied to business development expenses. It said it has regional development commissions in most of the major regions of the State including the Kimberley and Pilbara. In addition, agriculture business development has a regional focus.
- 61 A significant proportion of business development expenses are incurred in capital cities (for example, tourism, trade and investment promotion, business support, or are provided as

grants or subsidies to businesses or industry. The amounts allocated for grants and subsidies are set amounts with no provision for regional or other costs. The Commission therefore does not agree that regional cost disabilities should apply to business development expenses.

## Wage costs

- 62 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wages costs.

## Data and method

- 63 Assessed expenses are calculated by applying State population shares to total expenses, then applying the wage costs factors.

## Component calculations

- 64 Table 22-11 shows the calculation of assessed expenses for the component in 2018-19.

**Table 22-11 Business development component assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
EPC (\$m)	868	705	546	282	188	57	46	27	2,719
Wage costs factor	1.005	0.996	0.997	1.013	0.984	0.979	1.014	1.022	1.000
<b>Assessed expenses (\$m)</b>	<b>872</b>	<b>702</b>	<b>544</b>	<b>285</b>	<b>185</b>	<b>56</b>	<b>46</b>	<b>27</b>	<b>2,719</b>
<b>Assessed expenses (\$pc)</b>	<b>109</b>	<b>108</b>	<b>108</b>	<b>109</b>	<b>106</b>	<b>106</b>	<b>110</b>	<b>110</b>	<b>108</b>

Source: Commission calculation.

## Category calculations

- 65 Table 22-12 brings the assessed expenses for each component together to derive total assessed expenses for each State for the category. It shows at the component level how the assessment of each disability moves expenses away from an EPC distribution to obtain assessed expenses.

Table 22-12 Services to industry category assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
<b>Regulation of agriculture</b>									
EPC	24	24	24	24	24	24	24	24	24
Sector size	-8	-5	1	11	19	64	-24	18	0
Wage costs	0	0	0	1	-1	-2	0	1	0
Regional costs	0	0	0	0	0	0	0	4	0
<b>Assessed expenses</b>	<b>17</b>	<b>19</b>	<b>25</b>	<b>36</b>	<b>43</b>	<b>87</b>	<b>1</b>	<b>48</b>	<b>24</b>
<b>Regulation of mining</b>									
EPC	14	14	14	14	14	14	14	14	14
Sector size	-9	-12	3	60	-10	-10	-13	36	0
Wage costs	0	0	0	0	0	0	0	1	0
Regional costs	0	0	0	0	0	0	0	4	0
<b>Assessed expenses</b>	<b>4</b>	<b>1</b>	<b>17</b>	<b>74</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>54</b>	<b>14</b>
<b>Regulation of other industries</b>									
EPC	62	62	62	62	62	62	62	62	62
Sector size	6	1	-2	3	-5	-8	9	18	0
Wage costs	0	0	0	1	-1	-1	1	2	0
Regional costs	0	0	0	1	0	0	-1	7	0
<b>Assessed expenses</b>	<b>66</b>	<b>60</b>	<b>58</b>	<b>65</b>	<b>54</b>	<b>51</b>	<b>70</b>	<b>86</b>	<b>62</b>
<b>Business development</b>									
EPC	108	108	108	108	108	108	108	108	108
Wage costs	1	0	0	1	-2	-2	2	2	0
<b>Assessed expenses</b>	<b>109</b>	<b>108</b>	<b>108</b>	<b>109</b>	<b>106</b>	<b>106</b>	<b>110</b>	<b>110</b>	<b>108</b>
<b>Total assessed expenses</b>	<b>195</b>	<b>188</b>	<b>207</b>	<b>285</b>	<b>207</b>	<b>248</b>	<b>180</b>	<b>299</b>	<b>208</b>

Note: The EPC and assessed expenses lines represent total spending per capita. The amounts for each disability are additive, as each disability represents the stepwise change from building the assessment.

Source: Commission calculation.

## Infrastructure assessment

- 66 States require infrastructure to support service delivery. State infrastructure requirements are assessed in the Investment category. The main driver of investment in services to industry related infrastructure is growth in the size of the regulation task.
- 67 The service use disabilities that affect recurrent service delivery expenses also affect the quantity of infrastructure each State requires to provide the average level of service. In this category, the size of the agriculture, mining and other industries sectors, and population, contribute to the capital stock factor.
- 68 Interstate differences in construction costs are also recognised.
- 69 For a description of the investment assessment, see Chapter 24 Investment.

## Other issues considered by the Commission

- 70 In the 2015 Review, the Commission introduced an assessment of State spending on planning and regulation of major infrastructure projects. The assessment recognised that States with high levels of private sector investment, including for mining, incur higher planning and regulation costs. Private non-dwelling construction expenditure was considered the appropriate non-policy indicator of State spending.
- 71 For the 2020 Review, staff collected data from States to update the expense estimate used in the assessment. Several States found it difficult to identify the relevant expenses. The estimates States provided were significantly less than the amounts reported for 2010-11 to 2012-13. The assessment is immaterial.
- 72 Given the difficulties in identifying the expenses, and significant differences between the 2015 and 2020 Review estimates, the Commission has decided to discontinue the major infrastructure projects regulation assessment in the 2020 Review. Several States said the Commission should monitor developments and consider alternative data sources. The Commission has been unable to identify other potential data sources for measuring these expenses.

## Effect on the GST distribution

- 73 Table 22-13 shows the extent to which the assessment for this category moves the distribution of GST away from an EPC distribution. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements. In per capita terms, Northern Territory and Western Australia experience the largest redistributions.

**Table 22-13 Illustrative redistribution from an EPC assessment, Services to industry, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-101	-132	8	204	-4	15	-12	21	249
\$ per capita	-12	-19	2	77	-2	28	-26	86	10

Note: The redistribution is the difference from an EPC assessment derived using 2016-17 to 2018-19 assessed expenses and 2020-21 GST revenue.

Source: Commission calculation.

- 74 The main reasons for these redistributions, overall, are the differences between States in the level of activity in different industries (particularly mining), which affect regulation costs, along with differences between States in regional costs and wages.
- 75 The main reasons for the redistributions for each State are described below.
- For New South Wales, Victoria and the ACT, the below average need for spending is due to their relatively small agricultural and mining industries and relatively low regional costs. Victoria also has low wage costs. Similarly, South Australia has relatively small mining and other industries and low wage costs.
  - Queensland's above average need for spending is due to its relatively large agriculture and mining sectors. Tasmania's above average need for spending is due to its relatively large agriculture sector.

- For Western Australia and the Northern Territory, the above average need for spending is due to their high level of economic activity in all sectors, particularly mining, and relatively high regional and wage costs.

76 Table 22-14 provides a summary of the main disabilities contributing to the redistribution from an EPC assessment for this category.

**Table 22-14 Major reasons for the illustrative redistribution, Services to industry, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Sector size									
Agriculture	-57	-30	11	23	32	29	-11	4	99
Mining	-76	-88	22	164	-18	-5	-6	7	193
Other industries	33	-7	-21	5	-13	-6	4	5	47
<b>Total sector size</b>	<b>-101</b>	<b>-125</b>	<b>12</b>	<b>192</b>	<b>1</b>	<b>18</b>	<b>-13</b>	<b>16</b>	<b>240</b>
Regional costs	-5	-4	0	5	0	0	0	4	10
Wage costs	5	-3	-4	7	-5	-3	2	2	16
<b>Total</b>	<b>-101</b>	<b>-132</b>	<b>8</b>	<b>204</b>	<b>-4</b>	<b>15</b>	<b>-12</b>	<b>21</b>	<b>249</b>

Note: The redistributions from an EPC assessment are illustrative. Disabilities may not add up due to rounding.

Source: Commission calculation.

## Changes since the 2019 Update

77 Table 22-15 breaks down the total change in the GST distribution since the 2019 Update that is attributable to the Services to industry category. It shows the effects of changes in data, category specific method changes and changes in State circumstances.

**Table 22-15 Changes to the GST redistribution between the 2019 Update and the 2020 Review**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Method changes	-26	-60	-6	117	-18	4	0	-11	121
Data revisions	8	8	-3	-15	1	0	1	-1	18
State circumstances	10	-2	-1	-8	-1	1	1	0	12
<b>Total</b>	<b>-9</b>	<b>-54</b>	<b>-9</b>	<b>94</b>	<b>-18</b>	<b>6</b>	<b>1</b>	<b>-11</b>	<b>101</b>

Source: Commission calculation

## Method changes

78 There are several category-specific method changes since the 2015 Review.

- The weights for splitting industry expenses between regulation and business development have been updated using State provided data on business development expenses and GFS expenses.
- Mining regulation expenses are assessed in a separate component instead of being included with other industry regulation expenses. The assessment is based solely on sector size as measured by value of output.

- Agriculture regulation expenses are assessed based solely on sector size as measured by value of output. In the 2015 Review, the assessment gave roughly equal weighting to three drivers: the value of output, business count and population. An assessment based solely on the value of output is simpler and not materially different to one that includes business counts.
- All user charges for the category are deducted from the relevant industry regulation expenses. In the 2015 Review, only mining user changes were offset against expenses (in the other industries component).
- The assessment of regulation costs related to major infrastructure projects has been removed because States were unable to provide reliable expense estimates.

79 Including a separate mining regulation assessment and removing the assessment of major infrastructure project regulation expenses had the biggest effects.

## Data revisions

80 There have been minor revisions to GFS estimates of State spending by component and ABS factor income by industry.

## Changes in State circumstances

81 There were only minor changes in the assessment due to changes in State circumstances. As State expenses grew at a faster rate than GST revenue, this resulted in increased GST for States with above average needs. The changes in State circumstances were largely driven by changes in State shares of agricultural output, which were affected by seasonal conditions, and mining and other industries output.

## Updating the assessment

82 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.

- The following data will be updated annually:
  - category and industry expenses
  - factor income data used to measure sector size
  - population data.
- Some of the assessment data are not readily available on an annual basis or will not remain stable over time. The data below will not be updated during the review period:
  - the proportion of industry expenses allocated to regulation and business development, which are calculated from State-provided and GFS data.

# 23 Other expenses

## Summary of the assessment

The Other expenses category is a residual category and includes service expenses (general administration, public safety, recreation and communication services) and natural disaster relief expenses. In addition, administrative scale expenses, native title and land rights expenses and national capital expenses (except those relating to police) are presented in this category.

Service expenses are assessed on the basis of State population shares, adjusted for differences between States in wage costs and the higher cost of providing services to more remotely located populations.

Natural disaster relief expenses are assessed based on actual costs for State and local government, less an assessed contribution by local government.

The administrative scale assessment is discussed in Chapter 26 Administrative scale while the native title and land rights and the national capital assessments are discussed in Chapter 29 Other disabilities.

## Service overview

- 1 Other expenses were \$26.5 billion in 2018-19, representing 11.7% of total State expenses (Table 23-1). State spending on this function comprises expenses for:
  - general public services — public debt transactions and transfers of a general nature between different levels of government, and other general public services such as central administrative agencies that support State service delivery agencies
  - public order and safety services other than those provided by police, such as emergency services and fire protection
  - expenses for recreation, culture and religion — including libraries, public halls, art and sport facilities
  - communication services, such as film production, broadcasting and publishing
  - expenses on natural disaster relief.
- 2 The category also includes administrative scale, native title and land rights, and national capital expenses.<sup>1</sup>

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<sup>1</sup> These expenses relate to all functions but are aggregated and presented in the Other expenses category.



**Table 23-1 Other expenses by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT (a)	NT	Total
Total expenses (\$m)	9,282	6,184	4,997	1,729	1,505	889	1,183	763	26,533
Total expenses (\$pc)	1,155	947	989	664	864	1,672	2,795	3,107	1,054
Proportion of operating expenses (%)	13.2	11.5	10.9	6.6	10.1	17.7	25.7	14.0	11.7

Note: Expenses shown on a net basis.

(a) The ACT has classified a large proportion of its expenses as general public services, mainly relating to the Chief Minister, Treasury and Economic Development Directorate. Some of these expenses may be classified under other functions in other States, such as local government-type expenses.

Source: Commission calculation using State budget data.

3 Table 23-2 shows the share of State expenses on other expenses from 2015-16 to 2018-19.

**Table 23-2 Other expenses, all States, 2015-16 to 2018-19**

	2015-16	2016-17	2017-18	2018-19
Total expenses (\$m)	24,509	24,643	26,742	26,533
Proportion of total operating expenses (%)	12.8	12.2	12.4	11.7

Note: Expenses shown on a net basis.

Source: Commission calculation using Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.

4 User charges were \$6.0 billion in 2018-19. They mainly included fire and emergency services levies (FESLs) and revenue related to cultural and recreational services such as museum entry fees.<sup>2</sup> In this category, user charges are deducted from total category expenses so that the assessment only applies to net category expenses.

**Table 23-3 Other expenses, user charges, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Revenue (\$m)	2,233	832	1,261	733	565	138	218	17	5,998
Revenue (\$pc)	278	128	250	281	324	260	515	69	238

Note: User charges refer to revenue from the sale of goods and services classified in GFS to economic type framework (ETF) 112.

Source: Commission calculation using ABS GFS and State budget data.

## State roles and responsibilities

5 The diversity of services in this category means there is also a diverse range of service delivery processes. Large proportions of the legislative and general administrative services and some cultural, recreation and communication services are delivered through major agencies and institutions located in metropolitan areas. Many cultural, recreational and public safety services are provided closer to where people live through State funding for local and community organisations or a network of State service delivery units.

## Commonwealth roles and responsibilities

6 The Commonwealth provides funding to States to assist them in meeting their expenses. Most Commonwealth payments in the Other expenses category do not have an impact on the relativities. Some, like the general purpose assistance grants for local governments, are

<sup>2</sup> See Chapter 7 Land tax and Chapter 12 Other revenue for a discussion of fire and emergency services levies (FESLs) and the Commission decision to treat this revenue as user charges.

paid to third parties and do not have a direct impact upon State fiscal capacities. Commonwealth natural disaster relief payments to the States under the Disaster Recovery Funding Arrangements 2018 (DRFA) are also treated as having no impact on the relativities. They are netted off State expenses claimed under the DRFA.

- 7 Table 23-4 shows the main Commonwealth payments to the States for Other expenses in 2018-19.

**Table 23-4 Commonwealth payments to the States for Other expenses, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
General purpose assistance to local government (\$m)	550	444	345	179	120	36	29	17	1,721
Natural Disaster Recovery and Rebuilding (\$m)	1	2	1,034	12	0	49	0	7	1,105
Grants assistance to primary producers impacted by the north Queensland floods (\$m)	0	0	300	0	0	0	0	0	300
ACT Municipal Services (\$m)	0	0	0	0	0	0	40	0	40
Other national partnership payments (\$m)	50	6	35	9	8	1	5	4	118
<b>Total (\$m)</b>	<b>602</b>	<b>452</b>	<b>1,714</b>	<b>200</b>	<b>128</b>	<b>87</b>	<b>74</b>	<b>29</b>	<b>3,285</b>
<b>Total (\$pc)</b>	<b>75</b>	<b>69</b>	<b>339</b>	<b>77</b>	<b>73</b>	<b>163</b>	<b>176</b>	<b>117</b>	<b>131</b>

Note: Table shows major payments only. Commonwealth own purpose expenses (COPEs) are not included. Payments that the Commission treats as 'no impact' are included in the table.

Source: Commonwealth Final Budget Outcome, 2018-19.

- 8 The complete list of Commonwealth payments and their treatment is available on the [Commission website](https://cgc.gov.au) (<https://cgc.gov.au>).<sup>3</sup>

## Category structure

- 9 The assessment of the Other expenses category is undertaken in the following components:
  - service expenses
  - natural disaster relief expenses.
- 10 A further three components are included in this category for presentational purposes:
  - administrative scale
  - native title and land rights
  - national capital.
- 11 The assessments of the disabilities for the last three components are discussed in Chapter 26 Administrative scale and Chapter 29 Other disabilities.
- 12 Components allow different disability assessments to apply to sub-functions. Table 23-5 shows the category's assessment structure, the size of each component and the disabilities that apply.

<sup>3</sup> Most Commonwealth payments to the States affect the grant distribution but some do not. The Commission refers to payments that affect the grant distribution as 'impact' payments. For more information, see Chapter 5 Commonwealth payments.

Table 23-5 Category structure, Other expenses, 2018-19

Component	Component expense	Disability	Influence measured by disability
	\$m		
<b>Service expenses</b>	23,520	Equal per capita	The driver of these expenses is State population (a).
		Wage costs (b)	Recognises differences in wage costs between States.
		Regional costs (b)	Recognises the higher cost of providing services to more remote areas.
<b>Natural disaster relief</b>	(c)	Actual expenses	Recognises State net out of pocket costs for natural disaster relief under the Australian Government's natural disaster relief arrangements. The expenses for this component are net of Australian Government assistance through DFRA.
<b>Administrative scale</b>	2,815	Equal per State	Recognises the unavoidable costs each State incurs to provide the minimum unavoidable policy and administrative services.
<b>Native title and land rights</b>	191	Actual expenses	Recognises State costs of settling native title and land rights claims.
<b>National capital (d)</b>	7	Planning costs	Recognises the costs to the ACT due to Canberra's status as the national capital and seat of government.

(a) Population is considered the driver for most, but not all, expenses. For some expenses, other factors besides population may apply, but expenses are not differentially assessed. Debt charges are assessed equal per capita (EPC) because State capital needs are recognised in the investment and net borrowing assessments.

(b) Applied to a subset of service expenses.

(c) Natural disaster relief expenses are included with service expenses due to confidentiality requirements.

(d) These expenses relate to planning. National capital costs related to police services are included in the Justice category.

Source: Commission calculation using ABS GFS and State budget data.

## Category and component expenses

- 13 The main data sources for calculating category and component expenses are Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.<sup>4</sup>
- 14 State data are used in the natural disaster relief expenses component as States are able to provide the most recent data. Natural disaster relief expense data from Emergency Management Australia (EMA) are also used as a cross-check on the State data.

## Assessment approach

### Service expenses

- 15 Expenses for this component include general public services, public safety, culture and recreation, and communication expenses.<sup>5</sup>

<sup>4</sup> Unless otherwise stated, category and component expenses for the first two assessment years are sourced from Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS). States provide data for the most recent assessment year because GFS data are not available in time for the annual update.

<sup>5</sup> During the 2015 Review period, this component also included expenses for pipelines, which were classified with communications in GFS (\$135 million in 2016-17). Under current GFS classifications, pipelines are now grouped with other transport services, and therefore these expenses are now assessed in the Transport category. Similarly, during the 2015 Review period, national parks and wildlife expenses were grouped with recreation and culture expenses in GFS, but these expenses are now part of the environmental protection classification in GFS. Therefore, national parks and wildlife expenses (\$1.1 billion in 2016-17) are now in the Services to communities category, environmental protection component. Debt charges (\$10.8 billion in 2016-17) are also included in this component. They are assessed equal per capita (EPC) because State capital needs are recognised in the Investment and Net borrowing assessments.

- 16 The ACT considered that moving expenses assessed on an equal per capita (EPC) basis in other categories to the Other Expenses category would reduce the transparency and understandability of the equalisation system. While the Commission considered moving some expenses items, such as environmental protection, to the Other expenses category, it decided not to do so.

## Population

- 17 The cost of providing services such as general public services and administrative functions, public safety, culture and recreation and communication are unlikely to be influenced by particular population groups, and unit costs are unlikely to differ materially between States. Therefore the Commission has adopted State population shares as the major driver, which means the expenses are assessed on an EPC basis.

## Regional costs

- 18 Differences in the cost of providing services to different regions within a State affect many State expenses. In remote areas, some inputs are more costly due to higher transportation costs and staff location allowances. For example, additional inputs are often required in remote areas, such as more four wheel drive vehicles and additional fuel for emergency services.
- 19 The Commission considers that remoteness affects what States need to spend on public safety, culture and recreation, and communications, and half of the expenses for general public services and other purposes. This amounted to applying the regional costs disability to 59.1% of total service expenses in 2018-19.
- 20 The general regional cost gradient is used because it is not practicable to directly measure the effect of remoteness on service expenses for the component. For further discussion and the calculation method for the general regional cost gradient, see Chapter 28 Geography.

## Wage costs

- 21 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method, see Chapter 27 Wage costs.
- 22 The Commission considers that wage costs affect what States need to spend on public safety, culture and recreation, and communications, and half of the expenses for general public services and other purposes. This amounted to applying the wage costs disability to 59.1% of total service expenses in 2018-19.

## Component calculations

- 23 Table 23-6 shows the calculation of total assessed expenses for service expenses in 2018-19, combined with natural disaster relief expenses.<sup>6</sup>

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<sup>6</sup> As several States consider their natural disaster relief expenses to be confidential, these expenses have been combined with the service expenses component. The natural disaster assessment is discussed in the next section.

**Table 23-6 Service expenses and natural disaster relief component assessments, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Assessed expenses (\$m)	7,425	5,938	4,938	2,486	1,572	513	388	261	23,520
Assessed expenses (\$pc)	924	910	978	954	902	964	917	1,063	935

Note: This table includes both the service expenses and the natural disaster relief expenses components.

Source: Commission calculation.

## Natural disaster relief expenses

- 24 Expenses for the natural disaster component include State out of pocket expenses under the DRFA, net of Commonwealth assistance. Eligible expenses under the DRFA also include State payments for local government expenses. The DRFA may consider both natural disasters and terrorist acts to be eligible disasters.<sup>7</sup>
- 25 The natural disaster relief expenses assessment includes State out of pocket expenses that have been incurred due to eligible disasters affecting local government.
- 26 In the 2019 Update, the Commission decided to remove local government expenses from the assessment because it became aware that local government out of pocket expenses were being reported by States, the amounts were large and it was unclear that States were the ultimate funder of these expenses. This brought the assessment into line with the intended scope of the 2015 Review to only assess State expenses.
- 27 Since the 2019 Update, States have provided additional information showing that States are the main funding source when disasters affect local government. Accordingly, the Commission is now satisfied that the assessment should include net State payments for local government expenses.

## Local government funding policies

- 28 Local government expenses form a significant proportion of expenses claimed by States under the DRFA, averaging from 50% to 70% of net expenses. These expenses are treated as equivalent to State expenses under the DRFA, and are equally eligible for Commonwealth reimbursement.<sup>8</sup>
- 29 All States<sup>9</sup> fund local government natural disaster relief expenses, although policies vary between States. In most States, most local governments are required to contribute towards funding natural disaster relief. As disaster costs increase, the level of State assistance increases and the local government share of expenses decreases.
- 30 Most State policies on funding local government natural disaster relief have the following elements:
  - up to a certain threshold, costs must be fully met by the local government

<sup>7</sup> Terrorist acts must be declared by the relevant Commonwealth minister to be an eligible disaster. Commission staff are not aware of any such events occurring within the last ten years under the Disaster Recovery Funding Arrangements 2018 (DRFA) and previous arrangements.

<sup>8</sup> In its submission to the draft report, Queensland stated that State assistance towards local government is necessary for Commonwealth reimbursement. However, further discussions with Queensland and Emergency Management Australia (EMA) have confirmed that Commonwealth assistance is not contingent on States reimbursing local government.

<sup>9</sup> Excluding the ACT, as it does not have a local government sector.

- disaster costs that lie between that first and a second threshold will be funded by both the local government and State government
  - costs that lie beyond the second threshold will be fully funded, or mostly funded, by the State government.
- 31 State policies apply per disaster. In New South Wales, a maximum contribution cap applies per year.<sup>10</sup> Other States do not have annual caps, although a local government experiencing multiple costly disasters would likely apply for special consideration by the State government.
- 32 In Queensland, Indigenous councils with no rate revenue receive full support from the State for natural disaster relief expenses. In the Northern Territory, all councils are fully funded by the State when DRFA events occur.<sup>11</sup>
- 33 State policies may be grouped as follows:
- New South Wales, Victoria, Queensland and Western Australia cap local government contributions at a certain dollar amount, leaving the State government to fund all expenses above this threshold.
  - South Australia and Tasmania have no cap on local government contributions, with the local government liable for 25% of expenses above a certain threshold.
- 34 Prior to this review, States had not reported any recoverable contributions from local government, although most States had reported the local government expenses in full.<sup>12</sup> This overstated total expenses, albeit to a small degree. Data from States show that local governments contribute between 1% and 3% on average of gross local government expenses.<sup>13</sup>
- 35 Queensland, Western Australia, Tasmania, the ACT and the Northern Territory supported including local government expenses in the assessment. New South Wales, Victoria and South Australia did not support including these expenses.
- 36 The main concerns of New South Wales related to differences in local government infrastructure standards and disaster mitigation measures. New South Wales said these differences could directly affect the value of eligible DRFA expenses.
- 37 The effects of differences in infrastructure standards and disaster mitigation are not limited to local government costs. These differences also affect State claims. The DRFA only permits the restoration of assets to their pre-disaster function (that is, the Commonwealth will not pay to improve assets in the process of rebuilding). Also, the DRFA only allows claims for the reconstruction of essential assets<sup>14</sup> and requires States to have adequate insurance and mitigation measures in place. While this does not entirely mitigate policy differences, it does improve consistency across States in what constitutes eligible expenses. As with most assessments, it is not possible to eliminate all policy influences.

<sup>10</sup> This cap is 2% of the council's rate revenue in the financial year two years prior to the current year.

<sup>11</sup> The Northern Territory government currently funds all DRFA events. However, it is developing a formal funding policy, which may require some councils to contribute towards expenses in the future.

<sup>12</sup> New South Wales, Victoria and Queensland report expenses net of the local government contribution to both EMA and the CGC. Other States report total expenses that include the local government contribution where applicable.

<sup>13</sup> This figure refers to the average annual contribution level for local government across all States. For some States in some years, the contribution can be as high as 100% or as low as 0%.

<sup>14</sup> Disaster Assist, [DRFA 2018 Guideline 1 — An essential public asset](https://www.disasterassist.gov.au/Documents/Natural-Disaster-Relief-and-Recovery-Arrangements/drfa-2018-guideline-1-an-essential-public-asset.pdf), (https://www.disasterassist.gov.au/Documents/Natural-Disaster-Relief-and-Recovery-Arrangements/drfa-2018-guideline-1-an-essential-public-asset.pdf), [accessed 24/01/2020].

- 38 One of the sources of differences between States in the value of local government roads infrastructure is differences in how States allocate responsibility for roads between levels of government. Including both State expenses and State payments for local government expenses eliminates this source of difference.
- 39 Victoria commented that the Commission removes State support for local government from other categories, such as Roads, and therefore it should also remove State support of natural disaster recovery.
- 40 While financial assistance grants, including local roads grants, are removed from the adjusted budget, other payments to local government are included. These payments contribute to the average expenses to which disabilities apply. Therefore, it is not inconsistent for the Commission to assess State payments to local government for disaster recovery. The Commission considers this does not amount to local government equalisation. It recognises an unavoidable cost that all States fund.
- 41 Victoria also stated that most local governments fund their out of pocket costs from their own-source revenue, such as rates. However, it is clear from State policies that this is not the case, and that it is average State policy to fund local government expenses.
- 42 South Australia stated that the level of State funding of local government has an element of policy choice. The Commission agrees with this, which is why the assessment deducts assessed local government contributions, instead of using actual local government contributions.
- 43 The ACT was concerned that State insurance arrangements were not comparable and that States were not completing a qualitative benchmark process for insurance. This process is recommended under the DRFA,<sup>15</sup> but States are not required to comply. The Commission considers that the Commonwealth is best placed to decide if State insurance arrangements are sufficient to satisfy the requirements of the funding agreements and to receive Commonwealth assistance. The Commonwealth considered this issue recently during its process of working with States to develop the DRFA. In addition, the Commonwealth considered States' level of insurance and mitigation spending in its response to an insurance industry report, where the Commonwealth's response concluded that the requirements for State insurance arrangements within the DRFA are sufficient. Disaster mitigation is discussed further under the section Other issues considered by the Commission at paragraph 76.
- 44 Queensland said that States fund local government out of pocket costs because most councils do not have the financial capacity to meet these costs. It stated that the cost of disaster recovery is too high for local governments to bear through own-source revenue, and local government have no financially viable alternatives such as borrowing or insurance. It also stated that a speedy recovery was necessary to minimise the impact of disasters, which requires significant capital expenditure from all levels of government. The Northern Territory also stated that its local government lacks the fiscal capacity to recover from disasters without assistance.
- 45 Recent discussions with State officials responsible for implementing local government equalisation arrangements confirmed local governments have insurance arrangements in

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<sup>15</sup> Emergency Management Australia, 'Guideline 4 – Insurance arrangements', 1 Nov 2018, (<https://www.disasterassist.gov.au/Documents/Natural-Disaster-Relief-and-Recovery-Arrangements/drfa-2018-guideline-4-insurance-arrangements.pdf>, [accessed 13/01/2020], paragraph 2).

place, although insurance may not be available for road assets; most disaster costs relate to the repair and reconstruction of road assets, and flooding causes the greatest damage to roads.

- 46 The prevalence of natural disasters varies widely between States, with Queensland and New South Wales forecast to experience the most costly disasters.<sup>16</sup> As disasters become more costly, all States increase their rate of support to local government.
- 47 It has become clear that it is average policy for States to fund a significant proportion of the local government out of pocket expenses. However, State policies on the level of local government contributions vary, and so an actual per capita (APC) assessment of the local government contribution is not appropriate. The Commission decided to assess local government contributions using average contribution rates.

## Data

- 48 State data are used to determine net expenses as States are able to provide the most recent data. States are asked to report on an accrual basis. The State data separately includes local government expenses and associated Commonwealth revenue, and the local government contribution. Natural disaster relief expense data from EMA are used as a cross-check to the State data.
- 49 Expenses include all eligible expenses under the DRFA,<sup>17</sup> plus re-insurance premiums. Commonwealth DRFA assistance and payments from insurers are netted off the expenses.
- 50 New South Wales raised the issue of data quality and reliability. The Commission uses natural disaster relief expense data from EMA to crosscheck State data. As this assessment is largely calculated on an APC basis, data quality and reliability is essential to the integrity of the assessment. However, States are not required to report to EMA any expenses that do not meet the thresholds for Commonwealth reimbursement. These expenses are nonetheless eligible to be reported to the Commission and affect States' GST shares, because these expenses represent a cost to States. This creates a mismatch between the expense data used by the Commission and EMA data. Any expenses not reported to EMA are not subject to Commonwealth auditing processes.
- 51 The Commission relies on State data for most assessments. States have agreed to the protocol for data collection, which includes providing data that adhere as closely as possible to the specifications of the data request. States are also required to provide a statement on data quality and to explain large variations in the data.<sup>18</sup> The Commission considers State data to be reliable and comparable.<sup>19</sup>

## Method

- 52 The assessment calculates the average rate of local government contributions towards natural disaster relief per year and applies this to each State's local government expenses

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<sup>16</sup> Australian Business Roundtable for disaster resilience and safer communities, *Building resilience to natural disasters in our states and territories*, 2017.

<sup>17</sup> State expenses that would otherwise be eligible under the DRFA, but do not exceed the small disaster criterion (\$240,000) required for Commonwealth reimbursement, are also considered to be eligible expenses for the Commission's purposes and are included in the assessment.

<sup>18</sup> CGC, 'Update processes', ([https://cgc.gov.au/sites/default/files/update\\_processes.pdf](https://cgc.gov.au/sites/default/files/update_processes.pdf)), [accessed 10/01/2020].

<sup>19</sup> It would be preferable for States to report all expenses to EMA, but this would involve a change to reporting requirements that could not be initiated until the 2021 Update. The Commission would need to consult with States on this proposal as part of the new issues process.



that are eligible under the DRFA. This amount is deducted from expenses as a recoverable expense, in the same way that the Commonwealth DRFA revenue is deducted to obtain an estimate of State out of pocket costs. The average rate of local government contributions is calculated each year and may vary from year to year.

- 53 When disasters occur in the ACT, the Commission intends to estimate the proportion of the ACT's expenses that are local government-type expenses. The assessed local government contribution will be deducted from these expenses. The ACT did not oppose the assessment of its local government-type expenses. As the ACT suggested, the Commission will consult with the ACT on how best to measure these expenses in the event that the ACT experiences a major natural disaster. Other States did not comment on this issue.
- 54 For States that report expenses net of the local government contribution, the Commission will gross up the States' expenses<sup>20</sup> and foregone revenue<sup>21</sup> to derive its actual local government expenses and actual Commonwealth revenue.
- 55 The calculation uses the following elements:
- revenue:
    - actual Commonwealth assistance<sup>22</sup>
    - actual re-insurance receipts
    - actual other revenue
    - assessed local government contribution
  - expenses:
    - actual State disaster expenses
    - actual local government disaster expenses<sup>23</sup>
    - actual State re-insurance premiums.
- 56 States' assessed natural disaster relief expenses are calculated as the expenses less revenue listed above. This is close to an APC assessment.

## Unwinding the 2019 Update adjustment

- 57 During the 2019 Update, the Commission only included State net expenses in the assessment. In addition, an adjustment was made to correct for the previous overstatement of expenses in the 2015-16 and 2016-17 assessment years. Queensland and the Northern Territory supported unwinding the 2019 Update assessment and adjustment. Other States did not comment on this issue.
- 58 Consistent with its decision to include local government net expenses going forward, the Commission has decided to unwind fully in the 2020 Review the adjustment to the assessment in the 2019 Update that removed local government net expenses. The unwinding

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<sup>20</sup> The local government contribution will be added to the State's expenses.

<sup>21</sup> Foregone revenue is due to the State not reporting the local government contribution amount to Emergency Management Australia, which it is entitled to do. Therefore 50% of the State's local government contribution is added to its Commonwealth revenue for local government. Most eligible expenses are funded at a rate of 50% under the DRFA.

<sup>22</sup> Where States report expenses net of the local government contribution, their disaster expenses and Commonwealth revenue will be grossed up.

<sup>23</sup> When disasters occur in the ACT, it will be allocated assessed local government disaster expenses.

will ensure that all eligible local government expenses funded by States are included in the assessment for three assessment years. Table 23-7 shows the effect on the GST distribution of including local government expenses and unwinding the 2019 Update adjustment.

**Table 23-7** Effect on the GST distribution of the decision to change the natural disasters assessment and unwind the 2019 Update adjustment

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-173	-207	342	103	-68	1	-21	23	468
\$ per capita	-21	-30	65	39	-38	2	-48	93	18

Source: Commission calculation based on the 2019 Update.

- 59 The Commission notes that the decision made during the 2019 Update to remove local government net expenses was consistent with State information provided at the time and the 2015 Review intention to assess only State natural disaster recovery expenses. However, the Commission may have made a different decision during the 2019 Update if it had been made aware of States' policies regarding State and local government funding of natural disasters at that time.

## Revision policy

- 60 In some years, States may revise their net expenses. Where these revisions are material at \$10 per capita,<sup>24</sup> the Commission will make an adjustment to ensure that the correct expenses are assessed over time. If an adjustment is necessary, it will fully reflect the over or understatement of net expenses. Adjustments are only made for years that are current assessment years.
- 61 As part of the process of unwinding the 2019 Update adjustment, all revisions for 2015-16 to 2017-18 were corrected, regardless of materiality.

## Component calculations

- 62 As several States consider their natural disaster relief expenses to be confidential, component calculations are not shown at the State level. Expenses for this component by State were included in the service expenses component (Table 23-6).

## Other components

- 63 The assessments for administrative scale, native title and land rights, and national capital are discussed in Chapter 26 Administrative scale, and Chapter 29 Other disabilities.

## Category calculations

- 64 Table 23-8 brings the assessed expenses for each component together to derive the total assessed expenses for each State for the category. It shows at the component level how each disability assessment moves expenses away from an EPC distribution to obtain assessed expenses.

<sup>24</sup> The \$10 per capita materiality threshold relates to data adjustments. This is different from the \$35 per capita materiality threshold, which relates to disabilities. See the Main Report, Chapter 2 for more information.

Table 23-8 Other expenses category assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Service expenses and natural disaster relief									
EPC	935	935	935	935	935	935	935	935	935
Natural disaster relief, wage costs and regional costs	-11	-25	43	19	-33	29	-18	128	0
<b>Assessed expenses</b>	<b>924</b>	<b>910</b>	<b>978</b>	<b>954</b>	<b>902</b>	<b>964</b>	<b>917</b>	<b>1,063</b>	<b>935</b>
Other components									
EPC	120	120	120	120	120	120	120	120	120
Administrative scale	-68	-58	-42	26	86	534	709	1,372	0
National capital	0	0	0	0	0	0	16	0	0
Native title and land rights	-6	-5	2	16	-1	-7	-8	159	0
<b>Assessed expenses</b>	<b>46</b>	<b>56</b>	<b>80</b>	<b>161</b>	<b>205</b>	<b>646</b>	<b>837</b>	<b>1,651</b>	<b>120</b>
<b>Total assessed expenses</b>	<b>969</b>	<b>966</b>	<b>1,057</b>	<b>1,115</b>	<b>1,106</b>	<b>1,610</b>	<b>1,753</b>	<b>2,714</b>	<b>1,054</b>

Notes: Table may not add due to interactions between disabilities and rounding. The EPC expenses and assessed expenses are total spending per capita. The amounts for each disability are redistributions from an EPC assessment.  
The natural disaster relief component has been combined with the service expenses component because the natural disaster relief assessment is confidential.

Source: Commission calculation.

## Infrastructure assessment

- 65 States require infrastructure to support service delivery. State infrastructure requirements are assessed in the Investment category. The main driver of investment in Other expenses related infrastructure is growth in the total population. Service use disabilities that affect recurrent service delivery expenses do not affect the quantity of infrastructure each State requires to provide the average level of service.
- 66 Interstate differences in construction costs are also recognised. For a description of the Investment assessment, see Chapter 24 Investment.

## Other issues considered by the Commission

- 67 There were a number of other issues considered by the Commission, largely in response to concerns raised by States. These issues related to the method for measuring existing disabilities or requests for new disabilities that were not included in the 2015 Review assessment. The main reasons for not assessing certain disabilities identified by States are:
- the conceptual case for a disability has not been established
  - an assessment would not be material, that is, redistribute more than \$35 per capita for any State<sup>25</sup>
  - data are not available to make a reliable assessment.

<sup>25</sup> The Commission has set a materiality threshold for including a disability. The materiality test applies to the total impact the disability has on the redistribution across all revenue or expense categories in which it is assessed. To be included, a disability assessment must redistribute more than \$35 per capita away from an EPC assessment for any State.

## Cross-border disability

- 68 During the 2015 Review, the Commission applied a cross-border disability to recreation and culture expenses in the service expenses component. This was intended to recognise that the ACT's costs for library, sports grounds and other cultural and recreational services were higher due to the use of these services by New South Wales residents.
- 69 The Commission has discontinued this assessment because the evidence provided by the ACT was not sufficient to establish a conceptual case.<sup>26</sup> For more information, see Chapter 29 Other disabilities.

## Interstate non-wage costs

- 70 During the 2015 Review, the Commission decided that there were differences between the costs of providing services in different capital cities. For example, Western Australia and the Northern Territory typically have higher costs associated with attending interstate meetings than New South Wales or Victoria.
- 71 The Commission still considers that there are differences between States in their interstate non-wage costs. However, a lack of data and the difficulty in determining the magnitude of an appropriate adjustment has led the Commission to cease this assessment. This assessment was known as the 'location adjustment' during the 2015 Review.
- 72 Chapter 28 Geography includes further information on this decision.

## Capital grants for local government

- 73 The capital grants to local governments component was introduced during the 2015 Review to recognise the need for State support to local government for cultural and recreation facilities, and community amenities. The assessment used population growth as the disability, as the Commission expected that States with above average population growth would incur higher costs.
- 74 Queensland considered that population growth did not capture needs sufficiently. It said that the Commission should investigate a differential assessment because States with the most expenses are those with remote communities dispersed over vast land areas. All other States supported this change or did not comment.
- 75 The Commission has discontinued the assessment because the expense drivers are unclear. In addition, the component was not material. It redistributed less than \$2 per capita for any State in the 2019 Update.

## Mitigation expenses related to natural disasters

- 76 The ACT noted that States that invest more heavily in natural disaster mitigation can be expected to have lower natural disaster relief expenses than States that invest less in mitigation measures. New South Wales and Victoria were also concerned about the overall treatment of mitigation and disaster relief expenses.
- 77 Disaster mitigation spending does not have a separate classification in GFS and may be classified to various functional categories. It may be difficult for States to identify their

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<sup>26</sup> The discontinued assessment redistributed \$14 per capita to the ACT in the 2019 Update.

mitigation spending in a comparable manner. Furthermore, mitigation expenses are likely to be incurred alongside regular maintenance and capital expenditure projects. It may be difficult for States to determine what portion of a complex project relates to natural disaster mitigation. These difficulties in identifying the mitigation spending would also make it difficult to validate the expenses.

- 78 In addition, even if disaster mitigation expenses could be reliably identified, it is not clear what an appropriate driver might be. Actuarial studies may provide some indication of differential susceptibility to natural disasters and the need for mitigation measures. However, any indicator is likely to be affected by differences between States in where people live, as well as differences in planning and zoning policies. The Commission has concluded there are no reliable data or methods of assessing mitigation expenses.
- 79 The Commission intends to monitor this issue and consider a differential assessment of mitigation expenses if sufficient evidence is available to support an assessment.

## Effect on the GST distribution

- 80 Table 23-9 shows the extent to which the assessment for this category moves the distribution of GST away from an EPC distribution. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements. In per capita terms, the Northern Territory, the ACT and Tasmania experience the largest redistributions.

**Table 23-9 Illustrative redistribution from an EPC assessment, Other expenses, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-745	-668	103	216	71	293	315	416	1,413
\$ per capita	-90	-98	20	81	40	538	715	1,689	54

Note: The redistribution is the difference from an EPC assessment derived using 2016-17 to 2018-19 assessed expenses and 2020-21 GST revenue.

This table includes the effect of unwinding the 2019 Update natural disaster relief assessment and adjustment.

Source: Commission calculation.

- 81 The main reasons for these redistributions are the differences between States in their administrative scale expenses, regional costs, native title and land rights expenses and natural disaster relief expenses.
- 82 The main reasons for the redistributions for each State are as follows.
- New South Wales, Victoria and Queensland have below average administrative scale expenses. Other States have above average expenses.
  - The Northern Territory has above average needs due to regional costs and native title and land rights. Other States have needs that are not materially different from the average.
  - Queensland and the Northern Territory have above average per capita natural disaster relief expenses. Other States have below average expenses.
  - The ACT has above average planning needs due to its status as the national capital and associated mandated requirements due to the National Capital Plan.
- 83 Table 23-10 provides a summary of the main disabilities contributing to the redistribution from an EPC assessment for this category.

Table 23-10 Major reasons for the illustrative redistribution, Other expenses, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Administrative scale	-565	-391	-217	64	163	305	313	328	1,173
Natural disaster relief	-122	-203	308	72	-72	9	-17	25	414
Native title and land rights	-51	-40	14	51	-2	-4	-3	35	100
Wage costs	15	-9	-12	17	-21	-20	17	13	62
Regional costs	-20	-23	11	13	4	3	-2	15	45
National capital	-2	-2	-1	-1	0	0	7	0	7
<b>Total</b>	<b>-745</b>	<b>-668</b>	<b>103</b>	<b>216</b>	<b>71</b>	<b>293</b>	<b>315</b>	<b>416</b>	<b>1,413</b>

Note: The redistributions from an EPC assessment are illustrative. Disabilities may not add due to rounding.

Source: Commission calculation.

## Changes since the 2019 Update

84 There are a number of method and data changes since the 2019 Update as well as data revisions and changes in State circumstances. Table 23-11 shows the effect of these changes.

Table 23-11 Changes to the GST redistribution between the 2019 Update and the 2020 Review

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Method and data changes	-58	-36	-59	-77	33	88	4	105	230
Data revisions	-172	-207	341	101	-65	1	-21	21	464
State circumstances	14	1	35	-16	-14	-3	-13	-2	49
<b>Total</b>	<b>-216</b>	<b>-242</b>	<b>317</b>	<b>8</b>	<b>-46</b>	<b>85</b>	<b>-30</b>	<b>124</b>	<b>534</b>

Source: Commission calculation.

## Method and data changes

- 85 The ACT cross-border disability for recreation and culture expenses has been discontinued due to lack of evidence supporting the disability.
- 86 Capital grants to local government are no longer being assessed because the driver of spending is unclear and the assessment is not material.
- 87 National parks and wildlife expenses and pipeline expenses were previously part of the services expenses component, but are now included in the Services to communities category and Transport category, respectively. These changes are due to aligning categories with new GFS classifications. National parks and wildlife expenses and pipeline expenses continue to be assessed EPC.
- 88 National capital allowances for roads have been discontinued and the national capital planning allowance has been updated to reflect current needs.
- 89 User charges are netted off expenses. They mainly comprise FESLs.
- 90 The regional costs disability now uses hospitals and schools data. A 25% discount continues to apply to the general gradient used in this category.
- 91 No adjustment has been made for interstate non-wage costs.

## Data revisions

- 92 The natural disaster relief expense assessment includes State payments for local government expenses, net of Commonwealth revenue. Assessed local government contributions are deducted. For States that report expenses net of their local government contribution, their local government expenses and revenues are grossed up. Local government expenses will be imputed for the ACT in years where the ACT experiences disasters.

## Changes in State circumstances

- 93 Queensland experienced more costly disasters in 2018-19, increasing its GST share for natural disaster relief expenses and reducing the GST share for other States.
- 94 Administrative scale expenses have grown more slowly than the growth in the GST pool. This increased the GST share for the three largest States and reduced the GST share for other States.

## Updating the assessment

- 95 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.
- The Commission will update the following data annually:
    - service expenses and the share of service expenses to which regional costs and wage costs disabilities apply
    - natural disaster relief expenses and revenue
    - data contributing to the assessment of native title and land rights, and part of the national capital assessment
    - administrative scale expenses and parts of the national capital expenses will be adjusted for inflation annually.

# 24 Investment

## Summary of the assessment

The Investment assessment covers State gross investment, regardless of whether that investment produces new assets or replaces existing, depreciated, assets.

The Commission assesses State investment as the amount each State would invest to finish the year with the average per capita stock of new and replacement infrastructure, taking account of the growth in its user populations and relative cost levels.

The main driver of the assessment is growth in the populations who use services. States whose user populations are growing require more investment. The relative costs of infrastructure and the average increase in infrastructure per capita also drive the assessment.

Investment for every expense category is assessed separately based on relevant user populations and costs. Investment in land and other non-produced assets is assessed on an equal per capita basis and does not affect the GST distribution.

## Service overview

- Both the level of investment and the stock of physical assets varies considerably between States, as shown in Table 24-1. Total investment has grown considerably from 2015-16, reaching \$32.3 billion in 2018-19<sup>1</sup> (Table 24-2), including:
  - investment in produced assets of \$31 billion
  - investment in non-produced assets (mostly land) of \$1.3 billion.
- Physical assets have grown steadily between 2015-16 and 2018-19 reaching \$633.6 billion in 2018-19 (Table 24-2). The change in the level of physical assets between two years reflects not only the level of investment, but also the extent to which those assets depreciate, and are revalued.

Table 24-1 Investment and physical assets by State, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<b>Investment</b>									
\$ million	14,841	5,729	6,315	2,275	1,173	492	635	790	32,252
\$ per capita	1,846	878	1,250	873	673	925	1,501	3,219	1,282
<b>Physical assets</b>									
\$ million	243,260	124,336	120,591	61,095	44,267	11,562	15,112	13,400	633,622
\$ per capita	30,263	19,048	23,876	23,446	25,397	21,747	35,698	54,578	25,178

Note: Investment shown on a gross basis, excluding Commonwealth payments treated as having no impact on the assessment. Includes investment and assets in housing and urban transport public non-financial corporations (PNFCs). Assets exclude non-produced assets (land).

Source: Commission calculation using State budget data and Commonwealth Final Budget Outcome, 2018-19.

<sup>1</sup> Total State investment less \$2.7 billion in Commonwealth payments treated as having no impact on the assessment.



**Table 24-2 Investment and physical assets, all States. 2015-16 to 2018-19**

	2015-16	2016-17	2017-18	2018-19
Investment (\$m)	22,131	27,363	30,129	32,252
Physical assets (\$m)	549,496	568,562	598,673	633,622

Note: Investment shown on a gross basis, excluding Commonwealth payments treated as having no impact on the assessment. Includes investment in and assets in housing and urban transport PNFCs. Assets exclude non-produced assets (land).

Source: Commission calculation using Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.

## State roles and responsibilities

- 3 States build or purchase infrastructure to deliver services to their residents. The extent to which they invest in infrastructure has varied over time. Some services, such as roads and housing, are inherently about the provision of infrastructure. They are, by their nature, capital intensive. The recurrent expenses associated with these services are much smaller than the associated capital stocks.
- 4 Most other services require capital to provide the service, but the service also entails significant recurrent expenditure. Within these types of services, the capital intensity can vary considerably.
- 5 Different services require different types of assets, and different types of assets depreciate at different rates. Roads and buildings tend to last longer, and hence depreciate at a slower rate, while vehicles and equipment tend to depreciate at a faster rate, and land does not depreciate at all.

## Commonwealth roles and responsibilities

- 6 The Commonwealth provides funding to the States for infrastructure. Table 24-3 shows the main Commonwealth payments to the States for infrastructure in 2018-19.
- 7 The largest payments are provided for road infrastructure projects and for the Infrastructure Growth Package — Asset Recycling Initiative.
- 8 The complete list of Commonwealth payments and their treatment is available on the [Commission website](https://cgc.gov.au), (<https://cgc.gov.au>).<sup>2</sup>

<sup>2</sup> Most Commonwealth payments to the States affect the grant distribution but some do not. The Commission refers to payments that affect the grant distribution as 'impact' payments. For more information, see Chapter 5 Commonwealth payments.

**Table 24-3 Commonwealth payments to the States for Investment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Infrastructure Investment Program - Road investment (\$m)	919	99	884	506	947	72	0	17	3,445
Infrastructure Growth Package - Asset Recycling Initiative (\$m)	335	0	0	0	0	0	44	28	408
Infrastructure Investment Program - National Rail Program (\$m)	27	0	2	1	220	0	0	0	250
Infrastructure Growth Package - Western Sydney Infrastructure Plan (\$m)	246	0	0	0	0	0	0	0	246
Other (\$m)	110	57	122	216	153	109	6	155	930
<b>Total (\$m)</b>	<b>1,638</b>	<b>157</b>	<b>1,009</b>	<b>723</b>	<b>1,320</b>	<b>182</b>	<b>51</b>	<b>201</b>	<b>5,278</b>
<b>Total (\$pc)</b>	<b>204</b>	<b>24</b>	<b>200</b>	<b>277</b>	<b>757</b>	<b>341</b>	<b>120</b>	<b>818</b>	<b>210</b>

Note: Table shows major payments only. Commonwealth Own Purpose Expenses (COPEs) are not included. Payments that the Commission treats as 'no impact' are included in the table.

Source: Commonwealth Final Budget Outcome, 2018-19.

## Category structure

- 9 The assessment of the Investment category is undertaken in 14 components. Table 24-4 shows the category's assessment structure and the size of each component. For each component, the disabilities are the relative size and the change in size of the relevant user population, the exact composition of which varies for every component.<sup>3</sup>

## Category and component investment

- 10 The main data sources for calculating category and component investment are Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.<sup>4</sup>

<sup>3</sup> The user population for a State in a component is calculated as State population multiplied by the relevant stock factor for the State.

<sup>4</sup> Unless otherwise stated, category and component expenses for the first two assessment years are sourced from Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS). States provide data for the most recent assessment year because GFS data are not available in time for the annual update.

Table 24-4 Category structure, Investment, 2018-19

Component	Investment	Asset stock
	\$b	\$b
Schools	3.1	64.7
Post-secondary education	0.4	7.0
Health	4.1	63.2
Housing	0.5	57.6
Welfare	0.2	2.6
Services to communities	0.8	11.2
Justice	2.3	21.9
Rural roads	5.1	155.1
Urban roads	5.9	77.7
Urban transport	7.0	124.9
Non-urban transport	0.0	1.0
Services to industry	0.0	4.1
Other expenses	1.6	42.7
Land (a)	1.3	na
<b>Total - produced assets</b>	<b>31.0</b>	<b>633.6</b>
<b>Total category</b>	<b>32.3</b>	

Note: For each component, disabilities are growth in assessed user populations and number of assessed users.

(a) The land component includes all non-produced assets.

na Investment in land is assessed equal per capita (EPC), stocks are not assessed.

Source: Commission calculation using ABS GFS and State budget data.

## Assessment approach

- 11 The Investment assessment provides each State with the capacity to:
  - invest in additional physical assets to provide the State's new user population added through the year with the same per user stock the existing user population had at the start of the year, at the capital intensity of that State's user population
  - invest in physical assets to ensure the user population receives the increase in assets brought about by the replacement of depreciated assets and the national increase in capital intensity during the year.
- 12 A State's user population is calculated by multiplying stock factors by the population. User populations are calculated at the beginning and end of year and the difference between these is the population of new users.
- 13 The relative cost of providing physical assets is captured by the capital cost factors, which allows for the differences between States in the price of materials and other unavoidable factors affecting the cost of providing infrastructure.

## Gross investment

- 14 The assessment includes both investment and depreciation expenses. The Commission considers a gross investment assessment is conceptually valid, is simpler, reduces volatility (by combining net investment expenditure with more stable depreciation expenses), reduces

the occurrence of negative investment and is unlikely to be materially different to separately assessing depreciation and net investment.

- 15 Where previously the same stock disabilities were applied in the net investment and depreciation assessments separately, now they are applied in the same assessment. Algebraically, the combination of drivers remains almost identical whether these assessments are made separately or together.<sup>5</sup>
- 16 Another consequence of moving to a gross assessment is that opening stock no longer represents the assets held at the beginning of the year. Instead, opening stock now represents the 'assets held at the start of the year that would not be consumed during the year' or alternatively, 'the stock of assets that would be held at the end of the year if States purchased no replacement or new assets during the year'.
- 17 Most States did not oppose a gross assessment, on the basis that it is appropriate to assess assets and the associated consumption of assets together and it is unlikely to produce a materially different outcome.
- 18 Some States considered that a combined depreciation and investment assessment would be less transparent and potentially misleading. They argued a gross assessment does not resolve issues of volatility or negative investment, but simply hides them.
- 19 Western Australia considered the transparency of the assessment would be compromised in a gross assessment because opening stocks no longer reflect the value of assets at the start of the assessment year. Western Australia considered this would make the assessment less transparent. They also noted that a gross investment assessment results in timing mismatches between cost factors and populations and between assessed gross investment and standard investment. The Commission recognised some mismatches exist in the assessment. However, the Commission considered Western Australia's proposal to use lagged stock data to be less contemporaneous.
- 20 The Commission accepted that moving to a gross investment assessment alters the way in which the assessment is presented. However, the Commission considered, on balance, a gross assessment is a more transparent and simpler way of assessing all infrastructure needs.

## Functionalisation

- 21 In the 2015 Review assessment, stocks, investment and stock factors for 10 categories were combined in one component. This approach resulted in some perverse outcomes. This is because of the assumption that investment in each category was equal to its proportion of stock, not actual investment. This led to revaluations of particular stocks having unduly large effects on GST shares in some circumstances. It also made it difficult to attribute changes in GST shares to a real world phenomenon, and contributed to the difficulty in understanding and validating the assessment.
- 22 Gross investment needs for each category are now assessed separately in a functionalised assessment of investment expenses. By applying stock factors and populations directly to the

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<sup>5</sup> Under the 2015 Review approach depreciation is assessed in proportion to each State's share of adjusted closing population while, under a combined approach, it is implicitly assessed in proportion to each State's opening adjusted user population. This difference is not material.

relevant stocks and using actual investment by category, the transparency and accuracy of the assessment has improved.

- 23 Western Australia did not support functionalisation. It considered that moving away from a high level assessment would make the assessment less transparent and that data are not of sufficient quality to support a functionalised assessment. It also argued that functionalisation is not required to solve the issue of revaluations.
- 24 The Commission and most other States considered that transparency and understanding are better achieved by a suite of stock disabilities that can be more readily related to real world phenomena. The majority of the data needed for the assessment were used in the 2015 Review assessments and the Commission is confident that these data remain fit for purpose.
- 25 The Commission agreed that revaluations could be addressed in a non-functionalised assessment. However, the use of actual stock and investment data is more accurate and requires fewer assumptions.

## Assessing stock requirements

- 26 The assessment captures infrastructure needs related to changes in each State's user populations within the year. It does so by applying current year population and stock factors to end of year stocks and the previous year population and stock factors to start of year stocks.

## Component stock factors

- 27 Recurrent disabilities are used as the basis for the capital stock factors in each category. Where recurrent disabilities are not considered relevant to stock requirements they have been removed from the stock factor or adjusted to capture needs relevant to stock requirements. Table 24-5 shows the differences between the recurrent and capital influences captured for each category. For most categories these differences also applied in the 2015 Review. The differences between recurrent and capital assessments in Health, Welfare and Services to communities were first made in this review.

**Table 24-5 Differences between indicators of recurrent expenses and capital requirements, 2020 Review**

Component	Difference from recurrent indicators
Schools education	Capital requirements are only assessed for government students. An adjustment is applied for additional costs of providing assets to Indigenous students in schools with more than 25% Indigenous enrolments. No other cost weights are included.
Post-secondary education	Indigenous and remoteness cost weights are not included.
Health	Cross-border hospital use is recognised for investment.
Welfare	In the case of concessions, the need to provide concession payments does not relate to infrastructure need.
Housing	First home owner grants have no bearing on State capital requirements. Additional costs for Indigenous households not in Indigenous specific housing are not included in the capital assessment.
Justice	The same disabilities are applied as in the recurrent expenses.
Services to communities	No disabilities are applied to capital needs.
Services to industry	The same disabilities are applied as in the recurrent expenses.
Rural roads	The same disabilities are applied as in the recurrent expenses, although different weights are used to aggregate the disabilities.
Urban roads	The same disabilities are applied as in the recurrent expenses, although different weights are used to aggregate the disabilities.
Non-urban transport	The same disabilities are applied as in the recurrent expenses.
Urban transport	Blended approach that recognises populations of State populations living in urban centres through the population-squared approach (25%) and urban centre characteristics on the costs (75%).
Other expenses	No disabilities are applied to capital needs.

Note: Recurrent wage disabilities are not assessed in the measure of capital stock requirements, except for Health and Justice. In these components the regional costs are captured by the stock requirements as they are not able to be removed from the recurrent expense measures. The treatment of recurrent regional cost disabilities is discussed from paragraph 33.

## Averaging stock disabilities

- 28 In the 2010 Review, three year averaging of stock factors was introduced to reduce the volatility generated primarily from capturing the change in the stock factors within the year. However, stock factors are estimated with reference to population. A stable stock level (such as student numbers or rural road length) can result in a volatile stock factor (student numbers per capita). To average these stock factors and then apply them to non-averaged population levels can actually increase rather than reduce the volatility of the assessment as well as reducing its accuracy.
- 29 Most States supported the use of single year disabilities. Tasmania expressed concern over the potential for volatility to increase if averaging were removed from all category stock factors. It suggested using single year disabilities for the rural roads assessment only.
- 30 While there may be some sources of volatility in stock factors that three year averaging reduces, the Commission considers that the net effect of averaging across all categories is to increase volatility and reduce reliability. In this review, single year stock disabilities are applied to opening and closing stocks.

## Administrative scale

- 31 In the 2015 Review, to measure relative State need for investment, the Investment assessment used recurrent disabilities from each category incorporating administrative scale.

This reflected that a portion of the asset stock States own relate to the fixed minimum administrative functions.

- 32 In the 2020 Review, the Administrative scale assessment has been redeveloped. This approach incorporates the depreciation of assets associated with the fixed minimum administrative functions. The nature of the concept that administrative scale captures is inherently fixed, and not subject to growth. This means that there should be no net investment in the function. As such, administrative scale disabilities are not assessed in the Investment assessment in the 2020 Review.

## Cost of infrastructure

### Regional costs

- 33 In this review the recurrent regional costs assessments have changed significantly. In the Health and Justice categories, regional costs are embedded within the assessment and are unable to be split from differences in use between regions. In these assessments the cost weight for remote areas reflects both the higher cost of comparable services, and the high level of service provided. Ideally, the Commission would aim to retain the measure of the higher level of service provided in the stock factors, but replace the measure of higher costs of recurrent service provision with Rawlinsons' estimates of the higher cost of construction. However, it is not possible to separate these elements, so the Commission has retained the recurrent costs, and not applied the Rawlinsons regional cost gradient in these categories. Implicitly it has assumed that for those services the effect of regional influences on recurrent costs is similar to its effect on the cost of investment.
- 34 Western Australia advocated subtracting the 2015 Review regional cost gradient from the stock factor calculation and then adding Rawlinsons' regional cost gradients. The Commission considered that approach to be unnecessarily complex.

### Blending

- 35 In the 2015 Review, the Commission introduced a construction cost index to measure capital costs. Construction cost indices published by Rawlinsons were considered reliable and comprehensive indicators of underlying differences in construction costs. However, due to some concerns about how well the indices capture some cost differentials, such as those for road construction and equipment, the Commission decided to assess capital cost disabilities as a blend of undiscounted factors based on Rawlinsons' construction cost indices and the recurrent wage and regional cost factors.
- 36 In this review, the Commission considers that blending the interstate differences in construction costs with interstate differences in wage costs remains the best measure of interstate differences in the costs of investment. However, the increased usage of category specific recurrent regional costs gradients reduces the justification for using a general recurrent regional cost gradient. With the exception of a small number of categories described below, Rawlinsons' measure of differences in regional costs is applied to these interstate cost differences.
- 37 Western Australia opposed blending construction costs with the wages assessment on the grounds that construction costs contains Rawlinsons' estimate of differences in wages of construction workers. However, while both the wage cost and Rawlinsons' factors include measures of wage costs, blending is still warranted given the uncertainty over the coverage of the Rawlinsons indices. In addition, factors contribute equally (50/50) to the assessment so

there is no double counting. Therefore, the use of a blended assessment allows the Commission to use data in a way that reflects its confidence in that data without any double counting and while fully assessing the cost differences between States.

- 38 Table 24-6 shows the cost factor applied in each component. For most categories, the assessed construction costs are calculated using the share of population in each region. For roads, the construction costs in each region are applied to the relevant indicator: population in UCLs over 40,000 for urban roads and rural road length for rural roads. Only the interstate gradient is considered relevant to urban transport. Because the recurrent regional cost influences cannot be excluded from the capital stock factors in Health and Justice, these influences are excluded from the cost factor to avoid double counting. Only interstate differences in construction are applied to investment in these components.

**Table 24-6 Investment, cost factor by component, 2020 Review**

Component	Cost factor
Schools	Regional and Interstate
Post-secondary education	Regional and Interstate
Health	Interstate
Housing	Regional and Interstate
Welfare	Regional and Interstate
Services to communities	Regional and Interstate
Justice	Interstate
Rural roads	Regional (a) and Interstate
Urban roads	Regional (a) and Interstate
Urban transport	Interstate
Non-urban transport	Regional and Interstate
Services to industry	Regional and Interstate
Other expenses	Regional and Interstate
Note: Interstate refers to the blended Rawlinsons' interstate differences in construction costs with interstate differences in wage costs. Regional refers to the Rawlinsons State regional indices, unless otherwise noted.	
(a) The regional cost gradient weighted by a category specific distribution of the relevant indicator/population, rather than the distribution of the total population.	

## Negative assessed investment

- 39 There are a few occasions where one or more States will be assessed as requiring fewer assets at the end of a year than they did at the start of the year. This results in a State being assessed as having negative investment needs, sometimes referred to as having to 'disinvest'. This can occur when:
- total State gross investment is negative
  - a State's user population growth is low or negative.<sup>6</sup>
- 40 No State has objected to the Commission assessing negative investment in the first scenario, when that is what States are collectively doing. However, in the second scenario, the

<sup>6</sup> The level of user population growth that results in negative investment will depend on the rate of change in the national capital stock per user.



Northern Territory is concerned that States do not generally sell assets, saying that it is inappropriate for the assessment to determine that the Northern Territory would do so under average policy. The Northern Territory proposed a number of alternative approaches, including assessing investment based upon shares of national population growth, amending the assessment by imposing a floor of zero on assessed investment, or not applying stock and/cost factors in cases of disinvestment.

- 41 The Commission accepted that in practice, other than for public housing and occasionally for schools, States rarely sell infrastructure. However, it is worth considering what horizontal fiscal equalisation would represent in a simple two State model.
- 42 Consider two States which start the year with equal per capita assets. If there is a net migration of population from State 2 to State 1, the influx of population will dilute the per capita assets held by the population in State 1 while per capita assets held by the population who remain in State 2 will increase. If each State were to hold equal per capita assets at the end of the year, State 1 would have to construct this level of assets (such as schoolrooms, hospital beds and public housing) while State 2 would have to divest its above average (excess) assets. That is, State 2 is assessed to have negative investment needs. If a zero investment floor were applied for State 2, it would retain an above average level of assets, while State 1 would not have the capacity to increase its assets to the average per capita. It was precisely to address this population dilution effect in a timely fashion that the Investment assessment was designed to achieve when introduced in the 2010 Review.
- 43 The Commission aims to give States the capacity to hold the level of infrastructure appropriate for their circumstances. The introduction of a floor would distort the assessment and result in slower growing States having the capacity to hold above average per capita assets and faster growing States below average per capita assets.
- 44 Because population growth is volatile, in some years, States will have growth below their long term average, and in other years growth will be above the long term average. The introduction of a floor in low growth years would mean that over the long term, States that occasionally experience low growth and hence negative investment would be assessed as having higher needs than States with more stable population growth. Accordingly, the Commission was not persuaded that it would be appropriate to impose a floor of zero on assessed investment.
- 45 The Northern Territory was also concerned that the application of the cost factor to negative investment implies that it can receive higher returns on the sale of assets to reflect these higher costs. The Northern Territory argued that this is not the case, especially in Indigenous communities where construction costs are high and there are no private markets for these assets. The Commission agreed with this argument. Because States will be assessed as needing to disinvest in areas at times when growth, and presumably demand for such assets is low, differences in construction costs between States, or between regions, are unlikely to have a strong relationship with the value that States could receive for assets if they were to sell them.
- 46 Victoria considered that, as gross investment represents the net effect of both asset sales and purchases, if the Commission accepts that assets sales should not attract a differential cost disability, then the gross investment to which it contributes should not either. However, Victoria's argument would conceptually lead to a larger differential assessment, as high construction costs would be applied to all asset purchases, not just the net effect of asset purchases and asset sales. It is not, therefore, an argument to remove the disability.

- 47 Western Australia opposed not applying cost factors to negative assessed investment because it would mean that States with below average construction costs would be assessed as being able to sell assets for more than they could purchase them. The Commission considered that market conditions are likely to differ at times when States are assessed as being required to invest, as opposed to when they are assessed as being required to disinvest. However, the Commission did not accept, in the latter case, differences in construction costs between States, or between regions, are likely to have a strong relationship with the value that States could receive for assets if they were to sell them.
- 48 In the 2020 Review, cost factors will no longer be applied to negative assessed investment.

## Data

- 49 Data used in the assessment of investment are mainly provided by the ABS from the GFS and from the States.
- Investment data by category — ABS provides GFS data (General government (GG) and housing and urban transport Public non-financial corporations (PNFCs) for early years, State data are provided for the latest year.
  - Asset data by category – States provide GG and PNFC data for all assessment years.
  - Stock disabilities — derived in the relevant category assessments.
  - Population data — from the ABS.
  - Cost disabilities — construction cost disabilities are derived from the Rawlinsons *Australian Construction Handbook*.<sup>7</sup>
- 50 Interstate wage cost differences are derived as described in Chapter 27 Wage costs.

## Category calculations

- 51 Table 24-7 shows the calculation of assessed investment in the schools component in 2018-19. This illustrates the methods used. The same methods are applied for other components to produce the assessed investments shown in Table 24-8. In this example, assessed users refers to cost weighted government school students; in other cases it refers to the relevant user population which can be calculated as the stock factor multiplied by the State population.<sup>8</sup>

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<sup>7</sup> *Australian Construction Handbook*, Rawlinsons Publishing.

<sup>8</sup> For presentation purposes, in Table 24-7, States' user populations (population \* stock factor) have been scaled to the number of students in government schools. Where a relevant defined user population exists, population \* stock factor has been scaled to this value. This scaling has no effect on the outcomes of the assessment, but can assist with analysis.

Table 24-7 Investment assessment, schools component, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Assessed school students									
Start of year ('000)	790	600	545	277	172	56	41	35	2,516
End of year ('000)	797	615	553	281	173	56	43	34	2,554
Assessed opening stock (\$m)	19,339	14,685	13,328	6,776	4,204	1,375	1,015	856	61,578
Assessed closing stock (\$m)	20,202	15,570	14,023	7,127	4,393	1,431	1,086	865	64,697
Assessed change in stock (\$m)	863	885	695	351	190	56	71	9	3,119
Cost factor	1.022	0.952	0.986	1.063	1.006	0.959	1.015	1.184	1.000
<b>Assessed investment (\$m)</b>	<b>1,233</b>	<b>1,022</b>	<b>900</b>	<b>405</b>	<b>283</b>	<b>118</b>	<b>57</b>	<b>68</b>	<b>4,085</b>
<b>Assessed investment (\$pc)</b>	<b>153</b>	<b>157</b>	<b>178</b>	<b>155</b>	<b>162</b>	<b>221</b>	<b>135</b>	<b>278</b>	<b>162</b>

Note: Numbers may not add due to rounding.

Source: Commission calculation.

Table 24-8 Investment assessment by component, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Schools	885	845	687	374	192	54	72	11	3,119
Post-secondary	137	113	83	36	24	8	7	2	411
Health	1,233	1,022	900	405	283	118	57	68	4,085
Housing	142	186	123	12	5	6	7	-24	458
Welfare	79	49	54	27	15	5	3	8	241
Services to communities	248	206	156	77	48	15	14	6	771
Justice	703	538	468	237	150	54	31	70	2,251
Rural roads	1,212	615	1,401	907	436	126	10	412	5,119
Urban roads	1,923	1,587	1,263	584	326	98	118	44	5,943
Urban transport	2,771	2,712	865	342	190	25	67	-4	6,968
Non-urban transport	13	11	8	4	2	1	1	0	40
Services to industry	-9	0	-8	16	2	4	0	2	8
Other expenses	503	450	327	143	89	29	28	8	1,577
Land	403	327	253	131	87	27	21	12	1,261
<b>Total</b>	<b>10,242</b>	<b>8,661</b>	<b>6,582</b>	<b>3,295</b>	<b>1,849</b>	<b>571</b>	<b>436</b>	<b>616</b>	<b>32,252</b>

Note: Numbers may not add due to rounding.

Source: Commission calculation.

## Other issues considered by the Commission

52 The Commission considered a number of other issues, largely in response to concerns raised by States. These issues related to the method for measuring existing disabilities or requests for new disabilities that were not included in the 2015 Review assessment. The main reasons for not assessing certain disabilities identified by States are:

- the conceptual case for a disability has not been established

- an assessment would not be material, that is, redistribute more than \$35 per capita for any State<sup>9</sup>
- data are not available to make a reliable assessment.

## Treatment of land

- 53 New South Wales and Victoria did not support an equal per capita (EPC) assessment of land purchases. They supported an assessment of the higher land costs in densely populated urban areas. Victoria also noted the impact of high land costs in growing outer areas of Melbourne. New South Wales argued prohibitive urban land costs result in the use of high cost tunnelling for road projects.
- 54 Most other States supported an EPC assessment of land because State policies in relation to the valuation and accounting of transactions in land differ.
- 55 It is not clear that a simple value of land is the appropriate driver, nor that the circumstances under which States acquire land are consistent and comparable. In any case, with total net investment in land at only \$50 per capita an assessment is unlikely to be material. Therefore, the Commission has retained an EPC assessment of land purchases.
- 56 The Commission understands that Sydney and Melbourne undertake much more tunnelling than smaller cities, and that this is much more expensive. However, as road tunnels are generally toll roads, the additional costs of construction are not generally borne by the State governments. The Commission considers that the additional costs of rail tunnels are broadly captured by the regression model developed by the transport consultants.
- 57 Victoria raised a related issue, with the cost of construction of brownfields developments. This issue is considered in Chapter 28 Geography.

## Construction costs on Indigenous land

- 58 The Northern Territory provided evidence of the increased costs of providing infrastructure in Indigenous communities due to the long consultation and approvals process, meeting Indigenous employment targets and cultural considerations such as burial sites and cursed land which can result in the necessity to build in less cost effective areas.
- 59 The Commission considered there was strong conceptual case for assessing higher costs associated with constructing infrastructure on Indigenous land. Cultural considerations, such as those mentioned by the Northern Territory, are not captured by Rawlinsons' regional indices and are therefore not reflected in the cost factor.
- 60 However, in the absence of data on the magnitude of these costs from the Northern Territory or any other States, it is not possible to determine the appropriate disability weight. The Commission intends to review the available data as part of the next review program.

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<sup>9</sup> The Commission has set a materiality threshold for including a disability. A disability assessment must redistribute more than \$35 per capita away from an equal per capita (EPC) assessment for any State to be included. The materiality test applies to the total impact the disability has on the redistribution of funds across all revenue or expense categories in which it is assessed.

## Physical environment

- 61 The Northern Territory considered that the impact of physical environment factors on infrastructure needs should be considered in the 2020 Review. It referred to a consultant's findings<sup>10</sup> in the 2015 Review that environmental characteristics have the largest impact on the cost of roads and a significant impact on public schools and housing.
- 62 It noted the difficulties associated with providing infrastructure in the wet season which add significantly to project costs and are not sufficiently captured by the current construction cost assessment based on Rawlinsons' indices.
- 63 In the 2015 Review, the Commission did not make a separate assessment of environmental influences based on the consultant's findings because some influences were captured by the State specific Rawlinsons' indices in the construction cost factor and there was no way to avoid double counting those influences.
- 64 In this review, the Commission considers that without additional nationally consistent climatic and cost data, it is still not possible to make an assessment, nor is it possible to ensure there is no double counting with influences already recognised in the cost factor.

## Population growth and asset utilisation

- 65 Western Australia argued that the effect of population growth on asset needs is not as direct as is assumed in the Commission's model. They considered States build assets in advance of demand, and that States with more volatile population growth face greater risks of stranded capital, as some of the assets they build may not be fully utilised if projected growth does not eventuate.
- 66 New South Wales and Tasmania considered that an assessment reflecting the relative utilisation of assets would be difficult to develop, particularly because there are likely to be efficiency savings associated with younger assets which would somewhat offset the higher construction costs and the benefits would be hard to quantify.
- 67 Victoria considered it would be difficult to quantify the impact of the age of asset stock on expense needs to acquire additional assets. It noted assets can be built both in anticipation of future demand and in response to current demand. A measure of capacity utilisation and the relationship with investment expenses would be required in order to include a disability concerning utilisation of assets. The 2015 Review assessment provides States with the capacity to provide infrastructure over a period of time.
- 68 The ACT did not consider further investigation of a disability necessary. The value of an existing asset reflects its initial purchase or construction cost less depreciation. As long as a national standard of valuation is adhered to and they are kept up to date there is no need to quantify the relative benefits generated or costs of maintenance.
- 69 There are many mechanisms through which faster growing States with newer assets could face different cost profiles associated with constructing and maintaining assets, and flow on recurrent expenses effects associated with the different asset mix. Different mechanisms lead to fast growing States having higher and lower overall costs. None of these mechanisms

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<sup>10</sup> Impact of environmental characteristics on asset costs, Pottinger and AECOM, 27 June 2013. This consultant's report is available on the Commission website, (<https://cgc.gov.au>).

can be reliably measured. It is not clear whether the net effect would be to increase or decrease costs for faster growing States.

- 70 Western Australia's argument that unpredictable population growth is more difficult to plan for than predictable growth is potentially relevant to the extent to which States build assets in anticipation of demand, rather than have over-used assets and then build to reduce excessive congestion of hospitals, prisons or transport. It is not the variability of population growth that is important but its predictability. Some sources of population growth variability are more predictable than others. The predictability of the population distribution is also more important than the predictability of total State population. It is not clear how the Commission could construct a disability to assess State Treasuries' ability to accurately predict future asset demand.
- 71 Consider a hypothetical example where a State builds a full range of assets for 1% additional population growth that may not arrive when expected. If that population does not arrive, the State will have temporarily stranded capital. States, on average, have \$25,000 of physical assets per capita. If a State's volatile population growth means it needs to build new assets for 1% population growth above its, as yet unknown, actual population growth, then it will need to build \$250 worth of assets per capita. Those assets will be useful once the population eventually arrives, but in the meantime, at 5% interest, it pays \$13 per capita interest charges on those stranded assets. Even with very generous assumptions about the differences between States in the predictability of population growth and about the tendency of States to build assets in all classes in advance of demand, an adjustment is not approaching materiality.

## Public-private partnerships

- 72 Tasmania and the ACT considered there was a conceptual case for an assessment reflecting the difficulties smaller States face in attracting private investment through Public Private Partnerships (PPPs) due to relatively small infrastructure capacity constraints, limited capacity for user pays infrastructure and difficulty attracting labour. The ACT suggested that PPPs provide a value for money advantage of 10% compared with direct procurement. However, Tasmania noted it would be difficult to quantify.
- 73 New South Wales and Victoria did not support an assessment. Victoria considered the need for PPPs, in particular user pay PPPs, are likely to be restricted to major cities where congestion costs are high.
- 74 In 2018-19, States acquired \$849 million of assets under financial leases. Accepting the ACT assertion that PPPs attract a saving of 10% over traditional direct investment would mean the national average saving is around \$4 per capita. It seems unlikely that the differential access States have to PPPs would represent a material adjustment.
- 75 The Commission also saw merit in Victoria's argument that the primary reason that smaller States do not attract user pays PPPs is that they have less need for road tunnels or other infrastructure that warrant it.

## Measure of population growth following a census

- 76 The Commission considered that population growth should be measured by the change in population levels, rather than births, deaths and net migration. The Commission intends that,

in updates using the 2020 Review methods, any intercensal difference arising in the 2021 Census will be incorporated into the measure of population growth.

- 77 The ACT supported the proposal. Western Australia and the Northern Territory did not support using population levels. Western Australia did not consider it appropriate to determine the treatment of the intercensal error in the 2021 Census until the circumstances concerning any errors are determined. It also queried whether the ABS view that its data were fit for purpose reflected a consideration that the data were fit for the Commissions specific purposes.
- 78 The Northern Territory supported excluding the intercensal discrepancy as it is not a measure of population growth, rather an error adjustment.
- 79 The 2020 Review assessment refers to user populations, derived by combining population and stock factors, as the driver of change. Therefore, the same concept of population should be used to generate stock factors as is used to generate the population measure. As total published ABS populations are used to produce stock factors (they often rely on disaggregated estimated resident population (ERP)), total published ABS populations must be used to measure population growth.

## **Presentation of the Investment assessment**

- 80 In a functionalised assessment, investment could be shown in each category with recurrent expenses, or investment associated with each category could be grouped and presented together. Accordingly, the Commission considered whether it is more helpful to consider schools investment as part of schools, or part of total investment.
- 81 The ACT and the Northern Territory considered investment should remain a distinct assessment to maintain transparency (the ACT) and to avoid introducing volatility into the relatively smooth recurrent assessments (the Northern Territory). Tasmania considered there were benefits in presenting capital expenditure together with recurrent expenditure, but understood it would introduce volatility. It also noted if gross investment is assessed, it would not be possible to separately identify recurrent and capital expenses.
- 82 The Commission will continue to assess investment centrally, in a single investment category, with components for investment associated with each expense category. However, as investment will be assessed by category, it will be possible for States to aggregate recurrent and capital expenses in their own analysis.

## **Effect on the GST distribution**

- 83 Table 24-9 shows the extent to which the assessment for this category differs from an EPC assessment of investment expenses. States with a positive redistribution are assessed to have above average investment requirements and States with a negative redistribution are assessed to have below average investment requirements. In per capita terms South Australia, Tasmania, the ACT and the Northern Territory experience the largest redistributions.

Table 24-9 Illustrative redistribution from an EPC assessment, Investment, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Schools	-82	42	43	30	-24	-16	23	-17	139
Post-secondary	5	7	1	-7	-6	-1	0	1	14
Health	-67	-63	47	-10	10	38	-14	60	154
Housing	2	84	19	-49	-35	-7	1	-14	106
Welfare	1	-9	4	2	-1	0	0	4	11
Services to communities	2	7	0	-3	-5	-2	1	0	10
Justice	-9	-51	15	4	-8	5	-7	51	75
Rural roads	-446	-770	405	407	91	13	-82	381	1,298
Urban roads	21	72	54	-44	-87	-28	21	-8	167
Urban transport	646	872	-576	-413	-308	-123	-39	-58	1,518
Non-urban transport	0	1	0	-1	-1	0	0	0	2
Services to industry	12	7	2	-18	-3	-1	1	-2	23
Other expenses	2	65	2	-34	-27	-7	4	-5	72
Land	0	0	0	0	0	0	0	0	0
<b>Total (\$m)</b>	<b>89</b>	<b>263</b>	<b>15</b>	<b>-136</b>	<b>-405</b>	<b>-129</b>	<b>-92</b>	<b>394</b>	<b>762</b>
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Schools	-10	6	8	11	-14	-30	53	-67	5
Post-secondary	1	1	0	-3	-4	-2	1	5	1
Health	-8	-9	9	-4	5	70	-32	242	6
Housing	0	12	4	-19	-20	-13	1	-58	4
Welfare	0	-1	1	1	-1	0	-1	17	0
Services to communities	0	1	0	-1	-3	-3	2	-1	0
Justice	-1	-7	3	2	-5	9	-16	206	3
Rural roads	-54	-113	77	153	52	24	-186	1,550	50
Urban roads	3	11	10	-17	-49	-51	48	-32	6
Urban transport	78	128	-110	-156	-174	-226	-89	-236	58
Non-urban transport	0	0	0	0	0	0	0	0	0
Services to industry	1	1	0	-7	-2	-2	3	-6	1
Other expenses	0	9	0	-13	-15	-12	8	-19	3
Land	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>11</b>	<b>38</b>	<b>3</b>	<b>-51</b>	<b>-229</b>	<b>-237</b>	<b>-208</b>	<b>1,603</b>	<b>29</b>

Note: The redistribution is the difference from an EPC assessment of category expenses.

Source: Commission calculation.

- 84 Table 24-10 shows the redistribution by the major drivers in the Investment assessment. Growth in populations who use assets (capital requirement) accounts for the majority of the change in redistribution, followed by the change bought about by an increase in capital intensity (capital improvement) and the cost of building new assets.



Table 24-10 Major reasons for the illustrative redistribution, Investment, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Capital requirements	-67	1,130	-44	-572	-358	-59	21	-51	1,151
Capital improvements	101	-430	49	150	-24	-31	-125	310	610
Costs of construction	55	-437	10	287	-23	-39	13	135	500
<b>Total</b>	<b>89</b>	<b>263</b>	<b>15</b>	<b>-136</b>	<b>-405</b>	<b>-129</b>	<b>-92</b>	<b>394</b>	<b>762</b>
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Capital requirements	-8	165	-8	-216	-202	-108	48	-208	44
Capital improvements	12	-63	9	56	-14	-56	-285	1,260	23
Costs of construction	7	-64	2	108	-13	-72	29	550	19
<b>Total</b>	<b>11</b>	<b>38</b>	<b>3</b>	<b>-51</b>	<b>-229</b>	<b>-237</b>	<b>-208</b>	<b>1,603</b>	<b>29</b>

Note: The redistribution from an EPC assessment is illustrative of category expenses and may not add due to rounding.

Source: Commission calculation.

- 85 The redistributions for each State are primarily driven by investment in urban transport and rural roads. These accounted for 22% and 16% of total investment in 2018-19 respectively, and State circumstances for these services are very diverse.
- 86 Urban transport investment redistributes \$6.8 billion in 2020-21, of which \$1.9 billion is driven by user population growth, and is assessed as being needed predominantly by States with fast growing cities, especially Victoria. The other \$4.9 billion is assessed as being needed predominantly by States with complex transport needs, predominantly New South Wales and Victoria.
- 87 Rural roads investment redistributes \$5.5 billion in 2020-21, which is assessed as being disproportionately needed by Queensland, Western Australia and the Northern Territory.
- 88 Costs of construction are higher in some States than others, and in more remote areas. Western Australia and the Northern Territory have particularly high costs of construction.
- 89 The result for each State is summarised as follows.
- New South Wales' high urban transport investment needs are somewhat offset by its below average requirement for rural road investment.
  - Victoria has above average urban transport investment needs. This is compounded by the above average population growth in Melbourne, affecting both urban transport and urban roads and by the growth in most service populations, especially government school students and users of social housing. This is partially offset by Victoria's below average rural road needs.
  - The decentralised nature of Queensland means it has a below average need for urban transport and above average needs for rural roads.
  - Western Australia's relatively slow population growth means it has below average growth of user populations across a range of services. This is compounded by low needs for urban transport, but somewhat offset by high needs for rural road investment and high construction costs.
  - The redistribution away from South Australia is predominately due to a below average requirement for urban transport investment. Below average growth in all service using populations, except health, compounds this.

- Tasmania's below average needs for urban transport infrastructure were compounded by below average growth in all user populations except Justice and Health. Tasmania's above average rural road network offset these effects slightly.
- The ACT's small city size and very small rural road network mean that it has significantly below average need for investment. This is somewhat offset by a rapid growth in government school students, which increased needs for school infrastructure.
- The Northern Territory has very high needs for rural road investment and high cost of construction. Its above average need for capital improvements in most categories is offset by its below average needs for capital requirements driven by slow growth in user populations for most categories.

## Changes since the 2019 Update

90 There are a number of data and method changes since the 2019 Update as well as data revisions and changes in State circumstances. Table 24-11 shows the effect of these changes.

**Table 24-11** Changes to the GST redistribution between the 2019 Update and the 2020 Review

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Method and data changes	73	-485	287	54	-70	-6	-30	176	591
Data revisions	-74	50	-25	24	27	9	-2	-9	110
State circumstances	-44	-8	100	-22	-31	6	-12	11	117
<b>Total</b>	<b>-44</b>	<b>-443</b>	<b>362</b>	<b>56</b>	<b>-75</b>	<b>9</b>	<b>-44</b>	<b>178</b>	<b>606</b>

Source: Commission calculation

## Method and data changes

- 91 There were a number of changes to how Investment is assessed. These include:
- Investment is separately assessed by category. In the 2015 Review, net investment was assessed separately for Roads and Urban Transport, all other category investment was combined and assessed in a single component (functionalisation).
  - Investment and depreciation expenses are assessed together in a gross assessment.
  - Single year stock factors are used to derive user populations. In the 2015 Review, stock factors were averaged over 3 years.
  - Construction cost disabilities are based on regional and interstate Rawlinsons' indices and recurrent wage costs.
  - Administrative scale disabilities are no longer assessed in the Investment assessment.
- 92 Data changes primarily relate to revisions in how the ABS and States estimate the level of investment, and the value of assets in each category.
- 93 In addition to this, many of the changes made to methods of other assessments had implications for the estimation of the number of assessed users in each State for those categories. These changes are shown in total in Table 24-11, while they are shown for individual categories in Table 24-12.

## Data revisions

- 94 There were a number of revisions made to data used to calculate the assessment including revisions to State provided asset data and revisions to data used to derive the component specific investment disabilities.

## Changes in State circumstances

- 95 The level of investment in urban transport increased considerably, leading to a redistribution towards New South Wales and Victoria. The level of investment in rural roads also increased considerably, leading to a redistribution away from New South Wales, Victoria and the ACT. The net effect of these two major changes is the main influence in most States. Changes in the growth of user populations was most significant for Queensland.
- 96 Changes to how category assessments are made have implications for assessed investment, as they change each State's share of assessed users. The effect of these changes on the Investment assessment is shown in Table 24-12.

**Table 24-12 Method changes between 2019 Update and 2020 Review**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Changes to how investment is assessed	-116	-89	65	67	25	-10	-11	70	226
Level of investment data sources	-115	-145	108	46	47	23	2	33	259
Consequent changes from other categories (a)	304	-251	114	-59	-142	-19	-20	73	491
Schools	26	0	-2	-4	-5	-1	0	-14	26
Health	-17	8	5	7	-10	0	-3	9	30
Justice	-2	-11	4	-1	1	5	-4	8	18
Urban roads	30	-24	29	-28	-12	4	0	2	64
Rural roads	-99	-281	251	89	-28	3	-5	70	413
Urban transport	389	108	-194	-171	-81	-29	-9	-13	497
All other component changes	-23	-50	22	47	-8	0	1	11	81
<b>Total method change</b>	<b>73</b>	<b>-485</b>	<b>287</b>	<b>54</b>	<b>-70</b>	<b>-6</b>	<b>-30</b>	<b>176</b>	<b>591</b>

(a) Includes changes to stock and cost factors.

Source: Commission calculation

## Updating the assessment

- 97 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.
- The following data will be updated annually:
    - population and State circumstance data to the extent similar data in the recurrent assessments can be updated
    - investment and stocks of assets
    - Rawlinsons' capital city and regional cost indices.

# 25 Net borrowing

## Summary of the assessment

Net borrowing reflects the extent to which the States' total outlays on service delivery and investment in infrastructure exceed their total revenue.

The Commission assesses how much each State would need to borrow if it were to finish a year with the average per capita net financial worth, assuming it began the year with the average value at that time.

Interstate differences in population growth rates are the only driver of differences in net borrowing recognised in this assessment. When net financial worth is negative, as is currently the case, the Commission assesses States with above average population growth as having a greater than average capacity to borrow.

## Service overview

- 1 Net borrowing is the amount by which the total outlays<sup>1</sup> of the State general government sector exceed its total revenue. For the purposes of the Commission's assessments, it includes the net borrowing of State housing and public transport public non-financial corporations (PNFCs) because the Commission treats their services as general government activities. When a State's total outlays exceed its total revenue, it must borrow or liquidate financial assets, thereby reducing its net financial worth. Conversely, when its total revenue exceeds total outlays, it saves and increases its net financial worth.
- 2 Net financial assets consist of cash, deposits and equity in public corporations less liabilities. Treating the services provided by State housing and urban transport corporations as general government activities does not change State net worth (the total of State infrastructure, land and net financial assets). However, it changes its composition. The value of infrastructure and land held by State housing and urban transport corporations is regarded as State infrastructure and land holdings rather than net financial assets.
- 3 Table 25-1 shows net borrowing amounted to \$19.3 billion and net financial assets were -\$156 billion in 2018-19. For all States, liabilities exceeded financial assets, resulting in negative net financial assets in all States in 2018-19.
- 4 Table 25-2 shows net borrowing increased in each year from 2016-17 to 2018-19. States, in total, held negative net financial assets during this period, although Western Australia's financial assets exceeded its liabilities until 2016-17.
- 5 Net financial assets can change due to revaluations, hence net borrowing is not necessarily the difference between net financial assets in two successive years. At 30 June 2018, States had \$90 billion in net debt; 12 months later, this debt had increased to \$156 billion. Net borrowing only represented \$19 billion of this \$66 billion increase, the remainder is attributable to the revaluations of net financial assets. Across the assessment period, States have had large positive and negative revaluations.

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<sup>1</sup> Total outlays are the sum of total operating expenses and investment in infrastructure and land.

Table 25-1 Net borrowing and net financial assets by State, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<b>Net borrowing</b>									
\$ million	14,060	105	2,855	683	107	266	570	876	19,311
\$ per capita	1,749	16	565	262	61	501	1,346	3,566	767
<b>Net financial assets</b>									
\$ million	-67,594	-22,078	-25,792	-4,566	-16,449	-4,730	-8,843	-6,163	-156,216
\$ per capita	-8,409	-3,382	-5,107	-1,752	-9,437	-8,896	-20,889	-25,102	-6,208

Note: Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) general government (GG) net borrowing and net financial assets at the end of each financial year as adjusted to treat housing and urban transport public non-financial corporations (PNFCs) as part of the GG sector.

Source: Commission calculation using ABS GFS and State provided data.

Table 25-2 Net borrowing and net financial assets, all States, 2015-16 to 2018-19

	2015-16	2016-17	2017-18	2018-19
Net borrowing (\$m)	7,712	10,870	15,980	19,311
Net financial assets (\$m)	-126,467	-81,869	-90,128	-156,216

Notes: Net borrowing reduces net financial assets.

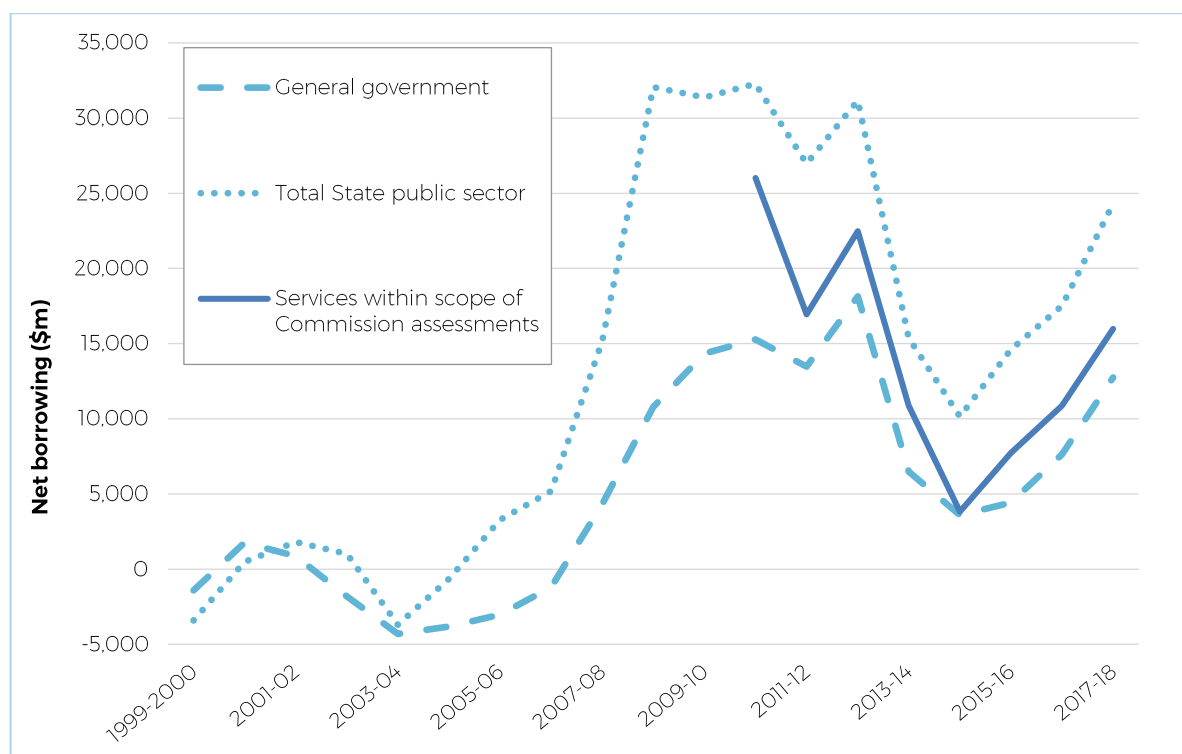
ABS GFS general government net borrowing and net financial assets at the end of each financial year as adjusted to treat housing and urban transport PNFCs as part of the GG sector.

Source: Commission calculation using ABS GFS and State provided data.

## State outcomes

- States require physical assets out of which to deliver recurrent services, such as hospitals, schools and social housing, as well as transport networks such as roads and urban transport systems. New or improved physical assets are funded out of operating surpluses, or if these are insufficient, by the addition of borrowings. Figure 25-6 shows that States have been net borrowers since the global financial crisis (GFC). The housing and urban transport PNFCs have been net borrowers for at least the last four years, as have the remainder of State PNFCs, leading the net borrowing of the State services assessed by the Commission to lie between that of the general government (GG) sector, and the total public sector. Before the GFC, States, both as GG and as total public sectors, were net lenders or borrowers at different times.

Figure 25-6 Net borrowing, general government, total public sector and services within the scope of Commission assessments, 1999-2000 to 2017-18



Source: ABS, 5512.0 Government Finance Statistics, Australia.

## Commonwealth roles and responsibilities

- 7 The Commonwealth does not regularly financially support a State's acquisition of net financial worth. However, occasionally assets are transferred from the Commonwealth to States or payments are made to government trading entities which affect the level of non-financial and final net borrowing outcomes. This was the case in 2016-17 with the transfer of the Mersey hospital from the Commonwealth to Tasmania and associated upfront payment to Public Finance Corporation (TasCorp) to support the transfer and operation of the hospital for a fixed period.
- 8 There were no such payments in 2018-19. The complete list of Commonwealth payments and their treatment is available on the [Commission website](https://cgc.gov.au), (<https://cgc.gov.au>).

## Category structure

- 9 Table 25-3 shows the category's assessment structure, the size of the category and the disability that applies.

Table 25-3 Category structure, Net borrowing, 2018-19.

Component	Component expense \$m	Disability	Influence measured by disability
Net borrowing	19,311	Population growth	Recognises the per capita value of State net financial worth is reduced by population growth.

Source: Commission calculation using ABS GFS and State provided data.

- 10 The main data source for calculating net borrowing are Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS) and State budget data.<sup>2</sup>

## Assessment approach

- 11 This assessment provides States with the capacity to acquire new financial assets (or new financial liabilities, as at present States are collectively in a net financial liability position) to provide their new population with the same per capita financial assets (liabilities) as their existing population. This ensures States have the capacity to hold equal net financial assets per capita under the assumptions that they started the year with equal net financial assets per capita and can earn the same return on their assets<sup>3</sup>.
- 12 Victoria argued that an equal per capita (EPC) assessment may be more appropriate because an assessment that directly counters the direction of redistribution in the Investment assessment is counterintuitive. It noted that States tend to apply their net operating balance to the net acquisition of non-financial assets rather than debt reduction. It also noted that States have targets for net debt as a proportion of Gross State Product which can operate as a constraint to acquiring non-financial assets.
- 13 The Commission considers its approach to net borrowing to be conceptually valid regardless of whether States hold net liabilities or net financial assets. In the current environment, when States hold net liabilities, faster growing States will end the year with below average per capita liabilities and therefore have a lower GST requirement.<sup>4</sup> That is, slower growing States have higher GST requirements because their liabilities are being diluted at a slower rate than faster growing States. If States held net financial assets on average, faster growing States would have higher GST requirements.
- 14 The Northern Territory argued that small States face higher costs of borrowing due to reduced capacity to attract investors and lower liquidity. However, with States averaging around \$4,000 in net liabilities per capita between 2016-17 and 2018-19, costs of borrowing would need to be at least 0.9% higher for small States than for large States to represent a material disability. There is no evidence that bond yields differ between States to such an extent, and much of the variation that does exist in bond yields reflects the policy-affected credit rating, rather than the population size, of the States. Therefore, no adjustment has been made to account for higher costs of borrowing. Population growth is the only disability recognised in this assessment.

## Category calculations

- 15 Table 25-4 shows how assessed net borrowing is calculated. Assessed net financial assets at the start or end of the year are calculated as States' shares of net financial assets<sup>5</sup> at that time in proportion to their share of population at that time. Assessed net borrowing (negative

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<sup>2</sup> Unless otherwise stated, net borrowing for the first two assessment years are sourced from ABS Government Finance Statistics (GFS). States provide data for the most recent assessment year because GFS data are not available in time for the annual update.

<sup>3</sup> A consequence of the model and this assumption is that the Commission can assess interest earnings and dividends on an equal per capita (EPC) basis.

<sup>4</sup> Alternatively, the assessment outcome can be expressed as faster growing States are assessed to have a higher than average capacity to borrow, thereby reducing their GST requirement.

<sup>5</sup> To avoid the effect of revaluations, net financial assets at the start of the year are calculated as end of year net financial assets adjusted for net borrowing during the year.

net lending) is the difference between assessed assets at the end and start of the year. While in the investment assessment, positive investment leads to an increase in physical assets, in this assessment positive net borrowing (negative net lending) leads to a decrease in net financial assets.

**Table 25-4 Net borrowing, category assessment, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
<b>Assessed net financial assets</b>									
at the end of year (\$m)	-49,897	-40,519	-31,352	-16,176	-10,820	-3,300	-2,628	-1,524	-156,216
at start of the year (\$m)	-43,775	-35,303	-27,432	-14,275	-9,554	-2,902	-2,299	-1,364	-136,904
<b>Assessed net borrowing (a)</b>									
\$ million	6,122	5,216	3,920	1,901	1,266	399	329	160	19,311
\$ per capita	762	799	776	730	726	750	778	650	767

(a) Net borrowing reduces net financial assets.

Source: Commission calculation.

## Effect on the GST distribution

- 16 Table 25-5 shows the extent to which the assessment for this category differs from an EPC assessment of net borrowing. The redistribution reflects the interstate differences in population growth rates and negative net financial assets in 2018-19. When States hold net financial liabilities (negative net financial assets) population growth reduces the per capita value of those liabilities. The reduction is greater for States with above average population growth and their GST requirements are reduced. The GST requirements of States with below average growth are increased.
- 17 In per capita terms, Western Australia, South Australia and the Northern Territory experience the largest redistributions, as the States with the slowest population growth.

**Table 25-5 Illustrative redistribution from an EPC assessment, Net borrowing, 2020-21**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	22	-174	-14	86	60	11	-6	15	194
\$ per capita	3	-27	-3	33	34	22	-13	61	8

Note: The redistribution is the difference from an EPC assessment of category expenses.

Source: Commission calculation.

## Changes since the 2019 Update

- 18 The Commission made one method change from the 2019 Update. In the 2019 Update, a 12.5% discount was applied to assessed net borrowing to recognise the possibility that population growth may lead to advantages as well as dilution. A discount was first applied in the 2010 Review, when States were net lenders, not net borrowers as they are now. While States have articulated arguments in past reviews that population growth should lead to revaluations of financial assets, there have been no arguments that population growth leads to revaluations of financial liabilities. Therefore, the discount is no longer appropriate as there is no longer any uncertainty over the impact of population growth. In addition, Table 25-6 shows that slowing population growth between 2015-16 and 2018-19 in Victoria and the Northern Territory have increased their assessed needs, while increasing population growth



in Queensland and Tasmania has reduced their assessed needs. Changes in population growth have had some effect on the GST distribution.

**Table 25-6** Changes to the GST redistribution between 2019 Update and 2020 Review

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Method and data changes	2	-25	4	11	6	2	0	1	26
Data revisions	0	0	0	0	0	0	0	0	0
State circumstances	13	25	-39	0	2	-8	1	6	47
<b>Total</b>	<b>15</b>	<b>-1</b>	<b>-35</b>	<b>11</b>	<b>8</b>	<b>-6</b>	<b>0</b>	<b>7</b>	<b>41</b>

Source: Commission calculation.

## Updating the assessment

19 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.

- The following data will be updated annually:
  - net borrowing
  - net financial assets
  - total State population.

# 26 Administrative scale

## Summary of the assessment

States with small populations have intrinsically higher per capita costs because the minimum functions of government have to be spread over a smaller number of residents. The administrative scale disability assessment represents the Commission's recognition of those costs.

In this review, the Commission has estimated the base administrative scale costs for each State to be \$353 million in 2018-19. The ACT's scale costs are reduced by \$11.3 million to reflect its lower spending needs for Indigenous communities, non-urban transport, agriculture and mining. The Northern Territory's scale costs are increased by \$2.0 million to reflect the costs associated with a higher level of engagement with Indigenous communities by the Northern Territory's central agencies.

The States facing higher per capita costs are the five less populous States. New South Wales, Victoria and Queensland have below average per capita costs.

## Definition of administrative scale

- 1 The administrative scale disability recognises the costs States incur in delivering services that are independent of the size of the service population. Put another way, it seeks to measure unavoidable operating costs incurred prior to the delivery of services to users. It includes costs associated with:
  - core head office functions of departments (for example, corporate services, policy and planning functions, but not all head office costs incurred in delivering such services)
  - services that are provided for the whole of the State (for example, the legislature, the judiciary, the treasury, the revenue office, and a State museum, but not all staffing and other resource costs incurred in delivering them).
- 2 Administrative scale is not an assessment of all fixed costs or 'head office type costs'. It is an assessment of minimum fixed costs that do not vary with service populations. All remaining fixed costs are part of the service delivery expenses of each category and assessed according to the category disabilities.
- 3 The definition has the support of most States. Western Australia said that States with smaller populations may not be able to operate at an optimal level, resulting in diseconomies of small scale. This issue has, however, been investigated in previous reviews and the results were inconclusive because of data limitations. The Commission did not think it possible to collect sufficiently detailed information from States for analysis, based on the information already collected for the review of administrative scale costs. It would have been impractical to identify the optimal scale of operations and to quantify any disability. Any attempt to quantify any disability would necessarily involve significant Commission judgment. Western Australia did not suggest a way forward.

## Conceptual case for administrative scale costs

- 4 States with small populations have intrinsically higher per capita costs because the minimum functions of government are spread over a smaller number of residents. The administrative scale assessment provides an allowance for this influence.
- 5 As the administrative scale assessment reflects the costs of providing services which are independent of the size of the service population, each State has essentially the same requirement.
- 6 The Commission disagrees with New South Wales that the conceptual case is not demonstrated. A concrete example of the administrative scale disability is the resources dedicated by States to deal with the Commission. As far as the Commission can ascertain, States have similar numbers of treasury officers dealing with Commission matters. On a per capita basis, smaller States face a greater financial burden.

## Assessment approach and calculations

- 7 Table 26-1 shows the administrative scale assessed expenses for 2018-19 for each State by category. The total administrative scale expenses are just over 1% of total State operating expenses.

**Table 26-1 Administrative scale assessed expenses by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Schools education	21	21	21	21	21	21	21	21	169
Post-secondary education	11	11	11	11	11	11	11	11	90
Health	40	40	40	40	40	40	40	40	317
Housing	13	13	13	13	13	13	13	13	106
Welfare	13	13	13	13	13	13	13	13	106
Services to communities	29	29	29	29	29	29	29	29	233
Justice	49	49	49	49	49	49	49	49	390
Roads	12	12	12	12	12	12	12	12	96
Transport	10	10	10	10	10	10	9	10	79
Services to industry	33	33	33	33	33	33	23	33	252
Other expenses	122	122	122	122	122	122	122	124	978
<b>Total</b>	<b>353</b>	<b>353</b>	<b>353</b>	<b>353</b>	<b>353</b>	<b>353</b>	<b>342</b>	<b>355</b>	<b>2,815</b>
<b>Total (\$pc)</b>	<b>44</b>	<b>54</b>	<b>70</b>	<b>135</b>	<b>203</b>	<b>664</b>	<b>807</b>	<b>1,446</b>	<b>112</b>

Note: Estimated administrative scale costs for 2016-17 scaled to 2018-19 using the Australian Bureau of Statistics (ABS) State and local government final consumption deflator (SLGFCE).

Source: Commission calculation.

- 8 The estimates reflect a detailed examination of the services States provide and the organisational structures used to provide them. As such, they take account of changes in services provided and necessary resources since the administrative scale costs were last estimated in the 2004 Review. The new costings use data for 2016-17.
- 9 The Commission will keep the administrative scale expenses up to date following the 2020 Review by indexing them using the Australian Bureau of Statistics (ABS) State and local

government final consumption (SLGFCE) deflator. This is the same approach as was adopted in the 2015 Review. All States that commented supported the proposal.

- 10 The wage costs factor will be applied to the wages portion of expenses, which is estimated to be 60% of total administrative scale expenses.
- 11 The Commission decided to retain the 2015 Review presentation of assessing all administrative scale expenses as a component in the Other expenses category.<sup>1</sup> Most States that commented supported this.

## Re-estimating administrative scale costs

- 12 Similar to the approaches used in the 1999 and 2004 Reviews, the Commission has re-estimated administrative scale costs through two main approaches:
  - deriving a basic structure and staffing for any given department/function and costing it (the 'bottom-up' approach)
  - making estimates by reference to the size of head offices and whole of State services in the smallest States, after removing any staffing/expenses considered inconsistent with the average minimum structure (the 'top-down' approach).
- 13 The bottom-up approach consists of building the minimum size head office from the ground up and costing this structure. It involves four main steps:
  - determining the average machinery of government (for a function, such as health, this covers the average departmental structure and the main related agencies)
  - identifying the common functions, such as corporate services, in each agency
  - applying a stylised average minimum structure and minimum staffing numbers for the common functions
  - ascribing an average cost per employee, including non-employee costs, to apply to the minimum staffing structure.
- 14 Preliminary estimates of administrative scale costs and the information used to derive the estimates were provided to States. These estimates were then reviewed in light of State comments and information provided by States.
- 15 While the derivation of the administrative scale cost estimates involve judgment (mostly regarding the minimum staffing numbers), the Commission has applied the same approach and used the same assumptions for each function. All States supported the re-estimation of the administrative scale costs and generally agreed with the proposed approaches, noting that administrative scale costs were last estimated in the 2004 Review.
- 16 The updated estimates are higher across all categories than those based on the 1999 and 2004 Reviews' work. This was to be expected given increasing levels of collaboration between the Commonwealth and State governments in a number of spheres, greater legislative and reporting requirements and changes in the nature and use of information and communications technology (ICT).<sup>2</sup> It may also reflect increased service levels. The total

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<sup>1</sup> Prior to the 2015 Review, each expense category included the relevant administrative scale expenses.

<sup>2</sup> The 1999 and 2004 Review estimates also drew heavily on a more detailed investigation of the structure of education departments and police departments using annual reports and other related material, in deriving the estimates for the remaining functions.

administrative scale expenses for 2016-17 represent a \$570 million or 26% increase compared with those of the 2019 Update. In the 2004 Review, scale expenses were calculated for a small number of functions (mainly education and police) and the results extrapolated to other functions. For the 2020 Review, administrative scale amounts have been calculated for all functions. Therefore, the Commission considers they are more accurate than those of the 1999 and 2004 Reviews. The Northern Territory said the new estimates correct deficiencies with the 2004 Review method.

- 17 New South Wales argued that the proposed approach to estimating administrative scale costs is not sufficiently reliable and its integrity cannot be tested. It also considered that the administrative scale estimates represented an implausibly high proportion of expenses in the three smaller States for some categories, notably Services to industry and Other expenses. While it is not disputed that there is a grey area in terms of the appropriate staffing numbers especially at the lower levels of head office structures, the Commission has adopted a conservative approach, based on what States do on average. In addition, the Services to industry and Other expenses categories have a high proportion of State-wide functions such as treasury, parliament, industry regulation and tourism agencies, which explains the high proportion of expenses for these categories in the smaller States.
- 18 The Commission disagrees with New South Wales' view that the Commission's approach to administrative scale continues to ignore many of the opportunities presented by technology, greater harmonisation and information sharing. The average organisational structures derived by the Commission for the 2020 Review reflects what States do on average, which has changed since the 2004 Review. New South Wales appears to imply that changes in technology since the 2004 Review should have reduced administrative scale expenses. However, it is clear from the detailed investigation of State head office functions that States continue to provide a similar range of services and, if anything, ICT and reporting activities are now significantly more prominent than they were in the 2004 Review.
- 19 The Commission also disagrees with Queensland's view that the scope of expenses considered is too broad. Queensland did not provide examples of this, other than arguing that junior staff should not be included in the administrative scale costs. Again, the Commission has adopted a conservative approach to measuring scale costs. However, the Commission considers that administrative scale costs are meant to cover all the relevant head office type activities. For example, payroll services are usually provided by junior staff and appropriate staffing for such functions should be recognised in the scale estimates.
- 20 Tasmania, the ACT and the Northern Territory considered that the staffing level estimates were too low compared with State actual head office staff numbers. For example, Tasmania said there were 62 full time equivalent (FTE) staff working in payroll in its Department of Health and Human Services. However, total staffing numbers are influenced by the size of the service delivery functions (for example, number of schools and hospitals). The scale estimates would only include one or two payroll staff depending on the number of divisions and branches in a service delivery function (such as health, welfare and housing) covered by a particular payroll unit. Reassuringly, the Commission notes that the scale staffing number estimates provided by Tasmania and the ACT for a number of head office functions are similar to its estimates.
- 21 The Northern Territory argued that the minimum staffing structure for the education function should be 200 staff rather than the 133 staff estimated by the Commission. It said that the Commission's estimated staff numbers per sub-function (section) are underestimated and it

would be better to assume four staff per section instead of three. The Northern Territory contended that the 2004 Review estimates were based on four staff per section compared with three used in the 2020 Review.<sup>3</sup> The Northern Territory considered that the increase from 120 to 133 staff numbers was insufficient, especially considering that the new number allows for Indigenous specific functions and increased ICT functions. However, this comparison between the 2004 and 2020 Reviews staffing estimates assumes no changes in the way States operate that may have reduced administrative scale expenses. New South Wales mentioned that technology, greater harmonisation and information sharing would have reduced costs. Further, the education function has remained essentially the same since the 2004 Review. Therefore, the Commission did not expect a markedly different staffing estimate.

- 22 In conclusion, the Commission considers that 133 staff for education, based on three staff per section, is a conservative but reasonable estimate of scale costs given the uncertainty of this aspect of the method.
- 23 For costing, the Commission used the analogous Commonwealth employees' salaries discounted by 3% based on salary information from five States (Victoria, South Australia, Tasmania, the ACT and the Northern Territory). While average State salaries could instead be used to calculate scale costs, the Commission used the Commonwealth salary structure as a basis because:
  - there are some uncertainties about whether individual State employee levels have been classified consistently
  - the integrity of the salaries in relation to each level would be retained.
- 24 The costings of the minimum staffing structure includes salaries plus employer superannuation contributions. Following comments from New South Wales, the Commission adjusted the employer superannuation contribution used for the initial estimates, which is the base year for the calculation of the scale costs. The final estimates used a superannuation contribution rate of 14.7%, which was derived from ABS *Government Finance Statistics, Australia, 2017-18*.<sup>4</sup>

## Employee/non-employee costs

- 25 The estimation of the minimum staffing structures for the stylised departments and agencies is the basis for the calculation of employee costs (essentially wages and superannuation). Non-employee costs need to be added to obtain total administrative scale expenses.
- 26 Non-employee costs were calculated separately and were estimated to be 40% of total expenses. Non-employee costs were previously estimated to be 20% of total expenses.
- 27 The Commission initially estimated the non-employee costs proportion by examining State expenses for a range of functions using annual reports. Subsequently, the Commission used ABS Government Finance Statistics (GFS) data on employee and non-employee expenses to estimate the proportion.<sup>5</sup>

<sup>3</sup> The Northern Territory incorrectly assumed that the 2019 update staffing structure had no branch heads. This resulted in the Northern Territory assuming four staff per section instead of three.

<sup>4</sup> ABS Government Finance Statistics, Australia, cat. no. 5512.0, 2017-18, Table 1.

<sup>5</sup> ABS Government Finance Statistics, Australia, cat. no. 5512.0, 2017-18, Table 1. The employee costs proportion is calculated as the sum of superannuation plus other employee expenses divided by the total gross operating expenses, excluding expenses on social benefits.

- 28 The reduction in employee costs from 80% to 60% is due to a slightly different method used in the 2020 Review compared with the 1999 and 2004 Reviews. In the 1999 and 2004 Reviews, the minimum staffing numbers for an agency were derived in the same way as for the 2020 Review. However, the cost per employee was derived by dividing total departmental expenses by the number of employees as little information was available on the proportion of that cost that was due to wages. The use of the 80% proportion was a Commission decision based on the evidence available at the time. In the 2020 Review, the Commission calculated the total wage related costs based on average wages and related costs then added on the non-employee costs. The Commission considers the 60% proportion is a more precise estimate than the previous one. States supported or did not oppose the 60:40 split.

## Adjustment for the ACT

- 29 The Commission has adjusted the ACT's administrative scale expenses to reflect its reduced spending needs for Indigenous communities, non-urban transport, agriculture and mining. States that commented, including the ACT, supported the proposal.
- 30 These adjustments reduce the base year scale costs for the ACT by \$11.3 million, from \$353.1 million to \$341.7 million. Table 26-2 shows the adjustment for the ACT.

**Table 26-2** Adjustments to the ACT's administrative scale expenses, 2018-19

	\$m
Services to communities (Indigenous community development)	0.6
Transport	0.8
Services to industry (primary industries and mining)	9.9
<b>Total</b>	<b>11.3</b>

Source: Commission calculation.

## Adjustment for the Northern Territory

- 31 Adjustments for the Northern Territory were made in the 2015 Review in the areas of education, health, welfare and housing services in recognition of its dual service delivery arrangements for its Indigenous and non-Indigenous residents. However, the review of the head office functions indicated that States have elevated the focus on Indigenous services and most States now appear to provide services specifically designed to meet Indigenous needs. Accordingly, the proposed stylised head office structure for the education and health functions now includes an Indigenous services role. The case for retaining a separate Northern Territory adjustment was less clear.
- 32 The Northern Territory argued for all the adjustments to be retained and additional ones for the Department of the Chief Minister (DCM) and the Northern Territory Police in recognition of Indigenous specific functions, particularly in relation to regional coordination and engagement with remote Indigenous communities.
- DCM supports all levels of government, regional stakeholders and Indigenous communities through its Office of Aboriginal Affairs, Aboriginal Land Strategic Policy and Regional Network functions (combined staffing of over 50 FTE).
  - Policing in the Northern Territory's Indigenous communities differs from that of other States because of the heterogeneity of the remote Indigenous communities, their extent (in proportionate terms) and the issues of distance and isolation that mean solutions to

problems and policing models are different in the Northern Territory and also differ between communities within the Northern Territory.

- 33 The Northern Territory did not contest that most States now have a greater focus on Indigenous needs. However, the Northern Territory argued that its needs for Indigenous specific services go deeper than in other States because it has such a high proportion of Indigenous people and Indigenous people in remote areas. The Northern Territory said its dual service delivery arrangements result in a need for additional administrative resources for developing strategies, policies, plans and service delivery approaches. It acknowledged that the additional administrative resources are not easily identified within head office structures.
- 34 The Commission recognises the Northern Territory's complex Indigeneity related issues and that they affect how services are delivered. However, during State visits, other States with significant Indigenous populations described similar service delivery challenges and a need to develop strategies and arrangements to respond to the specific requirements of this population group. The Commission considers that the minimum staffing structures across all key service delivery areas include an allowance for the development of Indigenous specific service delivery arrangements. Furthermore, some of the examples provided by the Northern Territory to underpin its case described service delivery costs, which are recognised in the expense category assessments.
- 35 The Commission considers that it is now average policy for States to recognise Indigenous priorities in policy formulation and service delivery strategies. As such, the Commission ceased the Northern Territory adjustment for dual service delivery. However, it decided to retain a small adjustment to recognise the additional costs faced by the DCM in engaging with Indigenous stakeholders for policy development and coordination. The Commission considers that the level of engagement with Indigenous communities reflects the centrality of Indigenous people in the provision of government services in the Northern Territory. An administrative scale cost adjustment for the Northern Territory of \$2.0 million has been included, based on one branch led by a senior executive and two sections of four staff.

## **Wage costs**

- 36 Differences in wage costs between States have a differential effect on the cost of providing services. There is a general method for measuring the influence of wage costs in components where the disability applies. For a description of the method see Chapter 27 Wage costs.
- 37 The 60:40 split between employee and non-employee costs was used to determine the proportion to which the wages costs factor should apply.

## **Assessed expenses calculations**

- 38 Table 26-3 shows the calculation of total assessed expenses for administrative scale in 2018-19.



Table 26-3 Administrative scale assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Total administrative scale expenses (\$m)	353	353	353	353	353	353	342	355	2,815
Wage costs factor	1.006	0.994	0.996	1.017	0.980	0.973	1.018	1.028	1.000
<b>Assessed expenses (\$m)</b>	<b>355</b>	<b>351</b>	<b>351</b>	<b>359</b>	<b>345</b>	<b>343</b>	<b>347</b>	<b>364</b>	<b>2,815</b>
<b>Assessed expenses (\$pc)</b>	<b>44</b>	<b>54</b>	<b>70</b>	<b>138</b>	<b>198</b>	<b>645</b>	<b>821</b>	<b>1,484</b>	<b>112</b>

Source: Commission calculation.

## Effect on the GST distribution

- 39 Table 26-4 shows the extent to which the assessment of administrative scale expenses moves the distribution of GST away from an EPC distribution. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements.

Table 26-4 Illustrative redistribution from an EPC distribution of GST, administrative scale, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-545	-380	-214	67	150	284	300	337	1,138
\$ per capita	-68	-58	-42	26	86	534	709	1,372	45

Note: The redistribution is the difference from an EPC assessment derived using 2016-17 to 2018-19 assessed expenses and 2020-21 GST revenue.

Source: Commission calculation.

- 40 As the administrative scale assessment reflects the costs of providing services that are independent of the size of the service population, each State has essentially the same requirement. The appropriate assessment is therefore an equal per State assessment (with some minor adjustments for the ACT and the Northern Territory), which implies a greater per capita cost for the less populous States. The assessment therefore leads to a redistribution away from the three largest States to the other States, with the largest per capita redistributions being to Tasmania, the ACT and the Northern Territory.
- 41 Table 26-5 provides a summary of the main disabilities contributing to the redistribution from an EPC assessment for this category.

Table 26-5 Major reasons for the illustrative redistribution, administrative scale, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Administrative scale	-546	-377	-212	62	158	294	294	328	1,135
Wage costs	2	-2	-2	5	-8	-10	6	9	22
<b>Total</b>	<b>-545</b>	<b>-380</b>	<b>-214</b>	<b>67</b>	<b>150</b>	<b>284</b>	<b>300</b>	<b>337</b>	<b>1,138</b>

Note: The sum of the disabilities may not add due to rounding.

Source: Commission calculation.

## Changes since the 2019 Update

- 42 There are a number of method and data changes since the 2019 Update.

- The estimate of total administrative scale expenses have increased by 26% or about \$600 million in total.
- The Northern Territory dual service delivery adjustment has been removed. However, an adjustment of \$2.0 million for the Northern Territory has been included to recognise a difference in its organisational structure requiring additional engagement with Indigenous stakeholders for policy development and coordination.
- The wage costs proportion of administrative scale expenses has been reduced from 80% to 60%.

43 Between 2015-16 and 2018-19, administrative scale expenses have grown more slowly than growth in the GST pool. This increased the GST share for the three largest States and reduced the GST share for other States.

## **Updating the assessment**

44 The administrative scale expenses will be kept up to date following the 2020 Review by indexing them using the SLGFCE deflator.

# 27 Wage costs

## Summary of the assessment

The wage costs disability recognises that comparable public sector employees in different States are paid different wages, partly due to differences in labour markets beyond the control of State governments.

The assessment is performed by estimating the additional costs relative to the national average wage each State government would have to pay for the 'average' employee. The difference is estimated using an econometric model of private sector employees, controlling for differences in education, industry, experience and other attributes known to affect wage levels. Private sector employee characteristics and wage levels are used as a policy neutral benchmark, as public sector wages are heavily influenced by State policy.

The disability is assessed for all expense categories; the degree to which it applies varies depending on the proportion of labour costs in each category. A low level discount of 12.5% is applied to the results to reflect some uncertainty in the data used for the assessment.

## Overview

- 1 State governments employ about one in 10 Australian workers. Wages and salaries represent the largest component of recurrent State expenditure and account for a significant share of expenses in nearly every expense category. The wage costs assessment addresses a global disability, rather than the expenses associated with an individual category of service delivery (such as schools or health spending).

## Assessment approach

### Wage costs

- 2 Using data from the Characteristics of Employment survey (CoES), the Commission models the wages of the average private sector worker in each State, controlling for differences in the characteristics of that worker that are known to affect wage levels, such as work experience and qualifications. The model also adjusts for differences in the composition of industry and occupations in each State.
- 3 An additional variable for State of residence allows the Commission to estimate the influence that State of residence has on the wages of comparable individuals. The wages paid to comparable private sector workers are used as a proxy for the pressures on public sector wages in each State.
- 4 Table 27-1 shows the modelled outcomes for 2014-15 to 2018-19, discounted by 12.5%.<sup>1</sup> New South Wales, the ACT and the Northern Territory were assessed to have above average wage costs in all years. Victoria and Western Australia had above average and below average

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<sup>1</sup> The Commission has decided to apply a low discount to the modelled outcomes because of some uncertainty about how accurately the data capture wage costs, how accurately the model controls for productivity differences and how well private sector wages proxy public sector wage pressures.

assessed wage costs over the period. The other States were assessed to have below average wage costs.

**Table 27-1 Relative private sector wages, 2014-15 to 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2014-15	0.8%	-1.3%	-1.5%	6.8%	-4.2%	-7.8%	2.9%	8.0%
2015-16	0.1%	-1.4%	-0.2%	4.8%	-2.2%	-6.1%	4.9%	5.2%
2016-17	0.2%	-0.9%	-1.0%	4.5%	-1.9%	-7.3%	6.3%	5.7%
2017-18	0.9%	0.6%	-0.6%	-1.1%	-4.0%	-4.6%	7.6%	4.7%
2018-19	1.0%	-0.9%	-0.7%	2.8%	-3.4%	-4.4%	3.0%	4.6%

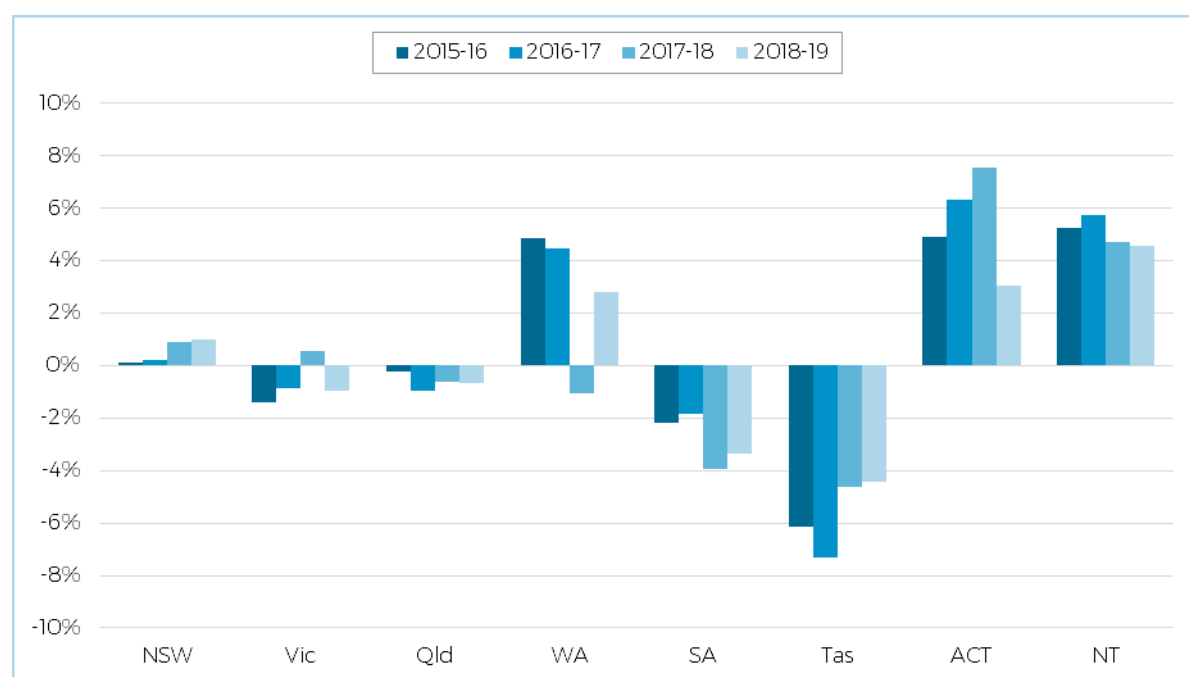
Note: The modelled outcomes are expressed relative to the national average wage level.

A 12.5% discount has been applied.

Source: Commission modelling based on CoES.

5 Figure 27-1 shows the modelled outcomes from Table 27-1.

**Figure 27-1 Discounted modelled outcomes, 2015-16 to 2018-19**



Note: A 12.5% discount has been applied.

Source: Commission modelling based on CoES.

- 6 The discounted modelled outcomes are applied to the proportion of expenses in each category attributable to wage costs. The Commission has used the average of the wage cost proportions for the three most recent years from Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS), 2015-16 to 2017-18. Table 27-2 shows the average proportion for each category. Since these proportions are relatively stable over time, the Commission does not consider it necessary to update the proportions in future updates.
- 7 The Commission has set the wage proportions in Housing, Roads, Transport and two sub-components of Services to communities<sup>2</sup> to the average of the other categories, since a

<sup>2</sup> Remote community electricity subsidies and small community water subsidies.

significant amount of wage expenses in these categories are classified as other types of expenses, such as payments to contractors.

- 8 The Commission has decided to continue to use the relative wage costs produced in this assessment (in combination with the regional costs assessment and Rawlinsons' construction costs indexes) to calculate capital cost disabilities in the Investment assessment. For a description of the Investment assessment, see Chapter 24 Investment.

**Table 27-2 Wage costs by category, 2015-16 to 2017-18 averages**

Category	Wage expenses	Non-wage expenses	Proportion	Assessed proportion
	\$m	\$m	%	%
Schools	28,331	7,326	79.5	79.5
Post-secondary education	3,245	2,620	55.3	55.3
Health	43,812	23,208	65.4	65.4
Housing	570	892	39.0	63.3
Welfare	4,419	7,714	36.4	36.4
Services to communities	2,606	3,200	44.9	44.9
Justice	14,152	5,384	72.4	72.4
Roads	1,656	3,932	29.6	63.3
Transport	865	5,963	12.7	63.3
Services to industry	2,221	2,504	47.0	47.
Other expenses	8,185	9,999	45.0	45.0%
<b>Total excluding Housing, Roads and Transport</b>	<b>106,970</b>	<b>61,956</b>	<b>63.3%</b>	<b>63.3%</b>

Notes: Proportions for Housing, Roads and Transport have been set to the average of all other categories.

The proportion for two sub-components of Services to communities have been set to the average of all other categories. These sub-components are not shown here.

The wage proportion of administrative scale expenses is set at 60%.

Source: Commission calculation based on Australian Bureau of Statistics (ABS) GFS.

- 9 Table 27-3 sets out the influence measured by the wage costs assessment.

**Table 27-3 Wage costs assessment, 2020 Review**

Disability	Influence measured by disability
<b>Wage costs</b>	Recognises the additional cost to States with higher wage levels for reasons beyond their control. These costs are estimated using an econometric model run on ABS CoES data.

- 10 The main assessment issues for the assessment were:
- the conceptual basis for the assessment
  - the specification of the econometric model and interpretation of its results
  - the volatility of the modelled outcomes
  - the level of discount applied
  - State specific adjustments to the modelled outcomes
  - category specific wage costs adjustments
  - adopting an alternative model or data source for the assessment.

11 These issues are considered below, including State views.<sup>3</sup>

## The conceptual basis for the assessment

12 States raised three different concerns regarding the conceptual basis for the assessment.

### National labour markets

- 13 Victoria and South Australia cited the report of the consultants engaged by the Commission in its review of the assessment in the 2016 Update, when the Commission developed its current assessment method.<sup>4</sup> In particular, they pointed to the consultants' observation that States may compete for workers in local labour markets and national labour markets simultaneously. They said the premise that wage pressures beyond the control of States are solely (or predominantly) due to State specific factors can no longer be sustained, and the assessment methodology should be revised.
- 14 Western Australia, the ACT and the Northern Territory disagreed with the view that any influence of national markets meant the assessment was flawed. Western Australia reiterated its argument that if a State pays a 'national market' wage that is above what the local market dictates, it will be able to employ more productive workers, allowing either cost savings or a higher standard of service. The ACT said that, if labour mobility between States was low, national markets would have little influence on wage levels. However, it said the existence of national labour markets in no way precluded premiums or discounts to the national average which represent differences between States in locational costs and amenities.
- 15 The Northern Territory said Census data showing relatively little interstate movement between public sector workforces did not support the argument that States primarily compete with one another for workers. While the Northern Territory had a greater reliance on non-local workers than other States, it did not seek to be a wage leader or set levels based on national levels; rather its base level of wages reflected local conditions.
- 16 The Commission continues to observe differences in the wages paid to public sector employees in the same occupations in different States. It has not changed its view that these differences are likely to arise from both policy choices and influences beyond States' control.
- 17 The Commission has previously referred to economic theories that can explain the persistence of differences in nominal wages for comparable private and public sector employees across regional labour markets. Those theories include compensating differentials, macroeconomic factors, attachment to State and migration costs.<sup>5</sup> The theories provide conceptual reasons why observed differences in public sector wages may not necessarily reflect policy choice alone and can persist over time.
- 18 Mavromaras *et al.* found that States compete in two markets simultaneously — the national labour market and the local labour market. But they also found that comparable State employees are paid different wages in different States.<sup>6</sup> If, as South Australia has argued,

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<sup>3</sup> State submissions often include significant detail and supporting evidence. In this chapter, the Commission responds to the arguments and evidence States presented in their submissions. For the full detail of State submissions, see the [Commission website](https://cgc.gov.au), (<https://cgc.gov.au>).

<sup>4</sup> Mavromaras, K, Mahuteau, S, Richardson, S, and Zhu, R. *Public-private wage differentials in Australia: What are the differences by State and how do they impact GST redistribution decisions*, National Institute of Labour Studies, Flinders University, 2016.

<sup>5</sup> See *Report on GST Revenue Sharing Relativities, 2016 Update*, Chapter 3 Wage costs.

<sup>6</sup> The Mavromaras *et al.* finding was based on data from the Household Income and Labour Dynamics in Australia (HILDA) survey, providing corroborating evidence for the results of the Commission's econometric model.

States set public sector wages solely (or principally) with regard to those in other States, the Commission would expect to see some convergence in public sector wages across States. This is not what the Commission has observed from the available data.

- 19 Further, while South Australia argued States compete for workers in job specific (national) labour markets, it did not provide evidence that the private sector does not also face similar competition. To the extent that the private sector also competes in the two markets simultaneously, the effects on wages are reflected in the Commission's model.
- 20 The Commission's previous analysis of Census data showed that 60% of people joining State public services between 2006 and 2011 moved from the private sector in their State, while only 3% moved from the State public service in another State. This suggests that the direct impact of competition for labour from other sectors within a State appears to be stronger than the impact of a national labour market for State public service employees. In the absence of strong evidence for the influence of national markets and a sound method for measuring the impact of that influence, the Commission has decided not to make any changes to the assessment in respect of the national labour market argument.

### **Private sector wages as a proxy for public sector wage pressures**

- 21 Queensland and South Australia argued that private sector wages are not a good proxy of public sector wage pressures. Queensland said the model, based on private sector wages, did not capture pressures on public sector wages, such as the cost of living or the ability to attract employees to remote regions. South Australia said that private sector wage movements alone are unlikely to determine movements in wages for the majority of public sector employees (for example, nurses and teachers). It said that, with a few exceptions in highly specialised fields, the public sector is not forced to pay private sector wages, and that public sector wage outcomes reflect movements in national markets and State fiscal strategies.
- 22 Western Australia, the ACT and the Northern Territory disagreed. Western Australia considered that the relationship between public and private sector wages is likely to hold in the long term, even though movements in public sector wages often lag those in the private sector. The ACT pointed to the strong correlation between public and private sector wages (0.83) in the econometric results for the 2016-17 CoES.
- 23 Mavromaras *et al.* found that public sector wages respond to the same pressures as private sector wages (albeit with a lag). Figure 27-2, Figure 27-3 and Figure 27-4 (and similar data for earlier years) show that, while the strength of the relationship between public and private sector relative wage levels varies over time, the relationship is positive, consistent with the Mavromaras *et al.* finding.
- 24 South Australia argued that, with a few exceptions, the public sector is not forced to pay private sector wages. The Commission recognises that States retain a degree of policy control over the wages of its employees and bases its assessment on relative private sector wages to ensure policy neutrality. However, the evidence suggests that States, for reasons beyond their control, face the same wage pressures as their local private sector. It is the impact of those wage pressures that the assessment aims to measure.
- 25 In relation to the Queensland argument that the model does not pick up pressures arising from differences in the cost of living, the Commission observes that, to the extent that cost of living differences drive differences in the private sector wages, they are reflected in the

assessment. To the extent that States pay additional compensation to attract workers to remote areas, it is captured in the regional costs assessment.

### **Comparability of public sector workers across jurisdictions**

- 26 South Australia reprosecuted its argument that public sector workers are not truly comparable across States. It argued that highly skilled and ambitious individuals leave smaller States for States with larger labour markets and, therefore, greater and more diverse employment opportunities. This meant governments in larger States may have access to a relatively more productive labour supply than smaller States.
- 27 The ACT maintained that a concern over productivity differences is unfounded as the model controls for all the major factors driving productivity differences between workers.
- 28 The Commission has previously compared its econometric model to a similar model based on the Household, Income and Labour Dynamics in Australia (HILDA) data that included measures of cognitive ability, achievement motivation, personality scales and health status. That comparison gave no indication that the exclusion of those variables from the Commission's model introduces a bias for any State or, in most cases, leads to a materially different distribution.

### **The specification of the econometric model and interpretation of its results**

- 29 Victoria and Western Australia both raised concerns over the specification of the econometric model in relation to the appropriateness of the number of variables included and the significance of the results.
- 30 Victoria argued that the large number of variables in the econometric model leads to inflated standard errors for the regression coefficients. Western Australia also considered that an excessive number of variables creates problems where they can potentially have explanatory significance due to random chance, rather than due to being valid explanatory variables.
- 31 The explanatory variables used in the econometric model were chosen based on empirical evidence that they affect wage levels. Those variables have been externally reviewed a number of times. For example, the consultant engaged in the 2010 Review regarded the Commission's approach to modelling wages as standard when judged against the large body of wage regressions estimated previously for Australia, and said it was econometrically sound and fit for purpose.<sup>7</sup> The inclusion of a large number of variables in the Commission's model reduces the possibility that relevant variables may be omitted and increases the accuracy of the results.
- 32 The Commission considers there is a sound conceptual case for the assessment and that the divergence of private sector wages from average is an appropriate, policy neutral indicator of how public sector wages in each State would diverge from the average (for reasons beyond the State's control).
- 33 Figure 27-2 shows a positive relationship between relative wages in the public and private sectors in the 2016-17 CoES regression results. The relative public sector wages were

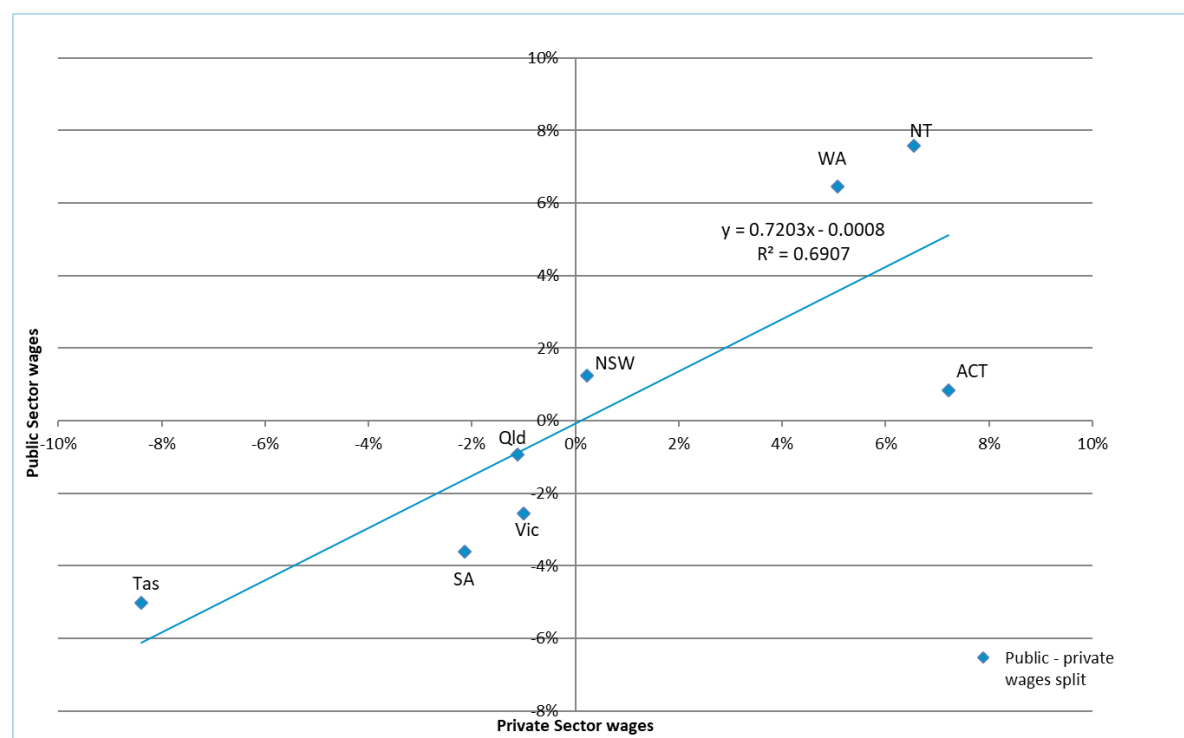
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<sup>7</sup> While the data source currently used by the Commission differs from that used in the 2010 Review assessment, the specification of the variables is very similar.



estimated using the same approach used for the private sector. However, it should be noted that the public sector results are affected by States' policy choices.

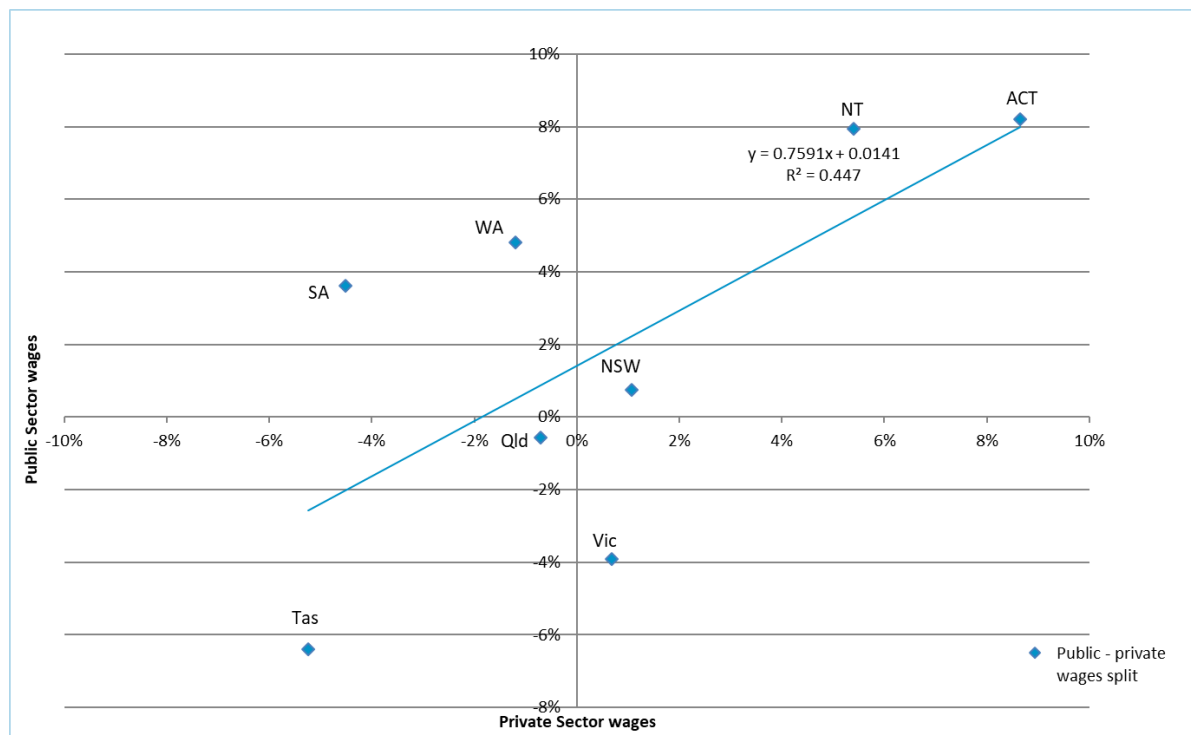
Figure 27-2 Public and private sector relative wages, 2016-17



Source: Commission calculation based on 2016 CoES.

- 34 Figure 27-3 shows, based on the 2017-18 CoES regression results, that the relationship between relative wages in the public and private sectors weakened, but remained positive. While the strength of the relationship between public and private relative wage levels shows some variation year to year, there has been a strong positive relationship over a number of years.

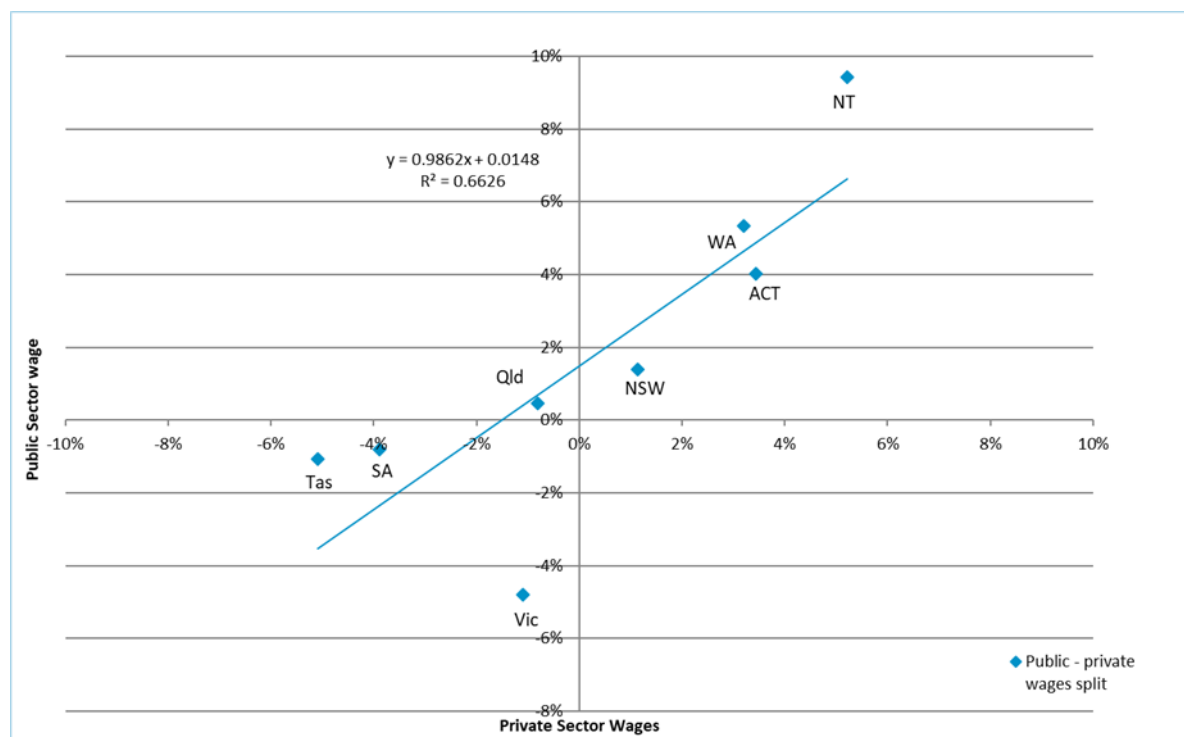
Figure 27-3 Public and private sector relative wages, 2017-18



Source: Commission calculation based on 2017 CoES.

- 35 Figure 27-4 shows, based on the 2018-19 CoES regression results, that the relationship between relative wages in the public and private sectors strengthened.
- 36 Movement of State estimates through the top left or bottom right quadrants is consistent with periods of transition between above average wage levels and below average wage levels. Mavromaras *et al.* found that public sector wage movements generally lag private sector wage movements.

Figure 27-4 Public and private sector relative wages, 2018-19



Source: Commission calculation based on 2018 CoES.

- 37 The Commission considers that the econometric model produces the best available estimates of differences in wage costs between States.

## Volatility of the modelled outcomes

- 38 Western Australia was concerned that the decline of approximately six percentage points in its relative private sector wage levels between 2016-17 and 2017-18 (prior to discounting) was unrealistic. It argued that the decline in its modelled outcome did not accord with the magnitude of the decline shown by other data.<sup>8</sup>
- 39 The change in the data source for the assessment in the 2016 Update, from the four yearly Survey of Education and Training (SET)<sup>9</sup> to the annual CoES, meant the assessment would be more contemporaneous, but had the potential to produce more volatile outcomes year to year. The Commission investigated methods that introduce additional smoothing of the modelled outcomes, beyond the smoothing implicit in the Commission's use of three year average relativities. Those methods included the use of moving averages to determine the outcomes for each assessment year, weighted averaging and blending the modelled outcomes with the private sector wage price index. While these techniques reduced the volatility of the assessment outcomes, they also reduced their contemporaneity. On balance, the Commission considers that using the modelled outcomes, together with three year averaging of relativities, provides the best measure of States' relative wage costs.

<sup>8</sup> While the movement in the modelled outcomes and other available data sources such as average weekly earnings and the wage price index were of different magnitudes, they were all in the same direction. Average weekly earnings and the wage price index measure different concepts to the Commission's wage costs model and, importantly, neither measure controls for the full range of differences between States in industry composition and worker characteristics.

<sup>9</sup> The Commission previously used ABS data from the four yearly Survey of Education and Training (SET), indexed in between surveys using the wage price index. SET was discontinued by the ABS after 2009.

## Discounting the assessment

- 40 New South Wales, Western Australia, the ACT and the Northern Territory argued that the low level discount (12.5%) applied to the assessment in 2015 Review should be removed. Western Australia said the discount will reduce the margin of error if the model overestimates wage costs differences, but will reduce the accuracy of the assessment if the model underestimates the wage costs differences. It presented comparisons with other ABS labour market data in support of its argument that the model appeared to be underestimating wage costs differences between States.<sup>10</sup>
- 41 Similarly, the Northern Territory considered that the assessment may understate its needs, since it did not take into account the additional two weeks leave it had to provide as a recruitment and retention tool to attract interstate and overseas workers, or the productivity related effects of high staff turnover in the Northern Territory. It said the discount should be removed.
- 42 The ACT said there was no longer a case for a general discount on grounds of data uncertainty or methodological issues. It said the CoES data used in the model were an improvement on the previous data. It argued that concerns over how accurately the model controls for productivity differences and how well private sector wages proxy public sector wage pressures were not well founded. It cited the strong correlation between private and public sector wages in the 2016-17 CoES results and that the model controls for industry and occupation composition, as well as variables that impact the productivity of individual workers.
- 43 South Australia considered that there was sufficient uncertainty with the conceptual validity of the wage costs assessment to support an increase in the discount applied.
- 44 Other States did not specifically comment on the discount.
- 45 The Commission uses discounts when it has concerns about an assessment method or the data it uses. A 12.5% discount has been applied to the wage costs assessment since the 2010 Review.<sup>11</sup> In adopting this discount, the Commission had regard to:
- how accurately the data measured wage costs
  - how accurately the econometric model controlled for differences in productivity
  - how well private sector wages can be used as a proxy for wage pressures in the public sector.
- 46 The Commission retained the 12.5% discount when it moved to CoES data in the 2016 Update, as it did not consider that the issues had markedly changed.
- 47 The Commission considers that the factors on which it based its judgment remain. It does not have evidence that the data or method systemically underestimate (or overestimate) the differences in wage costs between States. The Commission will continue to apply the 12.5% discount to the wage costs assessment.

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<sup>10</sup> In response to the 2017-18 result, Western Australia presented comparisons with other datasets suggesting that the model was overestimating changes to the differences in wage costs between the States.

<sup>11</sup> Earlier wage costs assessments had smaller and larger discounts at different times.

## State specific adjustments to the modelled outcomes

48 Tasmania and the ACT argued for State specific adjustments to their modelled outcomes.

### Tasmania

- 49 Tasmania considered that its modelled outcomes were inconsistent with the results for other States and that its relative private sector wage level was outside the bounds within which public sector wages can reasonably lie. It was also concerned that the CoES data seemed to suggest a significant step change from earlier data. It argued that the Commission should discount Tasmania's modelled outcome by 50%.
- 50 The Commission last applied a State specific adjustment (25%) to Tasmania's modelled outcome in the 2010 Review, because it considered that constraints on the variation in public sector wages meant there were bounds within which those wages could lie. At that time, Tasmania's relative private sector wages were assessed as being 7.7% below average. The State specific discount was removed in the 2011 Update when the Commission decided that Tasmania's relative private sector wages were no longer outside the bounds within which relative public sector wages lie.
- 51 Tasmania sought a 50% adjustment to its modelled outcome, on the basis of its 2016-17 CoES modelled outcome (a modelled outcome of 8.4% below average; 7.3% below average after applying the discount). The discounted modelled outcomes for Tasmania for 2017-18 and 2018-19 were 4.6% and 4.4% below average, respectively. These are well within the bounds in which the Commission has previously viewed public sector wages can feasibly lie. When averaged over the three assessment years, Tasmania's relative wage levels are assessed to be 5.5% below average.
- 52 The Commission has decided not to make a State specific adjustment to the modelled outcome for Tasmania.

### The ACT

- 53 The ACT argued for State specific adjustments to its modelled outcomes on two grounds:
- the influence of the Australian Public Service (APS) on wage levels in the ACT
  - the higher costs of the Public Sector Superannuation scheme (PSS) scheme it inherited at the time of self-government.
- 54 The ACT also argued for the re-introduction of the Commonwealth Superannuation Scheme (CSS) adjustment that was removed in the 2017 Update, expanded to include the additional costs of the PSS. It said the costs associated with these schemes were outside its control.
- 55 In addition, the ACT considered that the large influence of the APS on wage levels in the ACT meant that private sector wage levels do not fully reflect the wage pressures faced by the ACT government.
- 56 Prior to the 2011 Update, the Commission made an adjustment to the modelled outcomes for the ACT to account for the impact of the APS on ACT Public Service (ACTPS) wage levels. The adjustment recognised that the SET data used in the assessment did not differentiate between levels of government and, therefore, could not be adjusted to include APS wages with those of the private sector. The adjustment was discontinued in the 2011 Update, when the Commission decided that SET private sector wages provided a reasonable proxy for the wage pressures faced by the ACT.

- 57 In support of its argument that this adjustment should be reinstated, the ACT has presented analysis of data from the 2016 Census and the APS Remuneration Report.
- Using income data from the 2016 Census, it showed a very strong correlation between APS and ACTPS employee weekly earnings, a moderate correlation between ACTPS and private sector earnings, and a weak correlation between APS and private sector earnings. It performed a similar analysis using mean annual earnings.
  - Using published remuneration data, it found base salaries for comparable administrative and senior officers in the APS and the ACTPS to be very similar.
- 58 The ACT's analysis of Census income data did not control for differences in worker characteristics and, therefore, was not comparing the earnings of comparable employees. It was also based on income, not wages. The ACT's comparison of remuneration of administrative and senior officers covered head office staff, but these represent only part of the ACTPS, which also includes teachers and nurses, for example. Neither of these analyses strongly supported the case that the APS has an impact on ACTPS wage levels over and above its impact on private sector wages levels in the ACT. The Commission has previously concluded that, to the extent APS remuneration affects ACTPS remuneration, it will also affect private sector wages and be reflected in the assessment.
- 59 The second adjustment sought by the ACT is to recognise the above average costs of the PSS superannuation scheme. In the 2017 Update, after consulting the States, the Commission decided to discontinue the adjustment it made to the wage costs assessment for the ACT and the Northern Territory to account for the higher costs to those States as a result of the CSS they inherited at the time of self-government.<sup>12</sup>
- 60 In its submission to the 2018 Update the ACT provided evidence in support of its view that the CSS adjustment should be reinstated and expanded to include the costs associated with the PSS. The ACT considered this evidence clearly established that the cost of the PSS had increased to a greater extent than similar schemes in other States. It said that the key issue was the degree of divergence between the costs of the PSS and other schemes, not the reasons for that divergence.
- 61 The Commission decided not to reintroduce the adjustment in the 2018 Update, as it would constitute a method change that should be considered as part of the 2020 Review. The Commission also considered that the ACT government had control over its superannuation arrangements from the establishment of the ACTPS in 1994. It followed that any adjustment should only include the cost of contributing PSS members who became ACT government employees prior to that time. Data provided by other States suggested that the cost of schemes similar to the PSS was also high. Together, these suggested that an adjustment was unlikely to be material.
- 62 Further, the Commission said it was inclined to move away from State specific adjustments in its expenditure assessments, especially those introduced to recognise legacy issues affecting the newly formed governments in the two self-governing Territories. It said the Territories could be expected to have matured sufficiently to be able to deal with historical

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<sup>12</sup> Finalisation of the treatment of the CSS adjustment was delayed from the 2016 Update due to the Commission having insufficient time to consult with States following late identification that it would no longer be material.

happenstance, just as all other State governments have been expected to address their legacy issues.

- 63 The ACT questioned the presumption that it could be expected to have matured sufficiently to be able to deal with historical legacies. It said those legacies were fundamental to the legal and institutional design of the ACT and time has not ameliorated the fiscal impact of the special circumstances of the ACT on the ACT government. It asked that the Commission reconsider its position on a PSS adjustment.
- 64 The Commission has not changed its view since the 2018 Update, that after its establishment the ACTPS faced no legal requirement to maintain access to the PSS. While the ACT continues to allow CSS and PSS members who transfer from the APS to the ACTPS to maintain access to their superannuation schemes, an adjustment should only include PSS members who commenced employment with the ACT prior to the establishment of the ACTPS on 30 June 1994 (and all CSS employees).<sup>13</sup> Based on data provided by the ACT, a PSS adjustment including the cost of those employees would not be material. Similarly, the combined PSS/CSS adjustment would not be material.
- 65 The Commission has decided not to make a State specific adjustment to the modelled outcome for the ACT.

## Category specific wage costs adjustments

- 66 Western Australia argued that not all sectors are subject to the same wage pressures. It said a potential limitation of the current model is that it reflects the industry and occupation structure of the private sector rather than the public sector. It proposed a category specific wage cost adjustment to the Health assessment to recognise that wage pressures are much higher in its public health system than in the private system. It said it experienced unique workforce issues in the health sector, and higher wages than other States, due to shortages of nurses and medical practitioners.
- 67 While the current assessment takes into account the proportion of expenses in each category that relate to wage costs, it does not provide category specific adjustments where States argue they have higher than assessed wage expenses. Western Australia said its medical practitioners cost, on average, 16% more than those in New South Wales, Victoria or Queensland. This compared to the wage costs assessment in which relative wages in Western Australia were assessed to be about 3% above average in the 2019 Update.
- 68 It is difficult to determine whether the above average wages paid to Western Australian public health practitioners reflect a policy choice or a disability.
- 69 The wage costs assessment assumes that relative private sector wages are an accurate reflection of the wage pressures facing each State government and any relative public sector wages above that amount are the result of a policy choice. The assessment does not directly compare the wage levels of specific occupations or industries in different States. A category specific wage costs adjustment would be an attempt to do this.
- 70 It is not clear how the Commission would objectively differentiate between above average wage costs that reflect a genuine disability and those that reflect a policy choice. Given the

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<sup>13</sup> The CSS scheme was closed before the ACTPS was established.

likely increase in complexity of the assessment and need for Commission judgment, the Commission has decided not to adopt category specific wage cost adjustments.

- 71 South Australia said the wage costs assessment for the Schools assessment should be discounted. This issue is discussed in Chapter 13 Schools.

## **Adopting an alternative model or data source for the assessment**

- 72 Western Australia supported the assessment of wage differences across States, but was concerned that the current methodology does not accurately measure these differences. It regarded the model as misspecified and overly complicated. It also had concerns about the reliability of the CoES data used in the model.
- 73 Western Australia said the Commission should replace the model with an indicator based on private sector average weekly earnings (AWE), adjusted for industry composition. It argued that AWE (based on employer surveys) was superior to CoES (a household survey) as a source of earnings data. It said an adjustment for industry composition would provide a reasonable control for differences in occupation, education, migrants and other attributes.
- 74 The Commission considers that its econometric model produces the best available estimates of differences in wage costs between States for reasons beyond their direct control. To estimate the wages paid to comparable private sector employees in different States, the model controls for differences in employee characteristics such as qualifications and experience, as well as differences between States in occupation and industry composition. The Commission notes that several external reviews have found its model to be econometrically sound and fit for purpose.
- 75 The Commission also considers CoES data are the best available for use in its model. As a supplement to the Labour Force Survey, CoES is methodologically rigorous and comprehensive, involving a sample size of about 17,000 individuals. Importantly, the CoES includes, in addition to data on earnings, detailed information on employee characteristics, occupation and industry structure. In the Commission's view, an assessment based on adjusted AWE would produce an inferior outcome, since it could not control for the full range of employee characteristics. Such a model would be more likely to produce results that were affected by omitted variable bias.
- 76 Western Australia said that the latest wage costs regression results support its position that the 2017-18 results should not be used. Western Australia said that the ABS has revised its CoES data for earlier years and that, therefore, the regressions for earlier years should be re-run on the revised data. Advice from the ABS is that these revisions, primarily relating to the definition of employees and changes to its imputation process, may not have significantly affected the results from the Commission's regression model. Nonetheless, the Commission's view is that, in line with the terms of reference direction to use the latest available data, it should ask the ABS to re-run its model for earlier years. However, since it has not had sufficient time to consult States on this issue, the previous years' regression results have been retained in the assessment for this review. The Commission will consult with States in the 2021 Update as to any changes resulting from revisions to ABS data.



## Effect on the GST distribution

77 Table 27-4 shows the extent to which the assessment for this category differs from an EPC assessment of wage costs. States with a positive redistribution are assessed to have above average wage costs and States with a negative redistribution are assessed to have below average wage costs. In per capita terms, South Australia, Tasmania, the ACT and the Northern Territory experienced the largest redistributions.

**Table 27-4 Illustrative redistribution from an EPC assessment, Wage costs, 2020 Review**

Component	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	293	-152	-217	304	-295	-186	115	137	849
\$ per capita	35	-22	-41	115	-166	-342	261	559	33

Note: The redistribution is the difference from an EPC assessment of wage costs.

The redistribution varies from the 2019 Update results as it only includes a single assessment year and correspondingly only a single year of regression results.

Source: Commission calculation.

78 The main reason for these redistributions is the differences between States in their relative private sector wage levels.

## Changes since the 2019 Update

79 Table 27-5 shows the effect of revisions and changes in State circumstances since the 2019 Update. Revisions to the size of State wage expenses had only minor effects. Between 2015-16 and 2018-19, relative wage levels increased in New South Wales, Victoria and Tasmania, increasing their GST requirements. Relative wage levels declined in the other States over the period, reducing their GST requirements.

**Table 27-5 Changes to the GST distribution between the 2019 Update and 2020 Review**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Data revisions	-1	2	2	-3	2	1	-1	-2	7
State circumstances	126	45	-44	-88	-41	17	-12	-2	188
<b>Total</b>	<b>125</b>	<b>47</b>	<b>-43</b>	<b>-91</b>	<b>-39</b>	<b>18</b>	<b>-13</b>	<b>-4</b>	<b>196</b>

Source: Commission calculation.

## Updating the assessment

80 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.

- The following data will be updated annually:
  - CoES data will be updated annually (with States to be consulted on the use of revised data in the 2021 Update)
- The wage proportions will remain fixed until the next review.

# 28 Geography

## Summary of the assessment

The Commission recognises that location effects service delivery costs and that, in particular, services are typically more costly to deliver with increasing remoteness. Across a range of expense categories, the Commission uses Australian Bureau of Statistics (ABS) remoteness areas to classify the population into up to five remoteness areas. Differential use rates are calculated for these areas. Differences in costs per unit of service across these regions are also calculated for a range of categories.

Across a range of expense categories, area based measures of socio-economic status are used to measure different levels of use by socio-economic status. These measures are calculated separately to measure the socio-economic status of the Indigenous population using the Index of Indigenous Relative Socio-Economic Outcomes (IRSEO) and for the non-Indigenous population using the Non-Indigenous Socio-Economic Index for Areas (NISEIFA).

## Overview

- 1 This attachment does not relate to a specific area of State spending, but to a driver or influence across a number of areas of State spending. The issue for the Commission is the approach to measuring that driver across the expense categories. The Commission aims to measure the GST required to equalise State fiscal capacities. This is achieved when States are provided with the capacity to provide comparable communities with the same (average) standard of service. An essential element of defining 'comparable communities' in this context is geographic characteristics.
- 2 There are four aspects of how geography influences State spending:
  - regional costs and service delivery scale (SDS)
    - capturing higher costs of delivering comparable services, due to increasing remoteness and isolation
  - socio-economic status (SES)
    - capturing differential use (and cost) of services by areas of differing SES
  - definitions of urban areas for the Roads, Transport and Services to communities assessments
  - interstate differences in non-wage costs.
- 3 This chapter addresses each of these aspects in turn.

## Regional costs and service delivery scale

- 4 In assessing the effect of remoteness and SDS on State spending, the Commission considered three issues:
  - Different services are delivered in different ways, and the effect of remoteness on these services can vary. Where possible, the Commission has attempted to measure cost pressures specific to each category assessment.

- Whether ABS remoteness areas are the appropriate geography to use to ensure that comparable areas in different States are treated in a comparable manner.
- Whether people travel from more remote to less remote areas to receive services, and therefore absolve States of some of the cost of remote service provision.

## Use of ABS remoteness areas to classify remoteness

- 5 The Commission uses remoteness as a key aspect of the expense category assessments, affecting both the use of services, and the cost of delivering services. It is important to choose an indicator of remoteness that appropriately captures the underlying concept, groups like areas together and distinguishes between unlike areas.
- 6 In the 2015 Review, the Commission changed its measure of remoteness from the State Accessibility/Remoteness Index of Australia (SARIA) to ABS remoteness areas, which are based on the Accessibility and Remoteness Index of Australia (ARIA+).<sup>1</sup> In this review, the Commission again considers ABS remoteness areas the best measure of remoteness for its purposes.

### State views

- 7 Western Australia expressed concern that ‘very remote areas as defined by ARIA are all assumed to be equally costly to service’. It said:
 

For regional costs, the CGC should recognise that ARIA-type measures are ultimately a mathematical construct, and need to be tailored to fit underlying cost drivers. The CGC could consider reforms to the current ARIA+ measure to better reflect underlying cost drivers at a global level, such as a continuous ARIA score, removal of distance limits, introduction of a sixth region, or indicators of different circumstances within ARIA-comparable regions to capture State-specific circumstances.
- 8 Queensland, Western Australia and the Northern Territory considered that ABS remoteness areas do not accurately group communities in like situations together, and do not accurately distinguish between communities with different circumstances.
- 9 The Northern Territory argued that population density could be a means by which very remote areas could be disaggregated further.

### Analysis

- 10 The underlying issue for Queensland, Western Australia and the Northern Territory appears to be that very remote areas are not homogenous. These States appear to be advocating for differentiating very remote from extremely remote areas. The Commission accepts that very remote Australia is not homogeneous. The difficulty is in finding a way of splitting it that would group like areas in different States together in a material and reliable way.
- 11 Western Australia also suggested that the Commission identify indicators of State specific remote issues. It is not clear what this would entail.
- 12 **Continuous ARIA+ score.** Western Australia consider the Commission could measure remoteness using a continuous ARIA+ score. This would entail ‘...the CGC collecting cost per

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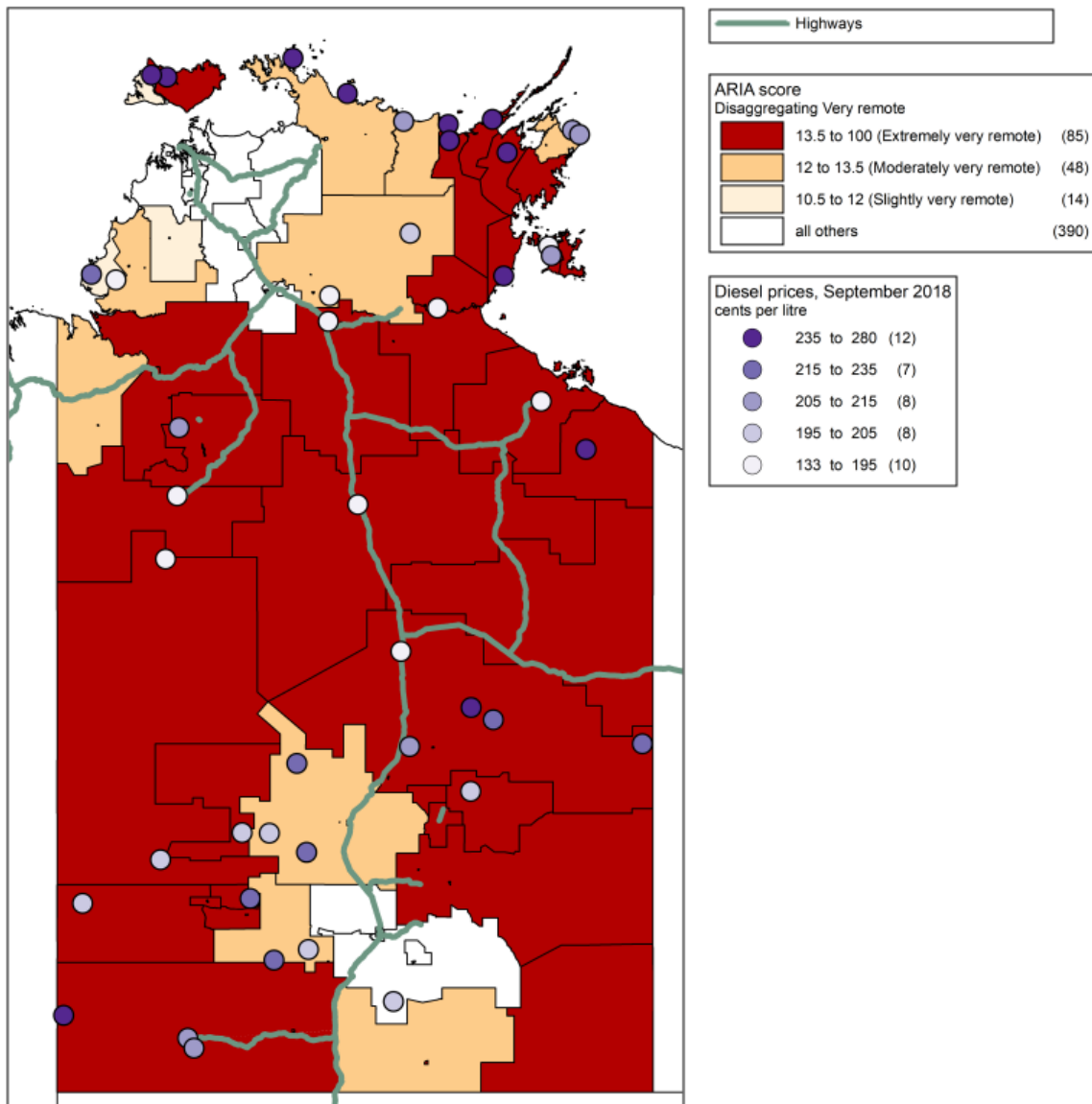
<sup>1</sup> The ABS measures access to services using ARIA+, which is produced by the Hugo Centre for Migration and Population Research at the University of Adelaide.

user for each location across the country ... regress them against the ARIA scores for each location'. The Commission has only collected this data for a small number of services, such as schools. Most data were collected in broader regions. The relationship between ARIA score and cost is unlikely to be linear, and developing a model such as the schools regression (which takes into account the number of Indigenous and low SES students, and school size as well as a non-linear relationship with ARIA score) is likely to be difficult. Developing similar models for other services with more limited data on service delivery by location costs is likely to be even more difficult.

- 13 **Extremely remote category.** Very remote areas cover 74% of the land area of the country but contain less than 1% of the country's population (and a slightly greater proportion of State spending). The Commission acknowledges that this area is not homogenous. However, it is difficult to obtain reliable data that would enable disaggregation of this population. There are several examples from the current assessments where data does not support a reliable split between remote and very remote. Accordingly, there are likely to be very few assessments where a reliable split between very remote and extremely remote areas could be made.
- 14 **Truncation of distance.** Western Australia is concerned about the distance limits in ARIA+. ARIA+ is constructed so that greater distance from a major city increases remoteness. However, after 1,266km, no further increase in remoteness is allowed for.
- 15 Kalumburu is 3,047km from Perth by road, probably the furthest distance from a major city to a populated location in the country. The Commission agrees with Western Australia that the costs relating to distance from a major city are higher in Kalumburu than in a centre 1,266 km from Perth, but it considers that this is well short of 2 and a half times higher. In considering a remoteness classification, the Commission has noted that distance from a major city only contributes 20% of a location's ARIA+ score.
- 16 The Commission also notes that in the absence of an extremely remote category, or a continuous ARIA+ score, discussed above, the most significant consequence of removing truncation would be to classify Broome, Port Hedland and Karratha as very remote rather than remote. The Commission accepts and agrees with the expert opinion of the Hugo Centre for Migration and Population Research, and considers that these towns are more comparable to other remote communities than to very remote communities, and that ARIA+ is a better reflection of the actual effect that remoteness has than an alternative ARIA+ without distance limits.
- 17 **Density.** The Northern Territory asked the Commission to consider a density based measure of isolation. However, there is no generally accepted measure of density as a proxy for remoteness, with the density of an area being highly sensitive to the arbitrary boundaries defining the regions, and not obviously correlated with the cost of service delivery. ABS Statistical Area level 2 (SA2s) of Nhulunbuy, Tennant creek and Weipa all have densities higher than the average across inner regional Australia.
- 18 **Fuel costs.** The Northern Territory contended that the cost of providing services varies considerably within very remote areas, citing as evidence that diesel prices in some very remote locations are much higher than in other very remote locations. Figure 28-1 shows diesel prices in all very remote Urban Centres and Localities (UCLs) in the Northern Territory. This shows that there is significant variation in diesel prices across the Territory. While prices along highways sometimes are lower than those away from highways, there is no other immediately apparent systematic relationship. The variation does not appear to relate to:

- the density of the area (the Northern Territory suggestion for improving classification of remoteness)
- ARIA + scores (which could also be used to disaggregate very remote areas).

Figure 28-1 Diesel prices and disaggregating very remote Northern Territory



Source: [PetrolSpy Australia](https://petrolspy.com.au/), (<https://petrolspy.com.au/>), [accessed 06/2019], and Hugo Centre for Migration and Population Research.

- 19 **Grouping remote areas together.** The Commission sometimes aggregates rather than divides remote areas, for example grouping remote and very remote areas together. The Northern Territory and Western Australia have expressed concern with this practice. As the Northern Territory has 25% of Australia's very remote population, and only 16% of Australia's remote population, grouping these regions will underestimate the Northern Territory's needs in situations where very remote spending per capita is higher than remote spending per capita. Western Australia has suggested that the Commission could apply judgement to increase the very remote cost given the conceptual case. However, to increase the very remote cost weight and decrease the remote cost weight to retain the average total remote cost weight, would add complexity; and given that it applies to a small population and a small number of assessments, is unlikely to be material.

- 20 The Commission follows its assessment guidelines when deciding whether or not to further disaggregate remote areas. That is, there needs to be a conceptual case, with supporting evidence and reliable data that produces a materially different result between remote and very remote areas. In Schools for example, the Commission has retained a single remote cost weight. This is because, while there is a substantial increase in the costs of delivering school services in remote areas (consistent with the service delivery approaches described by States during State visits), the Commission's modelling indicated that (after controlling for Indigenous status and SES) there was no significant difference between remote and very remote students in explaining student costs. On the other hand, concerns about the reliability of data measuring differences between remote and very remote patient use and cost in the Health assessment in the 2015 Review have been resolved, with these remote areas now being separately identified in this review.

## Place of residence and place of service receipt

- 21 In some assessments, the Commission measures the cost of providing services in different regions, and applies the resultant cost differentials to the State user populations in those regions. Victoria argued that this approach ignores that people travel from their residences to more centralised locations to receive certain services; rather it makes the implicit assumption that people use services in the area in which they live. Victoria provided data showing the majority of people from remote areas appearing before a court do so in a major city (Table 28-1).

**Table 28-1** Remoteness of residence by court remoteness, lower court defendants, Victoria, 2014-15

Residence of Defendants <sup>a</sup>	Court location				
	Major cities	Inner regional	Outer regional	Remote	Very remote
	%	%	%	%	%
Major cities	96	4	1	0	0
Inner regional	48	48	4	0	0
Outer regional	16	36	47	1	0
Remote	67	15	17	1	0
Very remote	0	0	0	0	0

(a) Includes Victorian resident defendants and excludes interstate resident defendants

Source: Victorian Treasury.

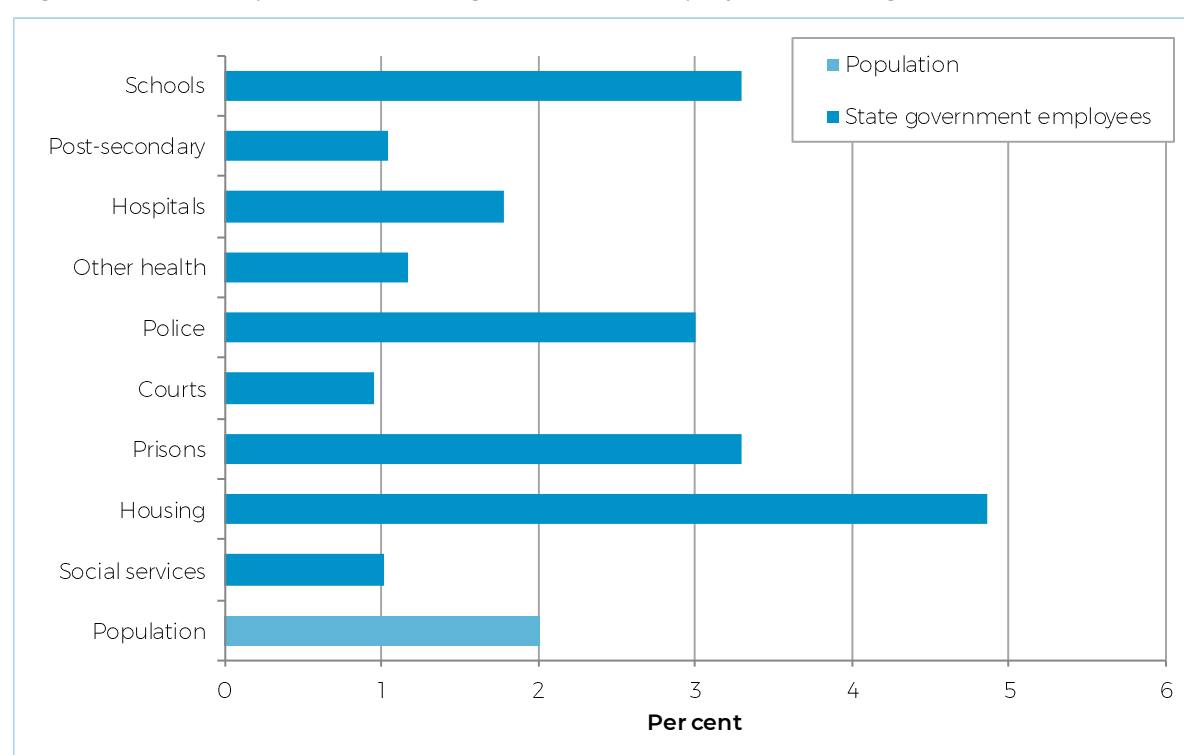
## Analysis

- 22 If a service is more expensive when provided in remote areas, that cost should be applied to the population that receives that service in remote areas, which is not necessarily the same as the population that live in remote areas. However, with some exceptions, there is no identified policy neutral measure (or generally any measure) of the population by where it receives a service.<sup>2</sup>

<sup>2</sup> Data on the receipt of vocational education and training (VET) training hours indicate about 18% of remote residents receiving VET commute to non-remote areas for their training. In Health, a similar proportion (20%) is evident for emergency department National Weighted Activity Units (NWAUs). However, people travel much further for admitted patient services, with only 50% of remote patient NWAUs being undertaken in remote hospitals (partly explained by the more complex conditions and procedures required to be undertaken in larger hospitals). While 50% of remote patient NWAUs (cost weighted patients) are in remote hospitals, 70% of patients are.

- 23 No data are available on the distribution of service delivery for most services. However, Figure 28-2 shows the proportion of State government employees in selected service sectors working in remote areas. Schools and police are very decentralised services, with SDS or greater needs leading to a proportion of staff working in remote areas higher than the share of the population in remote areas.
- 24 Post-secondary education, other health and courts appear to have similar levels of centralisation, with around 1% of employees working in remote areas.
- 25 About 1.8% of hospital staff work in remote areas, about the same as the proportion of the population living in remote areas. This appears to reflect two countervailing forces. Remote hospitals experience diseconomies through SDS, and so have higher staffing levels, while a range of services are centralised, with the hospitals in larger centres providing a wider range of services.

**Figure 28-2 Proportion of State government employees working in remote areas, 2016**



Source: 2016 Australian Bureau of Statistics (ABS) Census of Population and Housing.

- 26 The Schools assessment is unaffected by this issue, as students are classified by the remoteness region where they attend school, not where they live (although in practice the difference is generally small).
- 27 In most other services where regional costs and SDS are measured directly, costs are effectively collected based on the residence of user populations for hospitals, social housing, electricity subsidies and police. The difference between place of service delivery and place of residence of user population is most relevant for:
- post-secondary education
  - criminal courts
  - prisons.

- 28 **Post-secondary education.** It is possible to measure the extent of the difference between place of residence and place of service receipt for post-secondary education. People living in remote and very remote areas receive nearly 8 million hours of vocational education and training, but only 6.5 million hours are provided in remote and very remote areas. Nationally, the number of hours provided in remote areas is 82% of the number received by remote residents. This ratio varies significantly, as shown in Table 28-2.

**Table 28-2 Remote provision and receipt of Vocational education and training, 2017**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000 hrs	'000 hrs	'000 hrs	'000 hrs	'000 hrs	'000 hrs	'000 hrs	'000 hrs	'000 hrs
Received by remote residents	638	20	1,801	2,613	745	99	0	1,978	7,894
Provided in remote areas	136	2	1,322	2,584	524	14	0	1,920	6,503
Ratio (%)	21	11	73	99	70	14	—	97	82

Source: National Centre for Vocational Education Research (NCVER).

- 29 This difference could reflect that some remote areas are serviced by non-remote towns to varying degrees in different States, or that the remote populations of Western Australia are not as near to non-remote towns, or that, particularly for Indigenous populations, the take up of services is contingent on them being provided close to home. Alternatively, it could reflect differences in policy choice about where to provide vocational education and training.
- 30 If the State populations were adjusted to reflect these actual service delivery proportions, there would be two counteracting effects. The proportion of people (and hence costs) assessed to warrant the higher remote cost weight would be reduced, but the proportion of those costs attributed to Western Australia and the Northern Territory would be increased. An adjustment would have a very small effect (around \$1 per capita) on the assessed fiscal capacities, and so has not been made.
- 31 **Courts.** Data on the extent to which people travel from more remote locations to more accessible towns to attend court, along with State provided data on the costs of providing court services, has informed the Commission's judgement on the appropriate regional cost weights to apply to courts. This assessment is described in Chapter 19 Justice.
- 32 **Prisons.** While States have a high degree of policy control over where to place prisons, they appear to have an average policy of distributing prisons across regions. States with larger remote populations tend to have more remote prisons. However, the extent of providing remote prisons for prisoners from remote areas is much less significant than in other services. State provided data have been used by the Commission to inform its judgement on the appropriate regional cost weights to apply to the prison component. This assessment is described in Chapter 19 Justice.

## Assessment approach and data

- 33 In the 2015 Review, the Commission measured the effect of remoteness on costs in a small number of categories, and extrapolated a general regional cost gradient (calculated as the average cost gradient of schools and police) to other categories where a conceptual case was considered to exist. In this review, the Commission attempted to gather data to measure directly the effect of remoteness on costs in a wider range of categories. However, it has not been able to measure directly the influence in all categories where a conceptual case exists. For these assessments, a general regional cost gradient is applied, which is calculated as the



simple average of schools and admitted patient costs.<sup>3</sup> The relevant category chapters discuss the conceptual case and the methods for measuring regional costs and SDS. A summary is provided below.

- **Schools:** Regional costs and SDS are derived from the econometric model of State funding of government schools. The schooling resource standard provided by the Commonwealth Department of Education, Skills and Employment, which drives the assessment of the Commonwealth funding of government schools, incorporates regional costs and SDS, but these effects are not separately identified.
- **Post-secondary education:** State data on loadings for regional influences gives a direct measure of both regional costs and SDS.
- **Health:** Independent Hospital Pricing Authority (IHPA) data on hospital costs include an adjustment in recognition that, for a comparable patient diagnosis and treatment, services in remote areas tend to be more expensive. In addition to this, funding for block funded hospitals can be used to capture the SDS effect in hospitals. IHPA data on regional cost effects for admitted patients and emergency departments are used as a proxy indicator for non-admitted patients and community and other health, respectively.
- **Housing:** While States have provided data to capture the costs of public housing by region, these data are not consistent or reliable enough to use to construct a cost gradient. Instead, the general gradient has been applied to housing, as the most reliable measure available.
- **Welfare:** The provision of some welfare services, such as child protection, is likely to be more expensive in more remote areas. However, as child welfare officers are likely to be somewhat centralised and cover a broad area, it is unlikely that States would have data that would enable costs to be reliably allocated to different regions. The child protection assessment uses the general combined gradient to measure regional cost and SDS influences. The general regional costs gradient is applied to other welfare expenses. The Commission considers that there is no conceptual case for regional costs affecting National Disability Insurance Scheme (NDIS) or concessions.
- **Services to communities:** Subsidies paid for electricity are only assessed in remote areas. The costs of these services is 3.5 times higher in very remote areas than in remote areas. On average, communities in very remote areas are smaller than those in remote areas, so SDS-type effects contribute to the higher cost of subsidies in very remote areas. There is evidence for a combined regional costs and SDS gradient to apply to water subsidies, but only three States provided the required data. The Commission has used data from these States along with estimates for the other two relevant States to derive a combined gradient. Other Services to communities components are also likely to be more expensive in more remote locations, but data are not available to quantify the effect. Therefore, the general gradient has been applied in these components.
- **Justice:** The police assessment incorporates the influence of regional costs and SDS. However, unlike the 2015 Review approach, these influences cannot be separately identified, and so cannot be used as part of the general regional costs gradient. In addition, increasing costs for policing in increasingly remote areas also capture the

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<sup>3</sup> The method for calculating the general regional costs gradient is discussed below.

additional tasks undertaken by police in these areas, compared to less remote areas. State data on the costs of courts and prisons have been used to inform a measure of regional cost effects in those components.

- **Roads:** The sourcing of road construction and maintenance quarry materials is unlikely to have any relationship to remoteness. However, distances are generally greater for the transport of plant, equipment and materials in more remote areas. A regional cost gradient cannot be readily measured, but the conceptual case for one is valid. As such, the Commission has retained the application of a general gradient to rural roads.
- **Services to industry:** Business development is primarily supported through grants, which are not affected by remoteness. Regional cost differences are likely to have some influence on the cost of regulation, and the general gradient is applied.
- **Other expenses:** There are a diverse range of functions within the other expenses category. Some functions, such as central agency functions and public debt transactions, are largely unaffected by regional costs. For other functions, such as fire protection services and cultural and recreational services, service delivery is likely to be more expensive in more remote areas. In total, the Commission applies the general regional cost gradient to 50% of the other services component. Regional costs are not applied to natural disaster relief, administrative scale or the other components of this category.

34 In the 2020 Review, regional costs and SDS are separately identified and measured in the following expense categories (components):

- Schools
- Post-secondary education
- Health (admitted patients and emergency departments)
- Justice (courts and prisons)
- Services to communities (electricity subsidies and water subsidies).

35 The regional costs and SDS gradients for these categories are shown in Table 28-3.

Table 28-3 Regional cost and SDS cost gradients

	Major cities	Inner regional	Outer regional	Remote	Very remote
<b>Schools</b>					
Regional costs	1.00	1.00	1.11	1.50	1.50
SDS	1.05	1.10	1.13	1.16	1.25
Combined SDS & Regional costs	1.05	1.10	1.25	1.67	1.76
<b>Post-secondary education</b>					
Regional costs	1.00	1.10	1.17	1.53	1.91
<b>Admitted patients (by location of hospital)</b>					
Regional costs	1.00	1.00	1.00	1.08	1.12
SDS	1.00	1.02	1.07	1.09	1.71
Combined SDS & Regional costs	1.00	1.02	1.07	1.18	1.91
<b>Emergency departments (by residence of patient)</b>					
Regional costs	1.00	1.00	1.00	1.22	1.22
SDS	1.00	1.04	1.13	1.16	1.54
Combined SDS & Regional costs	1.00	1.04	1.13	1.42	1.88
<b>Prisons (a)</b>					
Regional costs	1.00	1.00	1.00	1.14	1.14
SDS	1.00	1.00	1.00	1.04	1.04
Combined SDS & Regional costs	1.00	1.00	1.00	1.17	1.17
<b>Courts</b>					
Combined SDS & Regional costs	1.00	1.00	1.00	1.21	1.21
<b>Electricity subsidies</b>					
Regional costs	0.00	0.00	0.00	1.00	3.45
<b>Water subsidies</b>					
Regional costs	0.00	1.00	2.17	4.45	4.45
<b>Construction costs (b)</b>					
Regional costs	1.00	1.06	1.14	1.27	1.34

Note: Regional costs and SDS are multiplicative factors in all categories except Schools, where the factors were calculated from a regression equation which is additive in nature. The factors are therefore applied additively in the Schools category.

Data are the latest available. In most cases this is 2017-18.

(a) Adjusted from place of prison.

(b) This represents the national average construction cost gradient. A State specific version of this gradient is used in the Investment assessment.

Source: Commission calculation.

- 36 Where regional costs cannot be directly measured, these have been extrapolated using the average of the admitted patient and school regional cost gradients (referred to as the general gradient). The assessment approach to regional costs and SDS for each expense category is shown in Table 28-4.

Table 28-4 Measure of regional costs and SDS by component

Component	Measure	Component	Measure
<b>Schools</b>		<b>Justice</b>	
State funded government schools	RC & SDS	Police	Implicit
Commonwealth funded government schools	—	Criminal Courts	RC & SDS
State funded non-government schools	RC & SDS	Other legal services	Extrapolate
<b>Post-secondary education</b>	RC	Prisons	RC & SDS (c)
<b>Health</b>		<b>Roads</b>	
Admitted patients	RC & SDS	Rural roads	General
Emergency departments	RC & SDS	Urban roads	—
Non-admitted patients	Extrapolate	Bridges and tunnels	—
Community and other health	Extrapolate	<b>Transport</b>	
Non-hospital patients transport	—	Urban transport	General
<b>Housing</b>		Non-urban transport	—
First home owner expenses	—	<b>Services to industry</b>	
Social housing	General (a)	Agriculture regulation	General
Social housing user charges	—	Mining regulation	General
<b>Welfare</b>		Other industries regulation	General
Child protection and family services	General (b)	Business development	—
NDIS	—	<b>Other expenses</b>	
Non-NDIS Disability services and aged care	—	Service expenses	General
Concessions	—	Natural disaster relief	—
Other welfare	—	Administrative scale	—
<b>Services to communities</b>		Native title and land rights	—
Water subsidies	RC	National capital	—
Electricity subsidies	RC	<b>Investment</b>	RC
Indigenous community development	General		
Other community development and amenities	General		
Environmental protection	General		

Note: — means no regional costs assessment is made on conceptual grounds.

**RC & SDS** refer respectively to the direct measurement of regional cost and SDS using data specific to that service.

**General** refers to the extrapolation of a general regional cost gradient, calculated using the average of the Schools and admitted patient cost gradients.

**Extrapolate** refers to the extrapolation of a specific Regional costs and SDS gradient, as measured in relevant components of the health assessment. For details see Chapter 15 Health.

**Implicit** refers to an integrated Socio-demographic measure of costs that incorporates regional costs and SDS disabilities, that cannot be separately identified.

(a) Includes both general gradient and Rawlinsons' investment gradient.

(b) Child protection and family services uses an extrapolated general gradient that combines regional costs and SDS costs, calculated using the average of the combined (RC and SDS) schools and admitted patients gradients.

(c) Represents an adjustment for place of service receipt being different to place of residence.

Source: Commission decision

## Measuring regional costs

- 37 In the 2015 Review, the Commission measured the effect of regional costs on government schools and police services. It generalised from these relationships to other services where data were not available. The Commission acknowledged that different services can be delivered in very different, less localised, ways, and so discounted the regional cost gradient where it was extrapolated to other services.
- 38 In the 2020 Review, the Commission has used category specific data on the effect of increasing remoteness on a broader range of services than in the 2015 Review, and so has improved the quality of the evidence base for this assessment. Where extrapolation is required, a 25% discount has been retained, reflecting the ongoing uncertainty about the nature of the relationship between remoteness and cost for some functions.
- 39 **State views.** New South Wales and Victoria were concerned about extrapolation from one service to another. The view of these States is that the nature of service delivery is so different it is unreasonable to expect that the effect of increasing remoteness on, say, schools has any relationship to the effect on welfare or other services. Victoria contends that in the absence of reliable evidence, the Commission should not assess regional costs. New South Wales contends that a significant discount is warranted where extrapolation is necessary.
- 40 Queensland considered it important to develop reliable assessments for the regional cost gradient in each service.
- 41 Western Australia considered that IHPA's estimates of costs attributable to the remoteness of the hospital underestimate the full costs of remote service delivery, as much of the high cost of service delivery in remote areas is attributed to patient remoteness. As such, Western Australia's view was that using hospital remoteness in the general gradient underestimates the full cost of remote service delivery for a standard service.
- 42 **Analysis.** Table 28-4 shows that for most components in most expense categories, the impact of regional costs and SDS either:
- does not have a strong conceptual basis, or
  - can be measured using data specific to the delivery of that service.
- 43 There are a small number of other areas where data cannot be gathered on the effect, but there is a strong conceptual case that more remote areas, and smaller communities, face higher costs.
- 44 In some of these, there are similar services where data can be reliably measured, so the Commission has extrapolated:
- regional costs and SDS from emergency department services to non-admitted patients and community and other health services.
- 45 For other services, a general gradient is required.
- 46 Table 28-3 shows that different services can have quite different slopes to their regional gradient. This reflects that different services are delivered and measured in different ways:
- whether services are delivered locally or regionally
  - whether services are measured on the place of service delivery or place of residence (see discussion of this issue from paragraph 21).

- 47 Where a regional cost gradient cannot be directly measured, but a strong conceptual case exists, the Commission considers the average regional cost gradient of schools and admitted patient services should be used, including a 25% discount. This generally incorporates regional costs but not SDS. This general gradient is applied in:
- social housing
  - child protection and family services (includes a general SDS as well as regional costs gradient)
  - Services to communities, other than water and electricity subsidies
  - rural roads (only applied to expenses related to road length)
  - non-urban transport
  - Services to industry (regulation components)
  - other expenses (to a proportion of service expenses).
- 48 The Commission considers school and hospital services are delivered in very different ways, and hence have very different regional cost gradients. The Commission considers that the simple average of these two gradients, with a 25% discount, represents an appropriate estimate of the cost gradient for those services where the general gradient is required.
- 49 Western Australia has argued that the effect of patient remoteness should be included in the general gradient as well as the effect of hospital remoteness. It considers that the types of complexities that arise from patients living in remote areas also apply to all categories to which the general gradient is applied. The Commission has no reason to conclude that costs arising from additional complexity associated with remote patients would be similar for other services. While it may be true that child protection interventions are more costly for remote children due to their isolation from early intervention and prevention services, the conceptual case has not been made. While the Commission is comfortable to apply a 'pure' cost gradient to unrelated services, it is not comfortable to assume that costs related to the complexity of remote service delivery for a particular service translate to other services.
- 50 For Investment, cost indices from the *Rawlinsons Construction Handbook* provide some indication of the costs of construction. Rawlinsons does not necessarily capture all relevant costs, for example, road construction costs may be different from building construction costs. In the 2015 Review, the Commission blended (50:50) a measure based on Rawlinsons, and a measure based on the relevant regional cost gradient and interstate wage costs. However, in this review, the general gradient is applied much less widely than in the 2015 review, and the gradient is similar to that of Rawlinsons'. The Commission considers it would be simpler and more appropriate to simply use the Rawlinsons' cost differences between States and between regions.
- 51 The stock factors for Justice and Health, used to determine the capital needs per capita for related investment, incorporate regional costs disabilities. These disabilities cannot readily be removed. As such, to avoid double counting of these effects, no additional regional construction cost disabilities are applied to this investment.

## Measuring service delivery scale

- 52 When States deliver services in smaller communities, the indivisibility of labour and other related effects increase costs. In the 2015 Review, the Commission captured this through the SDS assessment, which used a geographic classification of SDS areas, defined as locations

more than 50 km by road from a town of 5,000 or more. In this Review, the Commission is assessing SDS using ABS remoteness areas, the same geography used for the regional costs assessment.

- 53 **State views.** Victoria was concerned that there is a level of double counting between the SDS and the regional costs assessments. It considered that the approach to measuring where SDS is experienced in the 2015 Review was flawed, but did not consider that redeveloping the assessment was warranted, or likely to result in materially different outcomes. It argued that the proposed approach to measuring SDS in Schools is flawed, and that school size having an effect on school funding per student is a reflection of scale effects, rather than a fixed cost per school.
- 54 The ACT accepted the conceptual case that SDS and regional costs are different ideas and could be measured separately. However, the States that gain from SDS tend to be the States that gain from regional costs. Using a similar approach to both, based upon level of remoteness, would simplify the assessments.
- 55 The Northern Territory was concerned that SDS exists in a much wider range of areas than indicated by the 2015 Review approach. For example, block funded hospitals are funded as such because they do not have sufficient throughput to be economically feasible. This is the very basis of a SDS disability. The Northern Territory also argued that remote large towns such as Katherine and Alice Springs bear additional SDS costs, associated with providing outreach services to the surrounding communities.
- 56 **Analysis.** The Commission considers that the 2015 Review approach to defining SDS areas (being those areas more than 50 km from a town of 5,000 people) was an appropriate, although not necessarily an optimised, definition. However, the Commission was attracted to the ACT argument that SDS can be reliably and more simply measured using remoteness areas and has adopted this approach.
- 57 For the 2020 Review, in an attempt to simplify the assessment and reduce the reliance on judgement, the Commission has changed the police assessment. Both remoteness and SDS effects are captured in the same calculation and use the same geography. This geography is necessarily relatively broad, as States cannot reliably or meaningfully allocate costs to individual police stations. So conceptually, SDS disabilities are still captured in the police assessment, but as part of an integrated category assessment which captures not only regional costs and SDS, but also differences in the nature of the police task in different regions. This assessment is described in Chapter 19 Justice.
- 58 IHPA has provided data on the cost weighted use of hospitals by patient remoteness, for hospitals funded using activity based funding (ABF) and block funded hospitals. These data allow the Commission to capture SDS affects for hospitals using patient remoteness. This assessment is described in Chapter 15 Health.
- 59 As the Commission assesses SDS using remoteness areas for both police and hospitals, it considered whether this was appropriate in Schools as well, so that there would no longer be a need to maintain a specialist SDS geography. Instead of calculating the average school size in SDS and non-SDS areas, as was done in the 2015 Review, the Commission calculates the average school size in each remoteness region, as described in Chapter 13 Schools.
- 60 Conceptually, SDS relates to the indivisibility of labour and the fixed costs of providing services in a certain location. This is related to the population in small isolated communities. Regional costs relate to the additional costs required to run a service in more remote

locations, due to influences such as higher staff costs, greater distances travelled, and staff housing requirements. These are two distinct disabilities, but there is significant (although not perfect) overlap in the regions in which they occur, and the States that experience them most significantly. While these are correlated in geography, these are separate concepts, and the approaches used to measure them (either separately or combined) do not result in double counting of either effect.

- 61 The Commission does not consider that SDS conceptually applies in large remote centres such as Katherine or Alice Springs. Ideally, the high costs of services delivered from these centres to small isolated centres should be attributed to those smaller centres. To the extent that State data attributes these costs to the larger remote centres, very remote costs will be understated, and remote costs overstated. However, there is no way of quantifying this, and the Commission considers it unlikely to be a major source of bias.

## Socio-economic status

- 62 In most expense categories, SES is measured as part of the socio-demographic composition (SDC) disability. This uses the population living in high SES through to low SES areas. The SES of an area is measured using the same principles the ABS employs to develop the Socio-Economic Indexes for Areas (SEIFA), but is calculated for
- the Indigenous population using the IRSEO
  - the non-Indigenous population using the NISEIFA.

## Use of area based measures of socio-economic status

- 63 Some States were concerned with whether areas with comparable NISEIFA scores in different States have the same attributes and the same inherent need for services. NISEIFA, like the SEIFA Index of Relative Socio-economic Disadvantage upon which it is based, is a composite of 19 different indicators of socio-economic disadvantage. Some of these indicators are more prevalent in some States than others.
- 64 States have also raised concerns about whether the heterogeneity within quintiles masks significant variation between States' SES. The Commission assesses that the use of health services among the residents of areas with SES scores in the bottom quintile is higher than for other quintiles, but it assumes that within this quintile, use patterns are homogenous. However, while Tasmania has 3.6% of Australia's bottom quintile non-Indigenous population, its bottom quintile are more disadvantaged than average. It has 5.6% of the first (bottom) percentile, but only 1.7% of the 20<sup>th</sup> percentile. This issue is exacerbated when quintiles are combined.
- 65 It seems likely that where a service use is correlated with SES, the bottom 1% probably have higher use than the 20<sup>th</sup> percentile, but data are not available to measure the effect.
- 66 Table 28-5 illustrates the magnitude of both these issues. In the absence of data on the use of health, justice or other services by individual percentile, if it is assumed that State services are provided exclusively to low income households, or that State service recipients have the same distribution as low income households, then using a percentile-based assessment would underestimate the actual number of disadvantaged people in some States, especially South Australia and Tasmania, and overestimate it in other States, especially the ACT and the Northern Territory. This is because low income households are a more significant aspect of disadvantage in South Australia and Tasmania than in the ACT and the Northern Territory.



However, if the level of need for State services followed the distribution of children in jobless families instead, different States would be advantaged or disadvantaged by the use of a percentile-based assessment. In particular, for example, South Australia's and Tasmania's level of disadvantage would change to being overestimated.

- 67 The Commission recognises that NISEIFA is an abstract concept of disadvantage that is not perfectly correlated with each different type of State service use. Schools is the one instance where a category specific measure of disadvantage is available, which the Commission uses. In the absence of a hospitals or justice specific measure of disadvantage, the Commission uses the generic NISEIFA and IRSEO. While these will not perfectly reflect the drivers of State service use, it is not clear in what direction any bias will be, so no adjustment is feasible to account for it.
- 68 Table 28-5 also illustrates the difference between making an assessment at the more accurate percentile basis, and aggregating data to SES quintiles. While this suggests that States with above average needs from SES would have higher needs from a more disaggregated approach, the magnitude of the effect cannot be reliably assessed. The difference evident from the examples used in Table 28-5 would not be material for any State.

**Table 28-5 Indicators of reliability of using NISEIFA to measure non-Indigenous SES**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	%	%	%	%	%	%	%	%	%
<b>Low income households</b>									
Actual number of disadvantaged	16.7	17.6	16.6	14.5	20.8	22.9	8.8	6.2	16.9
Percentile-based assessment	17.0	16.7	17.2	15.5	19.4	21.0	10.4	12.4	16.9
Quintile-based assessment	17.0	16.6	17.3	15.7	19.1	20.5	10.9	12.6	16.9
<b>Children in jobless families</b>									
Actual number of disadvantaged	4.7	4.7	4.9	4.3	5.5	6.1	2.3	2.1	4.7
Percentile-based assessment	4.9	4.6	4.7	3.8	6.1	7.0	2.2	2.7	4.7
Quintile-based assessment	4.8	4.6	4.8	4.0	5.8	6.6	2.3	2.8	4.7

Source: Census of population and housing, 2016.

## Housing costs and disadvantage

- 69 Measures of socio-economic disadvantage take account of gross income, but do not take account of the variation in housing, or other costs, and hence these treat people with the same income as comparable, rather than treating people with the same capacity to purchase goods and services as comparable.

### State views

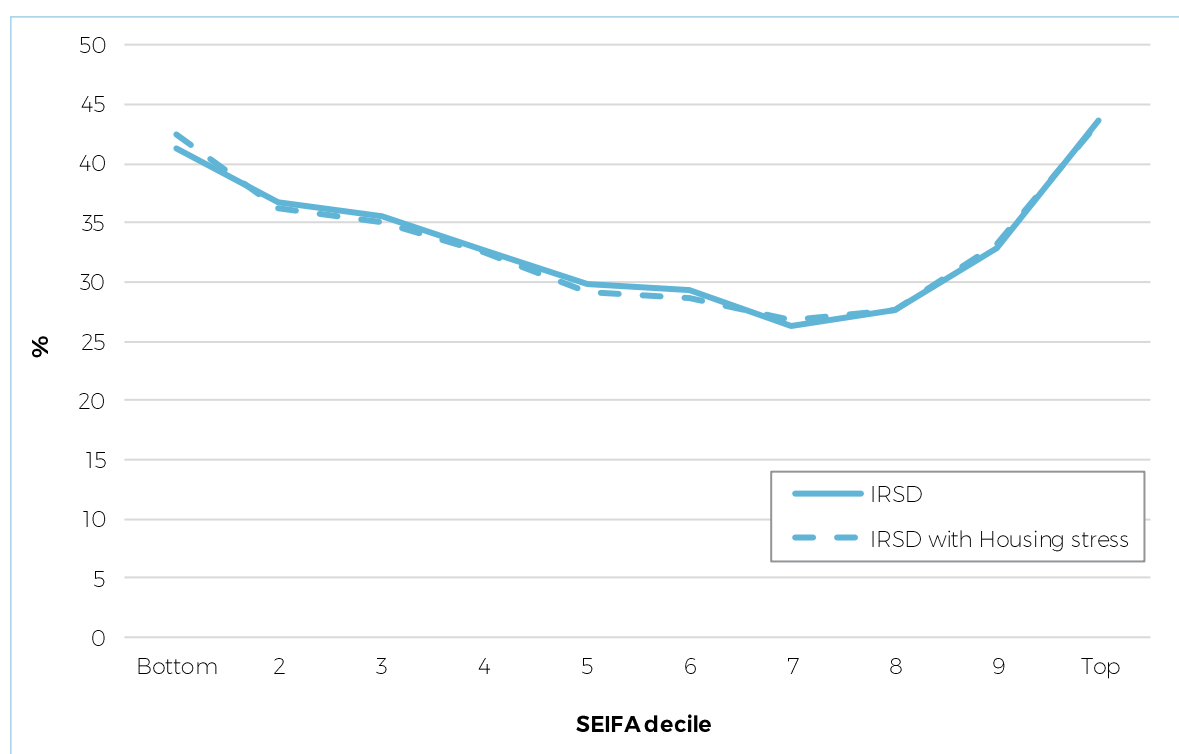
- 70 Victoria was concerned that high housing costs in Melbourne compared with most other capital cities meant that it had a greater need for public housing than would be measured by the Commission's 2015 Review approach.
- 71 New South Wales considered that the high housing costs in Sydney meant that the population was generally of lower SES than would be measured using an indicator that did not take account of housing costs.
- 72 New South Wales commissioned the ABS to produce a version of SEIFA that included the variable on whether a household is in involuntary housing stress. Involuntary housing stress

was defined as households that spend more than 30% of their income on rent or mortgage payments. It excluded households in the top 60% of household income, as these households were assumed to be paying high housing costs as a voluntary choice of residential location, or as a form of savings.

## Analysis

- 73 The Commission accepts the New South Wales argument that housing costs affect SES. It also accepts that incorporating housing stress into SEIFA, or NISEIFA, would be an appropriate strategy for dealing with this issue. Analysis of the data provided by New South Wales shows that the primary effect of incorporating housing costs into a measure of SEIFA is to increase the number of people classified as low SES in all major cities, where housing costs tend to be higher, while decreasing the number of these people in regional and remote areas, where housing costs tend to be lower. Figure 28-3 shows that under a measure of SEIFA based upon the Index of Relative Socio-economic Disadvantage (IRSD), Sydney has 41% of the population in the bottom decile in major cities. Incorporating housing stress increases this share to 42%. Under this change, Sydney's share of middle SES declines. The changes in other cities are generally smaller.

**Figure 28-3** New South Wales' share of each major city decile population, 2016



Source: Commission analysis of New South Wales provided ABS consultancy.

- 74 As this change is likely to result in a very small change to the GST distribution, well below the materiality threshold, an adjustment is not warranted.
- 75 The ABS has not included housing stress in its measure of SEIFA, due to concerns about the effect of Commonwealth Rent Assistance on apparent housing costs, and concerns that spending 30% of household income on rent can be a very different socio-economic effect than spending 30% of household income on a mortgage, even for low income households. If the ABS resolves these issues and determines an appropriate and consistent way of

incorporating housing stress into its measure of SEIFA, the Commission would expect to use the same indicators in NISEIFA.

## Measures of Indigenous socio-economic disadvantage

- 76 In response to the 2015 Review ToR requiring it to 'develop methods to appropriately capture the changing characteristics of the Indigenous population', the Commission adopted the IRSEO as the geographic socio-economic index for the Indigenous population.
- 77 In the 2015 Review and 2018 Update, some States raised concerns with technical aspects of IRSEO. Staff of the Commission proposed to work with the Centre for Aboriginal Economic and Population Research (CAEPR) to develop a revised measure.
- 78 Queensland, the Northern Territory and the ACT consider that the broad level of geography used in IRSEO can result in a masking of the diversity of the level of disadvantage in different sub-areas.
- 79 While CAEPR had been intending to examine the level of geography used for IRSEO, the required funding has not been continued and CAEPR does not have the resources to undertake the planned further development of IRSEO. The Commission does not have the resources to progress this work on its own.
- 80 In any case, the Commission's view is that while the choice of geography used in IRSEO may have some effect, it is relatively minor.

### Urban areas

- 81 Some services are provided in geographic areas that are specific to that service.
- urban roads are assessed in UCLs of 40,000 or more
  - urban transport is assessed in UCLs within ABS Significant Urban Areas (SUAs)
  - in the Services to communities category, electricity subsidies are assessed in remote UCLs<sup>4</sup> above 50 people
  - in the Services to communities category, water subsidies are assessed in UCLs between 50 and 3,000 people outside of major cities.
- 82 The rationale behind these classifications is addressed in the respective category assessment chapters.

### Interstate non-wage costs

- 83 The Commission has decided not to make an adjustment for interstate non-wage costs.<sup>5</sup>
- 84 In the 2015 Review, the Commission decided that there were differences between the costs of providing services in different capital cities, which were not fully captured by the regional costs and other assessments.
- 85 On the basis of these concerns, the Commission made a judgment based adjustment in the 2015 Review that reduced the fiscal needs of Darwin and Hobart, and increased the fiscal needs of Canberra and Perth.

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<sup>4</sup> The definition of UCL uses the ABS concept, with adjustments. See Chapter 18 Services to communities for more information.

<sup>5</sup> Referred to as the location adjustment in the 2015 Review.

- 86 The Commission still considers that there are differences between States in their interstate non-wage costs. However, the lack of data, and the difficulty in determining the magnitude, or even in some cases the direction, of an appropriate adjustment has led the Commission to cease this assessment.

## State views

- 87 New South Wales and Victoria considered that this assessment was based on a weak conceptual case, and no evidence, and as such agreed that it should be discontinued.
- 88 Western Australia expressed concern that the Commission was intending to cease the interstate non-wage assessment, and identified two possible approaches to assessing the costs of its isolation.
- 89 Tasmania was also concerned by the lack of evidence, but it could not identify an alternative evidence-based approach.
- 90 The Northern Territory considered that Darwin is not like major cities, and as such the adjustment made by the Commission to reduce its relative need was not warranted. It was also concerned that the size of the adjustment appeared excessive.

## Analysis

- 91 Table 28-6 shows the assessed costs from the 2019 Update.

**Table 28-6 Assessed interstate non-wage costs in Update 2019, 2017-18**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
\$ million	-9	-7	-5	91	-2	-41	40	-67
\$ per capita	-1	-1	-1	35	-1	-77	95	-271

Note: This assessment is based on a zero standard, with assessed costs summing to zero. Therefore this table represents both the assessed costs and the difference from EPC.

- 92 Western Australia proposed that the Commission use Federal parliamentary expenses on interstate travel fares to measure the relative cost of interstate transport. The Western Australian Auditor-General produced a 2015 report into official public sector air travel which estimated that the cost of all flights to the Western Australian government in 2013-14 was \$16.5 million, of which less than one third were interstate flights. With Western Australian spending less than \$2 per capita on interstate flights, this assessment is unlikely to be material.
- 93 Western Australia also suggested the Commission could use Rawlinsons' construction costs as a proxy for the cost of goods and services. In 2018-19, Rawlinsons' construction costs in Darwin were about 20% above the all capital city average, costs were 4-5% above average in Sydney, Perth and Canberra, and 4-5% below average in Melbourne and Brisbane. Adelaide and Hobart costs were slightly above average. The Commission is not convinced that this pattern reflects costs other than construction costs.
- 94 The Commission concludes that the direction of any adjustment for States other than Western Australia is not self-evident. The Commission acknowledges that interstate non-wage costs are likely to increase Western Australia's costs in a way that is not assessed in other categories. However, it is not clear that such an adjustment would be material. In the 2019 Update, the adjustment made for Western Australia was only marginally material. The Commission has decided to cease the assessment of interstate non-wage costs on the grounds that it is unreliable.

## Other issues considered by the Commission

- 95 There were a number of other issues considered by the Commission, largely in response to concerns raised by States. These issues related to the method for measuring existing disabilities or requests for new disabilities that were not included in the 2015 Review assessment. The main reasons for not assessing certain disabilities identified by States are:
- the conceptual case for a disability has not been established
  - an assessment would not be material, that is, redistribute more than \$35 per capita for any State<sup>6</sup>
  - data are not available to make a reliable assessment.

## Brownfields development

- 96 New South Wales and Victoria argued that much of their population growth is occurring within urban areas, as industrial land is converted to residential uses and low density residential land is converted to higher density. They argue that the cost of retrofitting infrastructure in these areas is significantly more expensive than installing infrastructure in greenfields developments.
- 97 Based on the evidence provided during the State visits, the case for higher cost infrastructure in brownfields developments appears strongest for schools. Victoria stated that it constructs about 12 schools per year, and that 80% of those are greenfields schools and that an average greenfields primary school costs \$15 million while a comparable brownfields school would cost about \$60 million. On these numbers, Victoria spends \$108 million per year (\$16 per capita) on the additional brownfields costs that are not captured by the Commission's current assessment. It seems unlikely that such spending would produce a material assessment. However, it is worth considering whether these assumptions are conservative or exaggerated.
- 98 Large population growth in brownfields areas is likely to require new schools to be constructed. There is also likely to be infrastructure required for some other services, although not many. There are likely to be some services (for example utilities) which would require new infrastructure in greenfields areas, but existing infrastructure can be used in brownfields areas, partially offsetting the effect of a brownfields assessment.
- 99 There are likely to be high costs of brownfields development related to transport. Melbourne is currently building a new underground rail system. The proposed transport assessment recognises that cities with more densely settled areas have higher costs.
- 100 Overall, the Commission considers that the conceptual case for a brownfields development assessment is strong. However, on the available evidence, an assessment of non-transport effects is unlikely to be material. Related, although different, disabilities relating to urban complexity are discussed in Chapter 21 Transport.

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<sup>6</sup> The Commission has set a materiality threshold for including a disability. A disability assessment must redistribute more than \$35 per capita away from an equal per capita assessment for any State to be included.

## Effect on the GST distribution

101 Table 28-7 shows the extent to which population dispersion, including the regional costs and SDS assessments, and the use of remoteness as part of the socio-demographic composition assessments lead to a redistribution that differs from an equal per capital (EPC) assessment. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements. In per capita terms, the largest redistributions affect the Northern Territory, Tasmania and Western Australia, with a larger share of their population in higher cost remote areas, and the ACT and Victoria, with a smaller share of their population in such areas.

Table 28-7 Redistribution from an EPC assessment, all regional influences, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Schools	-155	-185	111	75	24	36	-18	112	358
Post-secondary education	-21	-20	18	3	1	11	-4	12	45
Health	-746	-611	482	112	18	346	-135	534	1,492
Housing	-94	-39	11	60	2	-6	-5	70	144
Welfare	-66	-42	10	22	-1	2	-3	78	112
Services to communities	-157	-161	61	111	17	8	-13	135	331
Justice	-280	-238	111	137	20	53	-32	229	551
Roads	-12	-12	8	9	0	-1	0	9	26
Transport	-1	-1	1	1	0	0	0	1	3
Services to industry	-5	-4	0	5	0	0	0	4	10
Other expenses	-20	-23	11	13	4	3	-2	15	45
<b>Total (\$m)</b>	<b>-1,559</b>	<b>-1,339</b>	<b>824</b>	<b>547</b>	<b>86</b>	<b>452</b>	<b>-211</b>	<b>1,199</b>	<b>3,117</b>
<b>Total (\$pc)</b>	<b>-188</b>	<b>-196</b>	<b>157</b>	<b>206</b>	<b>49</b>	<b>830</b>	<b>-479</b>	<b>4,872</b>	<b>120</b>

Note: The redistribution is the difference from an EPC assessment of category expenses.

Note: This table currently shows just the regional costs influences. However, in the final report this will also include remoteness aspects of socio-demographic composition influences.

Source: Commission calculation.

## Changes since the 2019 Update

102 Regional costs have been assessed directly in a broader range of categories than in the 2015 Review. For categories where a direct assessment has not been possible, a general regional cost gradient continues to be applied. While the 2015 Review general gradient was based on the schools and police assessments, the redeveloped police assessment means this is no longer possible, and the general gradient is now based on the average of the regional cost gradients measured in Schools and admitted patients.

103 In this review, SDS is measured using remoteness areas, rather than SDS specific geography.

104 The interstate non-wage cost assessment has been discontinued.

## Updating the assessment

- 105 As required by the ToR, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances. The updating of category specific regional costs calculations is discussed in the relevant category specific attachments.
- 106 The general gradient, calculated from Schools and admitted patients data, is updated annually. Following the 2021 Census, the Commission expects to incorporate new ABS remoteness areas, IRSEO and NISEIFA throughout all assessments where these are used.

# 29 Other disabilities

## Summary of the assessment

This chapter describes the assessments of national capital, and native title and land rights.

- The national capital allowances recognise the unavoidable extra costs incurred by the ACT due to Canberra's status as the national capital or because of legacies inherited from the Commonwealth at self-government.
- The native title and land rights assessment recognises the additional costs incurred by the States due to the operation of the Commonwealth's *Native Title Act 1993*, the Commonwealth's *Aboriginal Land Rights (Northern Territory) Act 1976* and comparable State legislation.
  - The assessment of native title and land rights expenses is undertaken in a single component in the Other expenses category. The expenses are sought from States annually.
  - The assessment of these costs is made on an actual per capita (APC) basis.
- Cross-border assessments are considered in the relevant expense category chapters.

1 This chapter details the Commission's assessments for the Other disabilities following consultation with the Commonwealth and States. Other disabilities include the following:

- national capital
- cross-border
- native title and land rights.

## National capital

2 National capital allowances recognise the unavoidable extra costs incurred by the ACT, because of Canberra's status as the national capital or because of legacies inherited from the Commonwealth at self-government, that continue to affect its costs of service delivery. Costs above the unavoidable costs faced by the ACT are more properly a matter for the respective ACT and Commonwealth governments, than a matter for horizontal fiscal equalisation (HFE).

## Assessment structure

3 The Commission assesses the following national capital allowances in the 2020 Review.

Table 29-1 National capital allowances, 2020 Review

Disability	Influence measured by disability
Planning	Recognises the additional costs due to the impact of the National Capital Plan on planning and development activities, the administrative costs of capital works and maintenance of the leasehold system.
Police	Recognises the additional costs to the ACT from using the Australian Federal Police to provide police services.

Source: Commission decision.



## Assessment approach

- 4 The assessment includes two types of national capital allowances:
- planning allowances, which recognise the higher costs to the ACT in relation to planning and development activities due to the operation of the National Capital Plan (NCP) and the costs associated with maintaining the leasehold system
  - a police allowance, which recognises that the ACT has no practical alternative but to use the Australian Federal Police (AFP) as the provider of its policing services and it has no control over the above average salaries paid to AFP employees.

### Planning allowances

- 5 In 1989, when the ACT was granted self-government, the Commonwealth established the National Capital Authority (NCA) to manage its continuing interest in the strategic planning and development of Canberra as the nation's capital. The NCA did so, in part, through the development and management of the NCP. Previous Commissions concluded that the NCP resulted in additional planning and development costs to the ACT, and that other States did not incur similar additional costs.
- 6 The Commission decided that the conceptual case for this disability would have to be re-established in this review, taking into account any changes in the ACT's circumstances and the NCA reform process to modernise the NCP.
- 7 The ACT said there was a strong case for continuing to assess planning allowances. It argued that the additional costs imposed on it were a structural feature of the dual planning system in place since self-government and showed little prospect of change. The constraints of the NCP continued to impose additional direct staffing costs on the ACT, chiefly regarding individual project elements to ensure they conform (in the view of the NCA) with the NCP. Additional staff resources were also required to obtain NCA approval for amendments to the Territory Plan.
- 8 The ACT provided new data on the additional costs arising from the operation of the NCP. It said NCP related costs were growing as the ACT grows - both in terms of its population and its economy - and sought the following allowances.
- \$1.8 million for NCP related planning and development activities, equivalent to an extra 10.3 full time equivalent staff over four agencies, plus some minor consultancy costs.
  - \$10 million for the higher design specifications, time delays and additional administrative requirements associated with capital works projects, net of the value of improved amenity and design outcomes.
  - The ACT sought a new allowance (\$6 million) for extra costs associated with its light rail project, due to the NCA imposed requirement for higher quality landscaping and fixtures.
  - \$2.5 million for 20 staff dedicated to the operation of the leasehold system, who performed functions that did not exist in freehold systems in other States.<sup>1</sup>

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<sup>1</sup> These activities included renewing leases, transferring leases, providing advice, making determinations on concessional leases and managing lease variations and their associated charges.

- 9 While the Commission observes that other States incur costs in their planning, land management and capital works activities from having to interact with other levels of government, it considers the ACT has made the conceptual case for planning allowances associated with the NCP. Specifically, the Commission has decided to recognise the extra costs associated with the dual planning system, the administrative component of capital works projects and the operation of the leasehold system.
- 10 The Commission has decided not to recognise the ACT's other claims in relation to capital works and the light rail project.<sup>2</sup> The majority of these costs are associated with the use of higher specification materials and assets, making it difficult to distinguish the unavoidable costs to the ACT. This is further complicated by the effect on these costs of policy choice, for example in relation to the choice of transport mode.
- 11 The Commission has used the data provided by the ACT as the basis of its assessed planning allowances for 2017-18. Table 29-2 shows the assessed planning allowances for 2017-18.

**Table 29-2 National capital, planning allowances, 2020 Review**

	2017-18
	\$m
<b>Planning</b>	
Additional costs imposed by the NCP in relation to planning and development activities	1.8
Additional costs imposed by the NCP in relation to capital works program administration	2.2
Additional costs incurred by the ACT in operating a leasehold system	2.5

Source: Commission calculations and the ACT Rejoinder Submission.

- 12 The ACT also sought several allowances relating to urban form, additional services provided to the Commonwealth government and roads. The Commission has not assessed allowances in these areas. In relation to the ACT's claim for management of an above average urban-bush interface and open space, the Commission observes that the ratio of open space in Canberra is comparable with Perth, Hobart and Darwin. In addition, the ACT has clear capacity to manage its level of open space, as evidenced by its urban infill policies. The Commission considers the ACT's claim with regard to services provided to the Commonwealth government relate to its level of funding via a multilateral memorandum of understanding (MoU) and is outside the scope of the national capital assessment. The wider roads allowance, assessed in previous reviews, has been discontinued consistent with the Commission's decision when the allowance was introduced in the 2004 Review.

## Police allowance

- 13 The Commission accepts that the ACT has no practical alternative but to use the AFP as the provider of its policing services. This leads to higher costs because the AFP pays above average salaries to its employees. Consequently, the Commission has decided to retain the police allowance. Table 29-3 shows that the police allowance is calculated by:
  - deriving a notional level of ACT police staffing by applying the national average per capita number of police staff (sworn and unsworn staff combined) to the ACT's population

<sup>2</sup> The ACT's other claims related to the need for higher quality design and material specifications, time delays imposed on developments and additional operating costs for the light rail.

- multiplying that notional staffing level by the difference between the average AFP and the average State police staff salaries (sworn and unsworn staff combined), discounted for the ACT's wage costs factor to avoid double counting the higher underlying wage levels in the ACT.

- 14 The national average staffing level is adjusted because the ACT's socio-demographic characteristics (SDC) examined in the Justice assessment indicate that it needs less than the average police staff to population ratio. The ACT staffing level is calculated by adjusting the national average per capita level of police staff for the ACT's justice services SDC<sup>3</sup> and its population.
- 15 The staffing and salaries data are sourced from the Productivity Commission's *Report on Government Services*, which is a reliable and comparable data source. The assessment is updated annually. However, due to the time lag in the production of the report, the Commission indexes the most recently calculated allowance using Australian Bureau of Statistics (ABS) national public sector wage price index.

**Table 29-3 National capital allowance, police services**

	Unit	2016-17	2017-18	2018-19
<b>Calculate notional ACT staffing</b>				
Total staff [A]	no.	72,680	74,330	74,330
Total population [B]	'000	24,385	24,769	25,166
Average staff [C = A / B]	no.	0.003	0.003	0.003
ACT population [D]	'000	407	416	423
Assessed staff [E = C * D]	no.	1,215	1,248	1,250
ACT socio-demographic characteristics factor [F]		0.756	0.757	0.758
Adjusted assessed staff [G = E * F]	no.	918	944	947
<b>Calculate difference in salaries</b>				
Average State salary [H] (a)	\$	118,505	122,531	122,531
ACT wage costs factor [I]		1.046	1.055	1.022
Adjusted State salary [J = H * I]	\$	123,942	129,234	125,213
Average ACT salary [K] (a)	\$	133,023	135,011	135,011
Difference [L = K - J]	\$	9,081	5,777	9,797
Wage price index adjustment [M]		1.000	1.000	1.025
Difference in salaries [N = L * M]	\$	9,081	5,777	10,045
<b>Calculate police allowance</b>				
Assessed allowance [O = G * N]	\$m	8.33	5.45	9.52

(a) Excludes payroll tax because the AFP is exempt from paying payroll tax.

Source: Productivity Commission, *Report on Government Services 2019*, Table 6A.1 and Table 6A.3.

Australian Bureau of Statistics (ABS), *Wage Price Index*, cat. no. 6345.0, ABS Canberra, Table 4a.

## Indexing

- 16 The Commission has decided to index the national capital allowances for 2017-18 by the State and local general government final consumption expenditure (SLGFCE) chain price index to calculate allowances for the other assessment years. SLGFCE is a national accounts aggregate that reflects the expenditure of States.

<sup>3</sup> Due to changes in the Justice assessment, the policing task acts as a proxy for socio-demographic characteristics.

## Effect on the GST distribution

- 17 Table 29-4 shows the extent to which the national capital assessment differs from an equal per capita (EPC) assessment. Recognising the higher spending requirements facing the ACT, this assessment redistributes GST revenue towards the ACT and away from the other States.

Table 29-4     Redistribution from an EPC assessment, national capital, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
\$ million	-5	-4	-3	-2	-1	0	15	0	15
\$ per capita	-1	-1	-1	-1	-1	-1	35	-1	20

Note: The redistribution is the difference from an EPC assessment of expenses.

Source: Commission calculation.

## Changes since the 2019 Update

- 18 There are a number of data and method changes since the 2019 Update as well as changes in State circumstances.
- Data changes
    - National capital planning allowances have been revised.
  - Method changes
    - National capital allowances for wider roads, above average urban space, above average urban/bush interface and bus subsidies are no longer being assessed.
  - Changes in State circumstances
    - The police allowance is recalculated each year as new data become available.

## Updating the assessment

- 19 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances.
- The following data will be updated annually:
    - the police staffing and salaries data, sourced from the Productivity Commission's *Report on Government Services*
    - SLGFCE data.

## Cross-border

- 20 Cross-border costs are incurred when residents of one State use services provided by another. Cross-border flows can occur across any border (for example, the New South Wales-Queensland border in the region of Tweed Heads-Coolangatta, or the New South Wales-Victoria border around Albury-Wodonga). This is because:

- residents of one State use higher level regional or capital city services in another State
  - some services are unavailable in the local area
  - it is more convenient to use the services of other States for reasons such as employment and studies.
- 21 A cross-border disability is assessed when a net cross-border flow of services results in a State incurring a material level of extra costs and it is not reimbursed by other States.
- 22 The Commission's revenue assessments also recognise cross-border disabilities by taking into account that taxes can be exported to the residents of another State.

## Assessment approach

- 23 The Commission has decided not to make a general assessment of cross-border disabilities in the 2020 Review. The case for a cross-border assessment is considered in each of the expense assessments (refer to the relevant chapters).

## Native title and land rights

- 24 The native title and land rights assessment recognises the additional costs incurred by the States due to the operation of:
- the Commonwealth's *Native Title Act 1993*
  - the Commonwealth's *Aboriginal Land Rights (Northern Territory) Act 1976* and comparable State legislation.

### Native title

- 25 The Native Title legislation followed from a High Court decision that recognised Indigenous people's traditional rights on their land as common law.
- 26 Native title expenses include the costs of administering the legislation, compensating holders of native titles, the cost of processing future acts and associated compensation, and any on-going costs associated with joint management of land.
- 27 The expenses incurred in each State due to native title matters vary, depending on the number and type of native title and compensation claims made in the State as well as the number and nature of future acts<sup>4</sup> processed.

### Land rights

- 28 Land rights claims seek a grant of title to land from the Commonwealth or State governments. Different types of land rights laws in Australia allow for the grant of land to Indigenous Australians. Land rights schemes are in place in New South Wales, Victoria, Queensland, South Australia and the Northern Territory.<sup>5</sup> The Northern Territory land rights

<sup>4</sup> Future acts can include exploration, mining, prospecting, building public infrastructure, tourist resorts, water licenses, some legislative changes and some lease renewals.

<sup>5</sup> Australian Law Reform Commission. 2015. [Land rights and native title in the states and territories](https://www.alrc.gov.au/publication/connection-to-country-review-of-the-native-title-act-1993-cth-alrc-report-126/3-context-for-reform/land-rights-and-native-title-in-the-states-and-territories/). (<https://www.alrc.gov.au/publication/connection-to-country-review-of-the-native-title-act-1993-cth-alrc-report-126/3-context-for-reform/land-rights-and-native-title-in-the-states-and-territories/>), [accessed 09/10/2019].

scheme comes under a Commonwealth act, the *Aboriginal Land Rights (Northern Territory) Act 1976*, while the other States' land rights schemes come under State legislation.

- 29 States incur costs in negotiating claims, preparing submissions and in challenging claims through the courts. There are also ongoing costs associated with securing interests in land under land rights acts, administering legislation and joint management of land.

## State expenses

- 30 State expenses on native title and land rights were \$191 million in 2018-19, representing 0.1% of total State expenses (Table 29-5).

**Table 29-5 State expenses on native title and land rights by State, 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Total expenses (\$m)	12	14	51	61	11	0	0	41	191
Total expenses (\$pc)	2	2	10	23	6	1	0	167	8
Proportion of operating expenses (%)	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.8	0.1

Source: Commission calculation using State budget data.

- 31 Table 29-6 shows the share of State expenses on native title and land rights from 2015-16 to 2018-19.

**Table 29-6 State expenses on native title and land rights, 2015-16 to 2018-19**

	2015-16	2016-17	2017-18	2018-19
Total expenses (\$m)	195	186	191	191
Proportion of total operating expenses (%)	0.1	0.1	0.1	0.1

Source: Commission calculation using State budget data.

## Assessment approach

- 32 The assessment of native title and land rights expenses is undertaken in a single component in the Other expenses category. The expenses are collected from States annually.
- 33 Native title and land rights expenses are assessed on an APC basis. The Commission considers that States are following the general frameworks for the implementation of native title and land rights legislation, which are imposed by the Commonwealth. However, States have adapted them to fit their own circumstances. The focus of States has been on implementing cost-effective processes (such as moving from litigation to negotiation).
- 34 Most States supported the current APC assessment and were comfortable providing native title and land rights expenses annually.
- 35 New South Wales and the ACT expressed concerns about possible State policy influence on native title and land rights spending. The Commission is satisfied that States are following the framework for the implementation of native title and land rights legislation and that the expenses are not unduly influenced by specific State policies. States have little incentive to spend more than necessary. Indeed, States are adopting cost minimisation strategies. The Commission is not convinced that the alternative measures proposed by States would capture the volatility of these expenses.

## Land rights expenses

- 36 In previous reviews, the Commission recognised land rights expenses only for the Northern Territory because its expenses were derived from Commonwealth legislation instead of State legislation.
- 37 However, State provided information shows that the average policy of States is to recognise land rights regardless of the presence of Commonwealth legislation. The Commission concludes that recognising land rights for all States better captures what States do. The State information and consideration of Commonwealth and State land rights legislation show that:
- all States other than the ACT incur land rights expenses
  - land rights expenses are small for all States other than Queensland (\$19 million in 2018-19) and the Northern Territory (\$34 million in 2018-19), as shown in Table 29-7
  - some States, such as Western Australia, have said it is difficult to untangle native title and land rights expenses
  - land rights legislation differs across the States but the intent is the same, that is, to grant title to land from the Commonwealth or State governments
  - some States use land rights as a means through which to meet their obligations under the Commonwealth's *Native Title Act 1993*, such as through legislation like the *Traditional Owner Settlement Act 2010* (Vic) (TOS Act) and through a variety of Indigenous Land Use Agreements.

Table 29-7 State land rights expenses, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Land rights expenses	2	2	19	4	1	0	0	34	63

Note: Tasmania incurs land rights expenses of \$0.3 million which is shown as zero due to rounding.

Source: State data.

- 38 **Compensation expenses.** The Commission notes the recent High Court ruling that the Northern Territory must pay \$2.53 million in compensation to the Ngaliwurru and Nungali peoples in compensation for acts of the Northern Territory government that impaired or extinguished native title rights and interests.<sup>6</sup> The Commission intends to continue to monitor such compensation cases and State responses to them to ensure an APC assessment remains appropriate.
- 39 **Revenue.** The expenses will be offset by any revenue States receive in relation to native title and land rights. Revenue may include, among other things, reimbursements from third parties in relation to native title compensation cases.

## Assessed expenses calculation

- 40 Table 29-8 shows the calculation of native title and land rights assessed expenses in 2018-19.

<sup>6</sup> High Court judgement (2019). Northern Territory v Mr A. Griffiths (deceased) and Lorraine Jones on behalf of the Ngaliwurru and Nungali Peoples [2019] HCA 7. [High Court website](http://eresources.hcourt.gov.au/downloadPdf/2019/HCA/7), (<http://eresources.hcourt.gov.au/downloadPdf/2019/HCA/7>), [accessed 21/01/2020].

Table 29-8 Native title and land rights component assessment, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
\$ million	12	14	51	61	11	0	0	41	191
\$ per capita	2	2	10	23	6	1	0	167	8

Source: Commission calculation.

## Effect on the GST redistribution

41 Table 29-9 shows the extent to which the assessment of native title and land rights expenses moves the distribution of GST away from an EPC distribution. States with a positive redistribution are assessed to have above average spending requirements and States with a negative redistribution are assessed to have below average spending requirements. In per capita terms, the Northern Territory experiences the largest redistribution. The assessment is not material for any other State.

Table 29-9 Illustrative redistribution from an EPC distribution of GST, native title and land rights, 2020-21

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Redist
\$ million	-51	-40	14	51	-2	-4	-3	35	100
\$ per capita	-6	-6	3	19	-1	-7	-8	142	4

Note: The redistribution is the difference from an EPC assessment derived using 2016-17 to 2018-19 assessed expenses and 2020-21 GST revenue.

Source: Commission calculation.

42 The main reasons for differences in native title and land rights expenses, and therefore, differences in these redistributions are the differences between States in:

- the size of their remote Indigenous populations
- the number of Indigenous groups who have retained a continuing connection to the land
- the history of land development and economic activity in a State
- the location of claims and competing interests in the areas claimed.

## Changes since the 2019 Update

43 There are a number of method changes since the 2019 Update.

- Method changes
  - Land rights expenses are assessed for all States (not just the Northern Territory). They are assessed on an actual per capita basis.
  - The native title and land rights expenses are assessed together as some States indicated they could not be reliably separated.

## Updating the assessments

44 As required by the terms of reference, the Commission will incorporate the latest available data in the assessment during the annual updates. This will allow the assessment to reflect changes in State circumstances. State data on expenses relating to native title and land rights will be updated annually through a State data request.



# 30 Calculating relativities

- 1 This chapter shows the calculation of the recommended per capita GST relativities using the standard presentation and an alternative presentation.

## Standard presentation

- 2 A per capita relativity is derived for each State by expressing its per capita GST requirement as a ratio of the national average per capita GST distributed in the year. This calculation is undertaken for each of the three years in an inquiry (the assessment or reference years).
- 3 Table 30-1, Table 30-4 and Table 30-7 show the derivation of total assessed expenses for each State and each assessment year.
- 4 Table 30-2, Table 30-5 and Table 30-8 show the derivation of total assessed revenue for each State and each assessment year.
- 5 Table 30-3, Table 30-6 and Table 30-9 show the derivation of the per capita GST requirement for each State and each assessment year, calculated as:
  - the expenses it would incur to provide the average services (its assessed expenses) *plus*
  - the investment it would make to have the infrastructure required to provide the average services (its assessed investment) *less*
  - the net borrowing it would make to finish the year with the average per capita net financial worth (its assessed net borrowing) *less*
  - the revenue it would raise if it made the average revenue raising effort (its assessed revenue) *less*
  - the revenue from Commonwealth payments which are available to fund its spending requirements.
- 6 The per capita relativities are equal to each State's GST requirement divided by the average GST requirement in an assessment year.

Table 30-1 Per capita assessed expenses, 2016-17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Schools	1,533	1,393	1,689	1,717	1,543	1,718	1,430	2,933	1,565
Post-secondary education	219	214	232	233	227	248	216	383	224
Health	2,404	2,322	2,506	2,606	2,638	3,002	2,182	4,416	2,470
Housing	108	94	128	146	131	132	76	550	119
Welfare	742	667	791	757	762	855	619	1,644	745
Services to communities	292	284	330	371	318	312	287	1,254	318
Justice	756	681	832	872	792	872	638	2,514	785
Roads	257	240	315	342	323	290	144	647	281
Transport	681	592	412	469	409	203	426	250	544
Services to industry	191	182	205	288	201	217	176	287	204
Other expenses	934	927	993	1,073	1,073	1,514	1,731	2,561	1,011
<b>Assessed expenses</b>	<b>8,117</b>	<b>7,595</b>	<b>8,434</b>	<b>8,874</b>	<b>8,417</b>	<b>9,365</b>	<b>7,925</b>	<b>17,440</b>	<b>8,265</b>

Source: CGC calculation.

Table 30-2 Per capita assessed revenue, 2016-17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Payroll tax	1,031	894	850	1,209	699	596	949	1,156	946
Land tax	410	400	231	357	154	115	147	276	336
Stamp duty on conveyances	1,105	877	749	466	427	427	859	371	834
Insurance tax	224	192	208	208	245	169	186	231	211
Motor taxes	281	310	324	363	327	361	260	276	310
Mining revenue	231	26	728	2,311	136	131	0	622	488
Other revenue	1,792	1,792	1,792	1,792	1,792	1,792	1,792	1,792	1,792
<b>Assessed revenue</b>	<b>5,075</b>	<b>4,492</b>	<b>4,882</b>	<b>6,706</b>	<b>3,781</b>	<b>3,592</b>	<b>4,193</b>	<b>4,725</b>	<b>4,917</b>

Source: CGC calculation.

Table 30-3 Per capita relativities, 2016-17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Assessed expenses	8,117	7,595	8,434	8,874	8,417	9,365	7,925	17,440	8,265
Investment	1,155	1,151	1,107	1,033	914	855	976	2,816	1,122
Assessed expenditure <i>met through</i>	9,273	8,746	9,541	9,907	9,332	10,220	8,901	20,256	9,387
Net borrowing	446	469	445	415	417	420	459	422	446
Assessed revenue	5,075	4,492	4,882	6,706	3,781	3,592	4,193	4,725	4,917
Requirement for assistance <i>met through</i>	3,752	3,785	4,215	2,786	5,134	6,208	4,249	15,110	4,024
Commonwealth payments	1,554	1,460	1,684	1,519	1,557	1,694	1,335	3,371	1,570
GST requirement	2,198	2,325	2,531	1,267	3,577	4,514	2,914	11,739	2,454
<b>Per capita relativity</b>	<b>0.896</b>	<b>0.947</b>	<b>1.031</b>	<b>0.516</b>	<b>1.458</b>	<b>1.839</b>	<b>1.188</b>	<b>4.783</b>	<b>1.000</b>

Notes: Net borrowing considered to be an alternative source of funds to meet a State's expenditure requirement.

Per capita relativities are equal to each State's GST requirement divided by the average GST requirement.

Source: CGC calculation.

Table 30-4 Per capita assessed expenses, 2017-18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Schools	1,599	1,476	1,757	1,693	1,579	1,801	1,519	2,991	1,624
Post-secondary education	219	214	231	225	223	251	216	390	223
Health	2,528	2,452	2,654	2,643	2,746	3,269	2,273	4,701	2,594
Housing	105	92	123	132	122	130	75	510	113
Welfare	803	719	855	819	826	929	675	1,751	805
Services to communities	318	311	354	385	340	341	315	1,241	342
Justice	800	726	875	878	819	933	668	2,622	824
Roads	267	249	329	348	341	316	140	696	292
Transport	725	639	437	473	423	219	459	262	578
Services to industry	193	187	206	266	199	231	180	280	203
Other expenses	974	962	1,148	1,190	1,077	1,585	1,741	2,795	1,080
<b>Assessed expenses</b>	<b>8,531</b>	<b>8,028</b>	<b>8,970</b>	<b>9,052</b>	<b>8,696</b>	<b>10,007</b>	<b>8,261</b>	<b>18,238</b>	<b>8,679</b>

Source: CGC calculation.

Table 30-5 Per capita assessed revenue, 2017-18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Payroll tax	1,064	930	889	1,236	728	648	995	1,213	980
Land tax	478	411	236	343	160	120	162	296	361
Stamp duty on conveyances	1,116	1,016	660	454	439	456	771	278	854
Insurance tax	227	194	209	203	245	169	185	224	212
Motor taxes	289	319	335	370	338	376	267	293	319
Mining revenue	251	31	812	2,301	155	132	0	832	513
Other revenue	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851	1,851
<b>Assessed revenue</b>	<b>5,276</b>	<b>4,752</b>	<b>4,991</b>	<b>6,758</b>	<b>3,914</b>	<b>3,752</b>	<b>4,230</b>	<b>4,986</b>	<b>5,091</b>

Source: CGC calculation.

Table 30-6 Per capita relativities, 2017-18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Assessed expenses	8,531	8,028	8,970	9,052	8,696	10,007	8,261	18,238	8,679
Investment	1,220	1,255	1,219	1,175	977	1,001	1,006	2,955	1,216
Assessed expenditure	9,752	9,283	10,189	10,227	9,674	11,008	9,267	21,193	9,895
<i>met through</i>									
Net borrowing	643	666	647	620	618	628	659	606	645
Assessed revenue	5,276	4,752	4,991	6,758	3,914	3,752	4,230	4,986	5,091
Requirement for assistance	3,832	3,866	4,551	2,848	5,142	6,628	4,377	15,601	4,159
<i>met through</i>									
Commonwealth payments	1,537	1,456	1,767	1,660	1,746	1,798	1,451	3,269	1,611
GST requirement	2,295	2,410	2,784	1,188	3,396	4,830	2,926	12,332	2,549
<b>Per capita relativity</b>	<b>0.901</b>	<b>0.946</b>	<b>1.092</b>	<b>0.466</b>	<b>1.332</b>	<b>1.895</b>	<b>1.148</b>	<b>4.839</b>	<b>1.000</b>

Notes: Net borrowing considered to be an alternative source of funds to meet a State's expenditure requirement.

Per capita relativities are equal to each State's GST requirement divided by the average GST requirement.

Source: CGC calculation.

Table 30-7 Per capita assessed expenses, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Schools	1,682	1,544	1,852	1,854	1,681	1,891	1,568	3,095	1,714
Post-secondary education	229	222	241	238	233	262	229	399	233
Health	2,645	2,536	2,793	2,840	2,895	3,453	2,300	4,970	2,718
Housing	120	104	140	156	142	148	81	561	130
Welfare	774	684	829	800	797	899	640	1,802	776
Services to communities	328	319	364	399	350	352	319	1,284	352
Justice	853	765	930	959	877	996	698	2,811	878
Roads	282	265	338	361	341	324	171	656	304
Transport	764	673	460	507	445	231	471	269	610
Services to industry	195	188	207	285	207	248	180	299	208
Other expenses	969	966	1,057	1,115	1,106	1,610	1,753	2,714	1,054
<b>Assessed expenses</b>	<b>8,841</b>	<b>8,265</b>	<b>9,211</b>	<b>9,514</b>	<b>9,073</b>	<b>10,413</b>	<b>8,410</b>	<b>18,860</b>	<b>8,975</b>

Source: CGC calculation.

Table 30-8 Per capita assessed revenue, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Payroll tax	1,097	979	927	1,280	805	668	984	1,158	1,021
Land tax	553	516	248	342	178	131	184	353	417
Stamp duty on conveyances	860	829	580	463	449	423	756	600	713
Insurance tax	237	206	216	211	258	177	191	214	221
Motor taxes	290	319	336	368	339	381	270	292	320
Mining revenue	291	32	970	2,843	195	135	0	970	616
Other revenue	1,985	1,985	1,985	1,985	1,985	1,985	1,985	1,985	1,985
<b>Assessed revenue</b>	<b>5,314</b>	<b>4,866</b>	<b>5,261</b>	<b>7,493</b>	<b>4,209</b>	<b>3,900</b>	<b>4,370</b>	<b>5,573</b>	<b>5,293</b>

Source: CGC calculation.

Table 30-9 Per capita relativities, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Assessed expenses	8,841	8,265	9,211	9,514	9,073	10,413	8,410	18,860	8,975
Investment	1,274	1,327	1,303	1,264	1,061	1,074	1,029	2,511	1,282
Assessed expenditure <i>met through</i>	10,115	9,592	10,515	10,778	10,134	11,488	9,440	21,370	10,257
Net borrowing	762	799	776	730	726	750	778	650	767
Assessed revenue	5,314	4,866	5,261	7,493	4,209	3,900	4,370	5,573	5,293
Requirement for assistance <i>met through</i>	4,039	3,927	4,477	2,556	5,198	6,838	4,292	15,148	4,196
Commonwealth payments	1,559	1,373	1,826	1,606	1,876	1,770	1,398	3,018	1,607
GST requirement	2,480	2,554	2,651	950	3,322	5,069	2,894	12,130	2,589
<b>Per capita relativity</b>	<b>0.958</b>	<b>0.986</b>	<b>1.024</b>	<b>0.367</b>	<b>1.283</b>	<b>1.958</b>	<b>1.118</b>	<b>4.685</b>	<b>1.000</b>

Notes: Net borrowing considered to be an alternative source of funds to meet a State's expenditure requirement.

Per capita relativities are equal to each State's GST requirement divided by the average GST requirement.

Source: CGC calculation.

## Alternative presentation

- 7 Table 30-10, Table 30-13 and Table 30-16 show the derivation of the assessed expense differences from EPC for each State and each assessment year.
- 8 Table 30-11, Table 30-14 and Table 30-17 show the derivation of total assessed revenue differences from EPC for each State and each assessment year.
- 9 Table 30-12, Table 30-15 and Table 30-18 show an alternative presentation of the derivation of per capita relativities. In these tables, the per capita relativities are calculated as the average per capita GST paid during each year plus the State's:
  - per capita expense assessed difference (the State's per capita assessed expenses less the average State per capita expenses)
  - per capita investment assessed difference (the State's per capita assessed investment less the average State per capita investment)
  - per capita net borrowing assessed difference (the average State per capita net borrowing less the State's per capita assessed net borrowing)
  - per capita revenue assessed difference (the average State per capita revenue less the State's per capita assessed revenue)
  - per capita assessed difference for Commonwealth payments (the average State per capita Commonwealth payments less the State's per capita Commonwealth payments).

Table 30-10 Per capita assessed expense differences from EPC, 2016-17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Schools	-32	-172	124	153	-22	154	-135	1,369	0
Post-secondary education	-6	-11	7	8	3	24	-8	159	0
Health	-66	-149	35	135	167	531	-288	1,946	0
Housing	-10	-24	9	28	12	13	-42	432	0
Welfare	-3	-78	46	12	17	110	-126	899	0
Services to communities	-26	-34	13	53	1	-5	-31	936	0
Justice	-29	-104	47	87	6	87	-147	1,729	0
Roads	-23	-41	34	61	42	10	-136	367	0
Transport	137	48	-132	-76	-135	-341	-119	-294	0
Services to industry	-13	-22	2	84	-2	13	-28	83	0
Other expenses	-76	-84	-17	62	63	504	720	1,551	0
<b>Assessed expenses</b>	<b>-148</b>	<b>-670</b>	<b>169</b>	<b>608</b>	<b>152</b>	<b>1,100</b>	<b>-340</b>	<b>9,175</b>	<b>0</b>

Source: CGC calculation.

Table 30-11 Per capita assessed revenue differences from EPC, 2016-17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Payroll tax	-86	52	96	-263	247	350	-3	-211	0
Land tax	-74	-64	105	-21	182	221	189	60	0
Stamp duty on conveyances	-271	-43	86	368	407	407	-25	463	0
Insurance tax	-13	19	2	3	-34	42	25	-20	0
Motor taxes	29	0	-14	-52	-17	-51	50	35	0
Mining revenue	257	462	-240	-1,823	352	357	488	-134	0
Other revenue	0	0	0	0	0	0	0	0	0
<b>Assessed revenue</b>	<b>-157</b>	<b>425</b>	<b>35</b>	<b>-1,789</b>	<b>1,137</b>	<b>1,326</b>	<b>725</b>	<b>193</b>	<b>0</b>

Source: CGC calculation.

Table 30-12 Per capita relativities, alternative presentation, 2016-17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Average GST	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454	2,454
<i>plus assessed differences in</i>									
Expenses	-148	-670	169	608	152	1,100	-340	9,175	0
Investment	33	29	-15	-89	-208	-267	-146	1,694	0
Net borrowing	-1	-23	1	31	29	26	-14	24	0
Assessed revenue	-157	425	35	-1,789	1,137	1,326	725	193	0
Commonwealth payments	16	110	-114	51	13	-124	235	-1,801	0
GST requirement	2,198	2,325	2,531	1,267	3,577	4,514	2,914	11,739	2,454
<b>Per capita relativity</b>	<b>0.896</b>	<b>0.947</b>	<b>1.031</b>	<b>0.516</b>	<b>1.458</b>	<b>1.839</b>	<b>1.188</b>	<b>4.783</b>	<b>1.000</b>

Note: Per capita relativities are equal to each State's GST requirement divided by the average GST requirement.

Source: CGC calculation.

Table 30-13 Per capita assessed expense differences from EPC, 2017-18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Schools	-25	-148	133	68	-45	177	-106	1,366	0
Post-secondary education	-4	-9	8	2	0	27	-7	166	0
Health	-66	-142	60	49	152	675	-321	2,107	0
Housing	-9	-21	9	19	9	17	-38	397	0
Welfare	-2	-86	50	14	21	124	-130	946	0
Services to communities	-24	-31	13	44	-2	-1	-27	900	0
Justice	-24	-98	51	54	-5	109	-156	1,798	0
Roads	-24	-42	37	57	49	24	-151	405	0
Transport	147	61	-141	-105	-155	-359	-119	-316	0
Services to industry	-11	-16	3	62	-4	28	-23	77	0
Other expenses	-105	-117	68	110	-2	506	661	1,715	0
<b>Assessed expenses</b>	<b>-147</b>	<b>-650</b>	<b>291</b>	<b>373</b>	<b>18</b>	<b>1,328</b>	<b>-418</b>	<b>9,559</b>	<b>0</b>

Source: CGC calculation.

Table 30-14 Per capita assessed revenue differences from EPC, 2017-18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Payroll tax	-83	50	91	-256	253	332	-15	-232	0
Land tax	-116	-50	125	18	201	241	199	65	0
Stamp duty on conveyances	-262	-161	195	400	415	398	83	576	0
Insurance tax	-16	17	3	9	-33	43	27	-12	0
Motor taxes	30	0	-15	-51	-18	-57	53	26	0
Mining revenue	262	482	-299	-1,788	358	381	513	-319	0
Other revenue	0	0	0	0	0	0	0	0	0
<b>Assessed revenue</b>	<b>-186</b>	<b>339</b>	<b>99</b>	<b>-1,668</b>	<b>1,176</b>	<b>1,338</b>	<b>860</b>	<b>104</b>	<b>0</b>

Source: CGC calculation.

Table 30-15 Per capita relativities, alternative presentation, 2017-18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Average GST	2,549	2,549	2,549	2,549	2,549	2,549	2,549	2,549	2,549
<i>plus assessed differences in</i>									
Assessed expenses	-147	-650	291	373	18	1,328	-418	9,559	0
Investment	4	39	3	-41	-239	-215	-211	1,739	0
Net borrowing	2	-21	-1	25	28	17	-14	39	0
Assessed revenue	-186	339	99	-1,668	1,176	1,338	860	104	0
Commonwealth payments	74	155	-157	-50	-135	-187	160	-1,658	0
GST requirement	2,295	2,410	2,784	1,188	3,396	4,830	2,926	12,332	2,549
<b>Per capita relativity</b>	<b>0.901</b>	<b>0.946</b>	<b>1.092</b>	<b>0.466</b>	<b>1.332</b>	<b>1.895</b>	<b>1.148</b>	<b>4.839</b>	<b>1.000</b>

Note: Per capita relativities are equal to each State's GST requirement divided by the average GST requirement.

Source: CGC calculation.



Table 30-16 Per capita assessed expense differences from EPC, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Schools	-32	-171	138	140	-33	177	-146	1,381	0
Post-secondary education	-4	-11	8	5	0	29	-4	166	0
Health	-73	-182	75	122	177	735	-418	2,252	0
Welfare	-3	-93	53	24	21	123	-136	1,026	0
Housing	-9	-25	10	26	13	18	-48	432	0
Services to communities	-23	-33	13	48	-2	0	-32	933	0
Justice	-25	-112	52	81	-1	118	-180	1,933	0
Roads	-22	-38	34	57	37	20	-132	352	0
Transport	154	63	-150	-103	-165	-378	-139	-341	0
Services to industry	-13	-19	0	77	-1	40	-27	91	0
Other expenses	-85	-89	3	61	52	556	699	1,660	0
<b>Assessed expenses</b>	<b>-135</b>	<b>-710</b>	<b>236</b>	<b>539</b>	<b>97</b>	<b>1,438</b>	<b>-565</b>	<b>9,884</b>	<b>0</b>

Source: CGC calculation.

Table 30-17 Per capita assessed revenue differences from EPC, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Payroll tax	-77	42	94	-260	215	353	36	-138	0
Land tax	-136	-99	170	75	240	287	234	64	0
Stamp duty on conveyances	-147	-116	133	250	264	290	-44	113	0
Insurance tax	-16	15	5	10	-37	44	30	8	0
Motor taxes	30	1	-16	-49	-19	-62	50	28	0
Mining revenue	325	584	-354	-2,227	421	481	616	-354	0
Other revenue	0	0	0	0	0	0	0	0	0
<b>Assessed revenue</b>	<b>-21</b>	<b>427</b>	<b>32</b>	<b>-2,200</b>	<b>1,084</b>	<b>1,393</b>	<b>923</b>	<b>-279</b>	<b>0</b>

Source: CGC calculation.

Table 30-18 Per capita relativities, alternative presentation, 2018-19

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc	\$pc
Average GST	2,589	2,589	2,589	2,589	2,589	2,589	2,589	2,589	2,589
<i>plus assessed differences in</i>									
Assessed expenses	-135	-710	236	539	97	1,438	-565	9,884	0
Investment	-7	45	22	-17	-221	-207	-252	1,229	0
Net borrowing	6	-32	-9	38	41	18	-10	117	0
Assessed revenue	-21	427	32	-2,200	1,084	1,393	923	-279	0
Commonwealth payments	48	235	-219	2	-269	-162	209	-1,411	0
GST requirement	2,480	2,554	2,651	950	3,322	5,069	2,894	12,130	2,589
<b>Per capita relativity</b>	<b>0.958</b>	<b>0.986</b>	<b>1.024</b>	<b>0.367</b>	<b>1.283</b>	<b>1.958</b>	<b>1.118</b>	<b>4.685</b>	<b>1.000</b>

Note: Per capita relativities are equal to each State's GST requirement divided by the average GST requirement.

Source: CGC calculation.

## Assessed relativities

- 10 The per capita relativities recommended for use in 2020-21 (the application year for this review) are the simple average of the annual relativities for the three assessment years 2016-17 to 2018-19. Relativities used to distribute the GST revenue are calculated to five decimal places, as shown in Table 30-19.

Table 30-19 Assessed relativities

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Ave
	no.	no.	no.	no.	no.	no.	no.	no.	no.
2016-17	0.89565	0.94746	1.03125	0.51616	1.45762	1.83946	1.18751	4.78330	1.00000
2017-18	0.90069	0.94580	1.09223	0.46608	1.33242	1.89517	1.14811	4.83883	1.00000
2018-19	0.95789	0.98648	1.02372	0.36686	1.28292	1.95763	1.11773	4.68466	1.00000
<b>Average</b>	<b>0.91808</b>	<b>0.95992</b>	<b>1.04907</b>	<b>0.44970</b>	<b>1.35765</b>	<b>1.89742</b>	<b>1.15112</b>	<b>4.76893</b>	<b>1.00000</b>

Note: Annual relativities are not rounded prior to averaging.

Source: CGC calculation.

# 31 Population data

## Estimated resident population

- 1 For all its assessments, and its overall relativities, the Commission requires population estimates. For many assessments, it requires population data on a range of population groups disaggregated by various characteristics related to the differential use or cost of services, for example, age, sex, Indigenous status, socio-economic status (SES) and remoteness.
- 2 All estimated resident population (ERP) data the Commission uses come from the Australian Bureau of Statistics (ABS). Most of these data are received through a special data request.

## Population level estimates

- 3 For assessments that require estimates of the size of total State populations, the Commission uses estimates as at 31 December, which is the middle of the financial year. This is the population series used for calculating:
  - equal per capita (EPC) distributions
  - disability factors
  - population growth
  - per capita relativities.
- 4 Table 31-1 shows the State ERP for each assessment year and the application year that are used in this report.

**Table 31-1** Estimated resident population, by State, at 31 December

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
2016-17	7,802	6,245	4,884	2,564	1,717	520	407	246	24,385
2017-18	7,920	6,387	4,963	2,583	1,728	525	416	247	24,769
2018-19	8,038	6,527	5,051	2,606	1,743	532	423	246	25,166
2020-21	8,301	6,833	5,233	2,653	1,772	544	440	246	26,023
	%	%	%	%	%	%	%	%	%
2016-17	32.0	25.6	20.0	10.5	7.0	2.1	1.7	1.0	100.0
2017-18	32.0	25.8	20.0	10.4	7.0	2.1	1.7	1.0	100.0
2018-19	31.9	25.9	20.1	10.4	6.9	2.1	1.7	1.0	100.0
2020-21	31.9	26.3	20.1	10.2	6.8	2.1	1.7	0.9	100.0

Note: The total excludes the populations of Jervis Bay, Cocos (Keeling) Islands, Christmas Island and Norfolk Island.

Sources: Australian Bureau of Statistics (ABS), June 2018, *Australian Demographic Statistics*, cat. no. 3101.0, Table 4, Estimated Resident Population, States and Territories. Application year population estimates are provided by the Australian Treasury.

## Disaggregated data

- 5 The Commission receives administrative data on the use and cost of services from States and other parties. These data are used to identify the characteristics of higher (or lower) cost population groups in the provision of State services. Population data are required so that

national costs for these population groups can be distributed across States based on their share of that population group.

- 6 For disaggregated ERP, conceptually the Commission requires populations as at 31 December since this is the mid-point of the financial year. However, 31 December populations are not available from the ABS as it provides 30 June population data annually, disaggregated by age, sex, and geography (including by remoteness and SES). Therefore, the Commission scales 30 June disaggregated population data to State total populations as of 31 December for each year. For example, 30 June 2018 disaggregated ERP are scaled to State total populations at 31 December 2018. The scaled ERP data are used for the 2018-19 financial year.

## Indigenous status

- 7 Apart from the Census year, the ABS does not provide population data disaggregated by Indigenous status. As a result, for subsequent years the Commission imputes Indigenous population estimates. This is done by applying the Indigenous share of the total population within each disaggregated population group (in the Census year) and then adjusting this to match the ABS estimated Indigenous population projections at 30 June each year, by age and State. The resulting estimated numbers of Indigenous people in each disaggregated group are subtracted from the group's total to give the number of non-Indigenous people in the group.

## Use of Statistical Area Level 1 based classifications

- 8 The most accurate disaggregation of population by remoteness and SES is that based on classifications at Statistical Area Level 1 (SA1) geography. While it would be ideal if administrative data provided by the Commonwealth, States and third parties was also available at the SA1 level, this is rarely possible. In practice, the Commission receives administrative data on the use and cost of services from States and other third parties that reflect varying geographies.

## Population growth estimates

- 9 Table 31-2 contains States' estimated annual growth rates of ERP over the assessment period.

**Table 31-2 State population growth rates, 2016-17 to 2018-19**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	%	%	%	%	%	%	%	%	%
2016-17	1.7	2.5	1.6	0.6	0.7	0.8	2.2	0.9	1.7
2017-18	1.5	2.3	1.6	0.7	0.6	1.0	2.1	0.3	1.6
2018-19	1.5	2.2	1.8	0.9	0.8	1.3	1.8	-0.5	1.6

Source: Commission calculation based on December estimated resident population from the ABS.

- 10 For the capital assessments, the Commission would ideally use population growth rates across financial years, from 30 June to 30 June. In the 2015 Review, the Commission considered changing to financial year growth rates to better reflect the conceptual requirements for capital assessments. After consulting States, the Commission concluded that this shift would not materially improve the equalisation outcomes, in part because the GST distribution is based on a three year average. The Commission has retained this approach for the 2020 Review.

## Service populations

- 11 The Commission uses ERP data (that is, a person's place of usual residence) as the basis for estimating service populations. This means that tourists, itinerant workers, fly in/fly out (FIFO) workers and mobile Indigenous populations, who are not always located at their place of usual residence, may affect service delivery requirements differently for different States and services. Conceptually, these effects could affect the relative use of services by different populations between and within States.
- 12 In the 2015 Review, the Commission considered whether it could identify, or measure, any such effects between and within States. However, at that time, the ABS advised that no reliable method of estimating service populations had been developed nationally, or internationally, because service populations are not discrete or mutually exclusive. States have not been able to provide data on how different service populations affect State service provision requirements and State budgets. For the 2020 Review, the Commission has retained ERP as the measure of all populations.

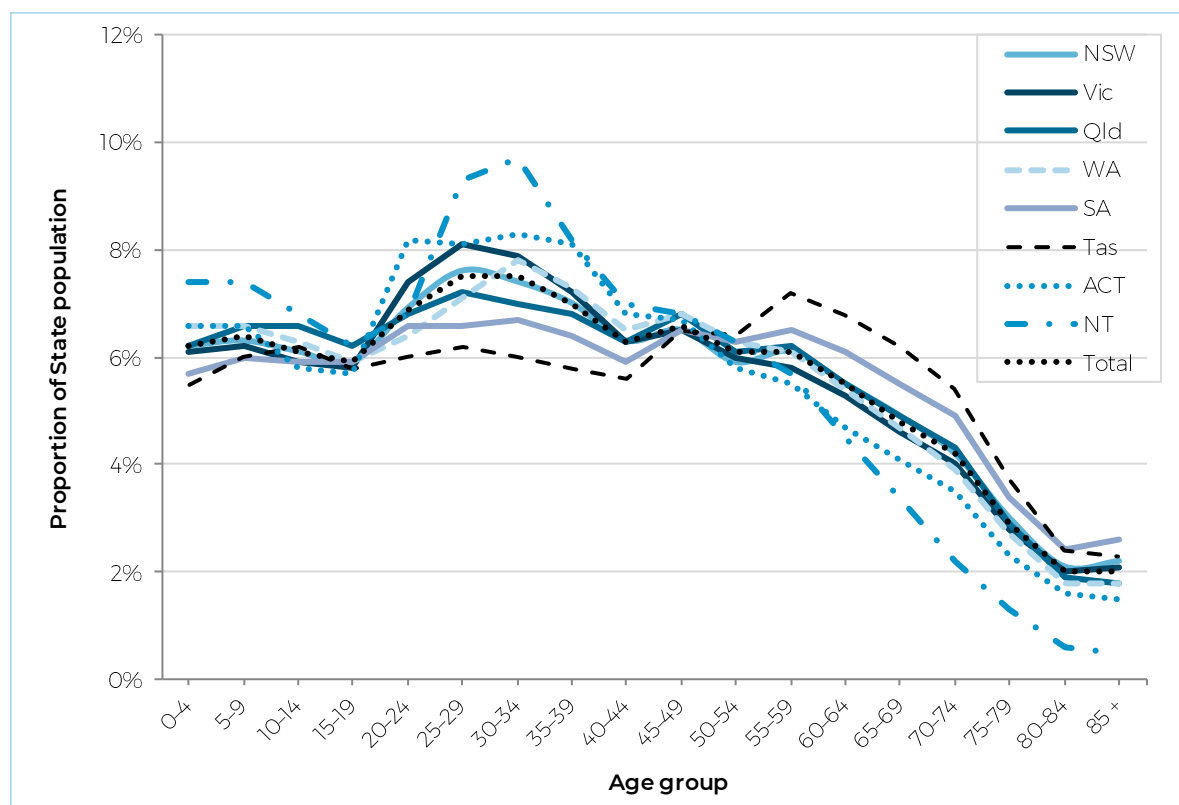
## Population characteristics used in assessments

- 13 The main population characteristics used in the assessments are Indigenous status, age, remoteness and SES. The main way in which these attributes affect the assessments is where States have different shares of these population groups. In selecting classifications, it is more important to consider how State populations differ, because differences in use rates only become relevant when State population characteristics differ (for example, high Indigenous use rates would be irrelevant if all States had the same share of Indigenous populations).
- 14 The Commission uses a common structure for the classification of population characteristics for all expense categories. Having a common structure, with fewer unique classifications for these characteristics, reduces the size of the datasets required, makes for simpler assessments and reduces the risk of errors. It also enhances the comparative analysis that can be undertaken between expense categories. However, where service use rates do differ between States, it may be material to use different levels of detail within the common structure.

## Age

- 15 The Commission aims to have common classification structures for the various assessments. This is best demonstrated with age but is valid in other classifications. As the primary focus is on the difference in the distribution of populations between States, the Commission was guided in selecting common structures by the patterns in Figure 31-1. This shows that Tasmania and South Australia have below average shares of 15-44 year olds, and above average shares of 45-64 and 65+ year olds. In contrast, the Northern Territory and the ACT have substantially above average shares of 15-44 year olds but their shares of 65+ year olds are well below the national average.

Figure 31-1 Age structure of State populations, June 2019



Source: ABS, June 2019, *Australian Demographic Statistics*, cat. no. 3101.0.

- 16 In the 2020 Review, the major age groups used are 0-14, 15-64 and 65+ years. This structure is used in a range of social and economic statistics and has been generally adopted in the Commission's assessments. Within these major groups, further disaggregation has been applied where there is a conceptual case and it has been material to do so for different expense categories.
- 17 It is material to disaggregate further the 65+ age group in the Health assessment. As the population is ageing, the Commission also investigated if it would be material to split the 75+ age group into separate 75-84 and 85+ groupings but found that splitting the 75+ age group would be immaterial. For the Justice assessment, the 15-44 age group is disaggregated. For the Post-secondary education assessment, the working age (15-64 years) population is used. The relevant chapters provide further details.
- 18 Table 31-3 shows the details of State estimated resident populations for December 2018 by major age groups.

Table 31-3 Estimated resident population by age and State, December 2018

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
0 - 14 years	1,503	1,198	988	509	308	94	81	53	4,735
15 - 64 years	5,242	4,330	3,286	1,721	1,114	333	289	174	16,489
65+ years	1,293	999	776	376	321	105	54	19	3,942
<b>Total</b>	<b>8,038</b>	<b>6,527</b>	<b>5,051</b>	<b>2,606</b>	<b>1,743</b>	<b>532</b>	<b>423</b>	<b>246</b>	<b>25,166</b>
	%	%	%	%	%	%	%	%	%
0 - 14 years	31.7	25.3	20.9	10.8	6.5	2.0	1.7	1.1	100.0
15 - 64 years	31.8	26.3	19.9	10.4	6.8	2.0	1.8	1.1	100.0
65+ years	32.8	25.3	19.7	9.5	8.1	2.7	1.4	0.5	100.0
<b>Total</b>	<b>31.9</b>	<b>25.9</b>	<b>20.1</b>	<b>10.4</b>	<b>6.9</b>	<b>2.1</b>	<b>1.7</b>	<b>1.0</b>	<b>100.0</b>

Source: Commission calculation using ABS data.

## Remoteness

- 19 Many of the assessments measure and disaggregate populations according to their degree of remoteness, which affects both the use of services, and the cost of delivering services. The indicator of remoteness should group like areas together and distinguish unlike areas. In the 2015 Review, the Commission changed its measure of remoteness from the State Accessibility/Remoteness Index of Australia (SARIA) to ABS remoteness areas, which are based on the Accessibility/Remoteness Index of Australia (ARIA+).<sup>1</sup>
- 20 For the 2020 Review, the Commission again considered the best measure of remoteness and concluded that the ABS remoteness areas are the best available measure of remoteness for its purposes. While ABS remoteness areas might not be perfect for the Commission's purposes, there is no evidence of any specific biases in them, or how this could be improved. States were consulted and their views are discussed in more detail in Chapter 28 Geography.
- 21 Table 31-4 provides details of State estimated resident population for December 2018, split into five remoteness areas.

<sup>1</sup> ARIA+ is produced by the Hugo Centre for Migration and Population Research at the University of Adelaide (see <https://www.adelaide.edu.au/hugo-centre/services/aria>).

Table 31-4 Estimated resident population by remoteness and State, December 2018

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Major cities	6,061	5,089	3,239	2,039	1,282	0	423	0	18,134
Inner regional	1,494	1,184	988	226	225	361	1	0	4,478
Outer regional	447	251	696	185	177	160	0	147	2,065
Remote	30	3	73	86	45	8	0	48	292
Very remote	6	0	55	69	14	3	0	50	197
<b>Total</b>	<b>8,038</b>	<b>6,527</b>	<b>5,051</b>	<b>2,606</b>	<b>1,743</b>	<b>532</b>	<b>423</b>	<b>246</b>	<b>25,166</b>
	%	%	%	%	%	%	%	%	%
Major cities	33.4	28.1	17.9	11.2	7.1	0.0	2.3	0.0	100.0
Inner regional	33.4	26.4	22.1	5.0	5.0	8.1	0.0	0.0	100.0
Outer regional	21.6	12.2	33.7	9.0	8.6	7.8	0.0	7.1	100.0
Remote	10.2	1.0	24.9	29.3	15.4	2.7	0.0	16.4	100.0
Very remote	2.9	0.0	27.9	35.3	7.0	1.3	0.0	25.5	100.0
<b>Total</b>	<b>31.9</b>	<b>25.9</b>	<b>20.1</b>	<b>10.4</b>	<b>6.9</b>	<b>2.1</b>	<b>1.7</b>	<b>1.0</b>	<b>100.0</b>

Note: Under the Australian Statistical Geography Standard, Tasmania and the Northern Territory are considered to have no major cities, as neither have cities with a population of more than 250,000 persons.

Source: ABS data request.

- 22 Category assessments use either the five remoteness areas, or an aggregation of these into groups, depending on the materiality of each disaggregation or the quality of the related administrative data. For example, in the Welfare assessment, it is not material to split remote and very remote categories for Indigenous child protection and family services, so these are grouped together.

## Indigenous and socio-economic status

- 23 One of the attributes of the population that the Commission uses in its assessments is SES. In this review, the Commission continued to use separate measures of SES for Indigenous and non-Indigenous populations.
- 24 The Non-Indigenous Socio-Economic Index for Areas (NISEIFA) was developed for the Commission by the ABS. This index uses the same indicators as the Socio-Economic Indexes for Areas (SEIFA) Index of relative socio-economic disadvantage.<sup>2</sup> The Commission uses NISEIFA to classify the non-Indigenous population into SES quintiles. The Indigenous Relative Socio-economic Outcome (IRSEO) index was developed at the Australian National University.<sup>3</sup> The Commission uses this index to classify the Indigenous population into SES quintiles. These indexes are area-based measures.
- 25 Table 31-5 and Table 31-6 provide details of State Indigenous and non-Indigenous ERP by socio-economic quintiles.

<sup>2</sup> ABS, *Census of Population and Housing: Socio-Economic Indexes for Areas*, Australia, cat. no. 2033.0.55.001.

<sup>3</sup> IRSEO was developed by the Centre for Aboriginal Economic and Policy Research (see the [CAEPR website](http://caepr.cass.anu.edu.au), <http://caepr.cass.anu.edu.au>), at the Australian National University.



Table 31-5 Indigenous ERP by IRSEO quintile and State, December 2018

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Most disadvantaged	26	0	35	34	8	0	0	53	157
2nd most disadvantaged	54	8	62	30	16	1	0	0	171
Middle quintile	57	9	56	17	4	4	0	8	156
2nd least disadvantaged	79	13	30	20	10	19	0	8	178
Least disadvantaged	62	31	51	4	5	5	8	7	173
<b>Total</b>	<b>278</b>	<b>61</b>	<b>233</b>	<b>105</b>	<b>44</b>	<b>30</b>	<b>8</b>	<b>76</b>	<b>835</b>
	%	%	%	%	%	%	%	%	%
Most disadvantaged	16.6	0.0	22.2	21.9	5.4	0.0	0.0	34.0	100.0
2nd most disadvantaged	31.4	4.8	36.4	17.3	9.4	0.6	0.0	0.0	100.0
Middle quintile	36.3	6.0	35.5	11.1	2.9	2.9	0.0	5.3	100.0
2nd least disadvantaged	44.4	7.2	16.6	11.0	5.6	10.8	0.0	4.4	100.0
Least disadvantaged	35.9	17.8	29.4	2.5	3.1	2.9	4.6	3.9	100.0
<b>Total</b>	<b>33.2</b>	<b>7.3</b>	<b>27.9</b>	<b>12.6</b>	<b>5.3</b>	<b>3.6</b>	<b>1.0</b>	<b>9.1</b>	<b>100.0</b>

Source: Commission calculation using unpublished ABS data and the IRSEO index.

Table 31-6 Non-Indigenous ERP by NISEIFA quintile and State, December 2018

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Most disadvantaged	1,678	1,198	952	317	465	171	9	5	4,795
2nd most disadvantaged	1,527	1,213	1,049	478	416	124	24	16	4,847
Middle quintile	1,345	1,371	1,036	572	338	104	59	43	4,869
2nd least disadvantaged	1,361	1,429	999	603	291	63	108	52	4,905
Least disadvantaged	1,849	1,256	781	531	188	40	216	54	4,915
<b>Total</b>	<b>7,760</b>	<b>6,466</b>	<b>4,818</b>	<b>2,501</b>	<b>1,699</b>	<b>502</b>	<b>415</b>	<b>169</b>	<b>24,330</b>
	%	%	%	%	%	%	%	%	%
Most disadvantaged	35.0	25.0	19.9	6.6	9.7	3.6	0.2	0.1	100.0
2nd most disadvantaged	31.5	25.0	21.7	9.9	8.6	2.5	0.5	0.3	100.0
Middle quintile	27.6	28.2	21.3	11.8	6.9	2.1	1.2	0.9	100.0
2nd least disadvantaged	27.8	29.1	20.4	12.3	5.9	1.3	2.2	1.1	100.0
Least disadvantaged	37.6	25.6	15.9	10.8	3.8	0.8	4.4	1.1	100.0
<b>Total</b>	<b>31.9</b>	<b>26.6</b>	<b>19.8</b>	<b>10.3</b>	<b>7.0</b>	<b>2.1</b>	<b>1.7</b>	<b>0.7</b>	<b>100.0</b>

Source: Commission calculation using unpublished ABS data and the NISEIFA index.

- 26 Some assessments do not use IRSEO and NISEIFA to classify the population. This occurs when the administrative data on the use and cost of services from States or third parties cannot be classified to IRSEO and NISEIFA quintiles. For example, the Medical Benefits Scheme (MBS) data, which are used in the Health assessment, are only available by SEIFA. The Schools assessment does not use IRSEO and NISEIFA — instead, it uses the Index of Community Socio-Educational Advantage (ICSEA) as the basis for estimating school student SES levels.

## Urban centres and localities

- 27 In this review, urban centres and localities (UCLs) have been used as the primary geographic measure in assessments that relate to urban form. However, in certain instances the Commission needs to make adjustments to better reflect what States do.
- Urban transport is often provided as an integrated network across closely neighbouring UCLs. Therefore, in the Transport category, all UCLs within a Significant Urban Area (SUA)<sup>4</sup> are aggregated and treated as a single urban centre. The Commission considers that this generally better reflects how States deliver this service.
  - In the Services to communities category, the Commission considers that subsidies for electricity are provided in remote and very remote towns, with at least 50 people, and a density of at least 60 persons per square kilometre for non-UCLs. Because UCLs are usually not defined for towns of less than 200 people, the Commission has defined small urban areas using aggregations of mesh blocks<sup>5</sup>, using criteria like that used by the ABS to define urban areas.
- 28 These adjustments and the other category specific criteria relating to how UCLs are used in each category are discussed in the relevant chapters:
- Roads — Chapter 20
  - Transport — Chapter 21
  - Services to communities — Chapter 18.
- 29 Table 31-7 shows the differences between States in where their populations are located and in terms of various UCL size cut-offs applied in different categories.

**Table 31-7 Estimated resident population by urban centre locality and State, December 2018**

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
	'000	'000	'000	'000	'000	'000	'000	'000	'000
Population in remote and very remote UCLs	22	2	96	117	42	8	0	82	368
UCLs of 40,000+	6,019	5,163	3,789	2,064	1,215	266	421	128	19,063
UCLs within SUAs	7,459	6,079	4,599	2,433	1,595	429	421	209	23,224
	%	%	%	%	%	%	%	%	%
Population in remote and very remote UCLs	6.0	0.6	26.0	31.7	11.3	2.1	0.0	22.3	100.0
UCLs of 40,000+	31.6	27.1	19.9	10.8	6.4	1.4	2.2	0.7	100.0
UCLs within SUAs	32.1	26.2	19.8	10.5	6.9	1.8	1.8	0.9	100.0

Source: Commission calculations based on unpublished ABS data.

<sup>4</sup> The Significant Urban Area (SUA) structure of the Australian Statistical Geography Standard mostly represents significant towns and cities of 10,000 people or more. A single SUA can represent either a single urban centre or a cluster of related urban centres.

<sup>5</sup> Mesh blocks are the smallest geographic region in the Australian Statistical Geography Standard and the smallest geographical unit for which Census data are available.

# 32 Adjusted budget

## Overview

- 1 The adjusted budget is a comprehensive representation of State budgets. It provides the Commission with a comparable basis for calculating average per capita State revenues and expenditure used in assessing State fiscal capacities.
- 2 The Commission starts with data from the Australian Bureau of Statistics (ABS) Government Finance Statistics (GFS). These are supplemented by data from the States and other sources to allow the most recently completed financial year to be included, to improve comparability between States and to ensure the composition of each revenue and expense category is consistent with the Commission's requirements.

## Scope of the adjusted budget

- 3 In this review, the scope of the adjusted budget covers all transactions recorded in the GFS State general government (GG) operating statement and the transactions of State public non-financial corporations (PNFCs) that provide social housing and urban transport services.<sup>1</sup>
- 4 The relevant transactions are:
  - revenue including taxation, fees and charges, GST, other Commonwealth payments and other revenue
  - expenses
  - net acquisition of non-financial assets
  - net borrowing/lending.
- 5 Other direct spending or revenue raised by the Commonwealth, local government, most State PNFCs and non-government entities on State-type services and infrastructure are out of scope. That is, such spending or revenue are not included in the Commission's assessment of State fiscal capacities.<sup>2</sup>
- 6 GFS includes ACT municipal transactions with State transactions. Normally, the Commission would remove these transactions from the adjusted budget so that only 'State-type' expenses are reflected in the financial averages. Because the effect of including ACT municipal transactions on the calculation of State fiscal capacities is immaterial, the Commission followed the GFS treatment and left these transactions in the relevant categories for simplicity. The Commission treats ACT rate revenue as 'Other revenue' which is assessed equal per capita (EPC) and does not affect State fiscal capacities.

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<sup>1</sup> Housing and urban transport services provided by PNFCs have strong similarities to the services provided by general government agencies. They are not fully commercial and depend on government funds to meet recurrent expenses and investment, the services stem from social policy objectives, and governments make the major policies on service delivery and charges.

<sup>2</sup> Some non-State spending affect the amount States need to spend. The Schools and Health assessments recognise the influence of non-State sector spending.

## Adjustments to the general government operating statement

- 7 The Commission used the published ABS GFS Operating statement for the GG sector as the starting point of the adjusted budget. The Commission then added housing and urban transport PNFC operating revenue, expenses, net acquisition of assets and net borrowing. Transfers between the GG and PNFC sectors (that is, inter-sector transactions) are excluded.
- 8 Because of the inclusion of PNFC transactions for housing and urban transport, the outcome (net borrowing) of the adjusted budget does not equal the net borrowing of State GG budgets as published in GFS.

## Structure of the adjusted budget

- 9 The Commission's starting position for the 2020 Review was the category structure from the 2015 Review. Some changes have been made where the Commission considered it necessary to properly assess disabilities and/or improve transparency.
- 10 Eight categories of State revenue (including Commonwealth payments) and 13 categories of State expenditure have been assessed in this review. Table 32-1 shows the adjusted budget structure and the average amount for each category for 2016-17 to 2018-19. Attachment 32-A provides the code rules to map the GFS data to the Commission assessment categories. Refer to ABS cat. no. 5514.0 *Australian System of Government Finance Statistics: Concepts, Sources and Methods 2015* for GFS concepts and definitions of GFS codes.

Table 32-1 Adjusted budget categories for the 2020 Review

	2016-17		2017-18		2018-19	
	\$m	\$pc	\$m	\$pc	\$m	\$pc
<b>Revenue from Commonwealth</b>						
GST revenue	59,845	2,454	63,123	2,549	65,160	2,589
Commonwealth payments						
Impact on State fiscal capacities	33,260	1,364	35,136	1,419	37,004	1,470
Other Commonwealth payments	5,026	206	4,765	192	3,442	137
<b>State own-source revenue</b>						
Payroll tax	23,059	946	24,282	980	25,685	1,021
Land tax	8,195	336	8,943	361	10,507	417
Stamp duty on conveyances	20,348	834	21,162	854	17,943	713
Insurance tax	5,140	211	5,243	212	5,571	221
Motor taxes	7,565	310	7,910	319	8,046	320
Mining revenue	11,900	488	12,705	513	15,506	616
Other revenue	43,703	1,792	45,841	1,851	49,949	1,985
<b>Operating expenses (a)</b>						
Schools (b)	38,155	1,565	40,233	1,624	43,139	1,714
Post-secondary education (b)	5,467	224	5,535	223	5,861	233
Health (b)	60,240	2,470	64,249	2,594	68,398	2,718
Housing (b)	2,890	119	2,803	113	3,260	130
Welfare	18,170	745	19,940	805	19,533	776
Services to communities	7,747	318	8,461	342	8,847	352
Justice	19,146	785	20,419	824	22,087	878
Roads	6,847	281	7,226	292	7,646	304
Transport (b)	13,273	544	14,316	578	15,339	610
Services to industry (b)	4,970	204	5,039	203	5,227	208
Other expenses (b)	24,643	1,011	26,742	1,080	26,533	1,054
<b>Investment</b>						
Gross investment	27,363	1,122	30,129	1,216	32,252	1,282
<b>Net Borrowing/lending</b>						
Net borrowing/lending	-10,870	-446	-15,980	-645	-19,311	-767

(a) Relevant superannuation expenses are included in each expense category. Depreciation expenses except urban transport depreciation are included in gross investment. Urban transport depreciation expenses are included in Transport.

(b) Net categories — user charges are deducted from expenses.

Source: Commission calculation using GFS data, data from the Commonwealth of Australia's *Final Budget Outcome*, and data collected from Commonwealth departments and States.

## Changes since the 2019 Update

11 Table 32-2 shows the changes in category structure from the 2019 Update.

**Table 32-2 Changes to categories between the 2019 Update and 2020 Review**

2020 Review category	Changes since 2019 Update
No change for Payroll tax, Motor taxes, Mining revenue, Post-secondary education, Health, Welfare, Housing, Justice, Roads, Net borrowing.	
Commonwealth payments	Comprises two components: impact payments and other Commonwealth payments that do not affect State fiscal capacities but remain in the adjusted budget because related expenses cannot be identified. Commonwealth payments for non-government schools are excluded.
Land tax	Fire and emergency service levies (FESLs) raised from property moved to Other expenses (where they offset expenses). The remaining land based revenues moved to Other revenue. The adjustment for the ACT's replacement revenue has been removed.
Stamp duty on conveyances	Stamp duties on motor vehicle transfers, non-real property transactions, sales of major State assets and corporate reconstructions moved to Other revenue. The adjustment to classify concessional rates of duty for first home owners as housing expenses has been removed.
Insurance tax	FESLs raised as part of insurance taxes moved to Other expenses (where they offset expenses).
Other revenue	A number of taxes that are assessed on an EPC basis have moved to this category.
Schools	Changed from gross to net assessment. Student transport expenses moved to Transport. Commonwealth payment for non-government schools deducted from related expenses.
Services to communities	Changed from net assessments for some components to gross assessments. Includes National parks and wildlife expenses because GFS now includes these expenses as part of COFOG-A Protection of biodiversity and landscape. Non-electricity energy moved to Services to industry.
Transport	Student transport and pipeline expenses included. No change to urban transport depreciation and investment, that is, continues to include depreciation in operating expenses and assess net investment.
Services to industry	Changed from net assessment for some components to net assessment for all components. Non-electricity energy included.
Other expenses	Changed from gross to net assessment. FESLs deducted from service expenses. Expenses on national parks and wildlife, and pipelines moved to other expense categories, as noted above. Continue to assess native title and land rights in this category but no longer makes an adjustment to remove these expenses from other categories. Capital grants to local government component no longer separately identified.
Depreciation	Except for urban transport, depreciation is no longer classified as a separate expense. It is now classified to gross investment.
Investment	Except for urban transport, moved from net investment to gross investment (that is, depreciation expenses are not deducted from gross investment).

Source: Commission decisions.

## Data sources

- 12 Where possible, the Commission uses GFS data from the ABS to compile the adjusted budget. GFS data are compiled using standard definitions and classifications. While these sometimes reflect interstate differences in administrative and accounting arrangements and are not always compiled on a consistent basis across States, the quality of the data are improving and adjustments can be made for known material differences. In addition, the ABS is committed to maintaining and further improving the quality of these data. The Commission concluded that GFS data are fit for purpose.
- 13 GFS data for the last assessment year are not available in sufficient time for annual updates. Therefore, for the last assessment year, the Commission uses data from the States. GFS data

replace State data in the next update of relativities. The Commission works with States each year to improve the data and maximise comparability between States.

- 14 GFS provides the total amount of State revenue from Commonwealth grants. The Commission requires details of each national agreement and payment for specific purposes to apply the correct treatment to each payment. Detailed payment information is sourced from the Commonwealth's final budget outcome. Information in the final budget outcome is reliable and fit for purpose.
- 15 Table 32-3 summarises the data sources used to compile the adjusted budget for the 2020 Review.

**Table 32-3 Data sources for the adjusted budget for the 2020 Review**

	Prior to last assessment year	Last assessment year
State general government sector total revenue from Commonwealth payments	GFS	States
Amounts and details of GST, national agreements and payments for specific purposes	Commonwealth Final Budget Outcome and extra information from Commonwealth agencies	Commonwealth Final Budget Outcome and extra information from Commonwealth agencies
State general government sector own-source revenue, expenses, user charges, investment and net borrowing	GFS	States
State public non-financial corporations data for housing and urban transport	GFS	States

## Data adjustments

- 16 Adjustments are applied to State revenue and expenses to improve interstate comparability where GFS data are not comparable across States or where the treatment of the transaction in GFS differs from what the Commission's assessments require.
- 17 For simplicity, in this review, the Commission has removed minor adjustments that do not have a material impact on State fiscal capacities. Major adjustments undertaken for the 2020 Review are summarised in Table 32-4. These are based on analysis of GFS unit records and information collected from the States.

**Table 32-4 Major adjustments to State general government sector revenue and expenses for the 2020 Review**

Affected categories	Adjustments (for some or all States)
Welfare, Transport, Services to communities	Reclassification of water and electricity concessions from Services to communities to Welfare. Also, reclassify transport concessions from Welfare to Transport.
Roads and Other expenses	Reclassification of Queensland Reconstruction Authority's expenses on roads from Roads to Other expenses — natural disaster relief.

# Attachment 32-A: Code rules for mapping GFS data

- 1 The Commission uses a set of code rules to classify the GFS data to the Commission's assessment categories. For all categories, the Commission uses the Australian System of Government Finance Statistics 2015 (AGFS15) transactions with the following codes.<sup>1</sup>
  - Level of Government classification (LOG) = 2 (State)
  - Jurisdiction classification (JUR)
  - Institutional sector classification (INST) = 300 (general government) other than Housing and Urban transport
  - For Housing and Urban transport, INST = 300 (GG) and 100 (public non-financial corporations (PNFC)) and remove transactions between the two sectors
  - ETF (Economic type framework)
  - COFOG-A (Classification of the functions of government – Australia)
  - TC (Taxes classification)
  - SDC (Source destination classification)
  - TALC (Type of assets and liability classification) for transactions in non-financial assets.
- 2 Table 32A-1 provides the code rules for the general government sector transactions and Table 32A-2 provides the code rules for housing and urban transport which cover transactions for both general government and public non-financial corporations sectors.

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<sup>1</sup> Refer to ABS catalogue 5514.0 *Australian System of Government Finance Statistics: Concepts, Sources and Methods 2015* for details of GFS concepts and definition of GFS codes.



Table 32A-1 Categories and their relevant GFS codes – general government (INST=300)

Category	ETF	COFOG-A	SDC
<b>Commonwealth payments</b>			
	1141 Revenue from current grants and subsidies	All	130 Commonwealth GG
	1151 Revenue from capital grants		
<b>Revenue</b>			
Payroll tax	111 Taxation revenue	211 Payroll taxes 219 Taxes on employers' payroll and labour force n.e.c.	<>"23" & own JUR
Land tax	111 Taxation revenue	311 Land taxes	<>"23" & own JUR
Stamp duty on conveyances	111 Taxation revenue	463 Stamp duty on conveyances	<>"23" & own JUR
Insurance tax	111 Taxation revenue	452 Third party insurance taxes 459 Taxes on insurance n.e.c.	<>"23" & own JUR
Motor taxes	111 Taxation revenue	512 Road transport and maintenance taxes 513 Heavy vehicle registration fees and taxes 514 Other vehicle registration fees and taxes 519 Motor vehicle taxes n.e.c.	<>"23" & own JUR
Mining revenue	1135 Royalty income	No relevant TC	<>"23" & own JUR
Other revenue	111 Taxation revenue	312 Municipal rates 441 Taxes on government lotteries 442 Taxes on private lotteries 443 Taxes on gambling devices 444 Casino taxes 445 Race and other sports betting taxes 449 Taxes on gambling n.e.c. 212 Superannuation guarantee charge 313 Metropolitan improvement rates 319 Taxes on immovable property n.e.c. 321 Estate, inheritance and gift taxes 425 Agricultural production taxes 426 Levies on statutory corporations 461 Financial institutions transactions taxes 462 Government borrowing guarantee levies 464 Stamp duty on shares and marketable securities 465 Other stamp duties on financial and capital transactions 469 Taxes on financial and capital transactions n.e.c. 511 Stamp duty on vehicle registration 521 Gas franchise taxes 522 Petroleum products franchise taxes 523 Tobacco franchise taxes 524 Liquor franchise taxes 529 Franchise taxes n.e.c. 539 Other taxes on the use of goods and performance of activities n.e.c.	<>"23" & own JUR

Table 32A-1 Categories and their relevant GFS codes – general government (INST=300)  
(continued)

Category	ETF	TC	SDC
<b>Revenue (continued)</b>			
Other revenue (continued)	1131 Interest income		<>"23" & own JUR
	1132 Dividend income		
	1133 Withdrawals from income of quasi-corps		
	1134 Land rent income		
	1136 Revenue from investment funds		
	1137 Reinvestment earnings on foreign direct investment		
	1139 Property income n.e.c.		
	1142 Fines, penalties and forfeits		
	1143 Premiums, fees and current claims related to non-life insurance and standardised guarantee schemes		
	1149 Other current revenue not elsewhere classified		
	1152 Assets acquired below market value		
	1153 Capital claims related to non- life insurance and standardised guarantee schemes		
	1159 Capital revenue not elsewhere classified		
	1141 Revenue from current grants and subsidies		<>"23"& own JUR and <>"130" Commonwealth GG
	1151 Revenue from capital grants		
	112* Sales of goods and services	With COFOG-As other than those included in 'net' categories	<>"23" & own JUR

Table 32A-1 Categories and their relevant GFS codes – general government (INST=300)  
(continued)

Category	ETF	COFOG-A	SDC
<b>Expenses</b>			
Schools (net)	Expenses — ETF12*, except 1241 Depreciation of fixed produced assets (non-defence), 1242 Depreciation of fixed assets (defence), 1271 Interest on defined benefit superannuation and 1279 Interest expenses n.e.c. User charges — ETF112* Sales of goods and services	0911 Government pre-primary education 0912 Non-government pre-primary education 0913 Government primary education 0914 Non-government primary education 0921 Government secondary education 0922 Non-government secondary education 0949 Education not definable by level n.e.c. 0959 Subsidiary services to education n.e.c. 0961 R&D - Education 0991 Special education 0999 Education n.e.c.	<>"23" & own JUR
Post-secondary education (net)	Expenses — ETF12*, except 1241, 1242, 1271, and 1279 User charges — ETF112* Sales of goods and services	0931 University education 0932 Vocational education and training 0941 Apprenticeships and traineeships.	<>"23" & own JUR
Health (net)	Expenses — ETF12*, except 1241, 1242, 1271, and 1279 User charges — ETF112* Sales of goods and services	0711 Pharmaceutical products 0712 Other medical products 0713 Therapeutic appliances and equipment 0721 General medical services 0722 Specialised medical services 0723 Dental services 0724 Paramedical services 0731 General hospital services 0732 Specialised hospital services 0733 Medical and maternity centre services 0734 Nursing and convalescent home services 0741 Mental health institutions 0751 Community mental health services 0752 Patient transport 0759 Community health services n.e.c. 0761 Public health services 0771 R&D - health 0799 Health n.e.c.	<>"23" & own JUR
Welfare	Expenses — ETF12*, except 1241, 1242, 1271, and 1279	1001 Sickness 1002 Disability 1011 Old age 1021 Survivors 1031 Family and children 1041 Unemployment 1069 Social exclusion n.e.c. 1071 R&D - Social protection 1099 Social protection n.e.c.	<>"23" & own JUR
Services to communities	Expenses — ETF12*, except 1241, 1242, 1271, and 1279	0435 Electricity 0511 Waste recycling 0519 Waste management n.e.c 0521 Reused or recycled waste water management 0529 Waste water management n.e.c. 0531 Pollution abatement 0541 Protection of biodiversity and landscape 0551 R&D - environmental protection 0599 Environmental protection n.e.c. 0621 Indigenous community development 0629 Community development n.e.c. 0631 Water supply 0641 Street lighting 0651 R&D - Housing and community amenities 0699 Community amenities n.e.c.	

Table 32A-1 Categories and their relevant GFS codes – general government (INST=300)  
(continued)

Category	ETF	COFOG-A	SDC
<b>Expenses (continued)</b>			
Justice	Expenses — ETF12*, except 1241, 1242, 1271, and 1279	0311 Police services 0331 Law courts 0341 Prisons 0351 R&D - public order and safety	<>"23" & own JUR
Roads	Expenses — ETF12*, except 1241, 1242, 1271, and 1279	1111 Road maintenance 1112 Road rehabilitation 1113 Road construction 1119 Road transport n.e.c.	<>"23" & own JUR
Transport — Non-urban transport (net); Urban transport code rule is in Table 32A-2	Expenses — ETF12*, except 1241, 1242, 1271, and 1279 User charges — ETF112* Sales of goods and services	1122 Non-urban bus transport 1133 Non-urban water transport services 1142 Non-urban railway transport freight services 1143 Non-urban railway transport passenger services 1151 Air transport	<>"23" & own JUR
Services to industry (net)	Expenses — ETF12*, except 1241, 1242, 1271, and 1279 User charges — ETF112* Sales of goods and services	0411 General economic and commercial affairs 0412 General labour affairs 0421 Agriculture 0422 Forestry 0423 Fishing and hunting 0431 Coal and other solid mineral fuels 0432 Petroleum and natural gas 0433 Nuclear fuel 0434 Other fuels 0436 Non-electric energy 0439 Fuel and energy n.e.c. 0441 Mining of mineral resources other than mineral fuels 0442 Manufacturing 0443 Construction 0461 Distributive trades, storage and warehouse 0462 Hotels and restaurants 0463 Tourism 0464 Multipurpose development projects 0471 R&D - general economic, commercial and labour affairs 0472 R&D - agriculture, forestry, fishing and hunting 0473 R&D - fuel and energy 0474 R&D - mining, manufacturing and construction 0476 R&D - other industries 0499 Economic affairs n.e.c.	<>"23" & own JUR

Table 32A-1 Categories and their relevant GFS codes – general government (INST=300)  
(continued)

Category	ETF	COFOG-A	SDC
<b>Expenses (continued)</b>			
Other expenses (net)	Expenses — ETF12*, except 1241, 1242, 1271, and 1279 User charges — ETF112* Sales of goods and services, TC314 Property owners' contributions to fire brigades, TC451 Insurance companies' contributions to fire brigades	0111 Executive and legislative organs 0112 Financial and fiscal affairs 0113 External affairs 0121 Economic aid to developing countries and countries in transition 0122 Economic aid routed through international orgs 0131 General personnel services 0132 Overall planning and statistical services 0139 General services n.e.c. 0141 Basic research 0151 R&D - general public services 0161 Public debt transactions 0171 Transfers of a general character between difference levels of government 0199 General public services n.e.c. 0321 Civil protection services 0322 Fire protection services 0391 Control of domestic animals and livestock 0399 Public order and safety n.e.c. 0451 Communication 0475 R&D - communication 0811 Recreational and sporting services 0821 Film production services 0829 Cultural services 0831 Broadcasting and publishing services 0832 Publishing services 0841 Religious and other community services 0851 R&D - Recreation, culture and religion 0891 Community centres and halls 0899 Recreation, culture and religion n.e.c. 1091 Natural disaster relief	<"23" & own JUR

Table 32A-1 Categories and their relevant GFS codes – general government (INST=300)  
(continued)

Category	ETF	COFOG-A	SDC
<b>Investment.</b> Gross investment (that is depreciation is not deducted) for all categories except Urban transport. For urban transport, depreciation is deducted from gross investment)			
<b>Transactions in non-financial produced assets (TALC 1 fixed produced assets and 2 Other produced assets)</b>			
Other than	4111 Change in inventories	COFOG-As other than Housing and urban	<>"23" & own JUR
Housing and	4112 Acquisitions of non-financial	transport	
urban	assets under new finance		
transport	leases		
	4113 Own-account capital formation		
	4114 Acquisition of other new		
	non-financial assets		
	4115 Acquisition of second-hand		
	non-financial assets		
	4211 Disposals of non-financial		
	assets (excluding depreciation)		
<b>Other transactions in non-financial non produced assets (TALC 3 Non-produced assets)</b>			
	4112 Acquisitions of non-financial	COFOG-As other than Housing and urban	<>"23" & own JUR
	assets under new finance	transport	
	leases		
	4113 Own-account capital formation		
	4114 Acquisition of other new		
	non-financial assets		
	4115 Acquisition of second-hand		
	non-financial assets		
	4116 Costs of ownership transfer on		
	non-produced assets other		
	than land		
	4211 Disposals of non-financial		
	assets (excluding depreciation)		

Table 32A-2 Housing and urban transport and their relevant GFS codes – consolidated GG and PNFC sectors (INST=100, 300)

Category	ETF	COFOG-A	SDC
<b>Operating expenses</b>			
Housing (net)	Expenses — ETF12*, except 1241, 1242, 1271, and 1279 User charges — ETF112* Sales of goods and services	0611 Housing development 0698 Housing n.e.c. 1051 Housing	<>"23" & own JUR and <>"21" & own JUR
Transport — urban	Expenses — ETF12*, except 1242, 1271, and 1279	0951 Transportation of non-urban school students	<>"23" & own JUR and
transport (net) (includes depreciation)	User charges — ETF112* Sales of goods and services	0952 Transportation of other students 1121 Urban bus transport 1131 Urban water transport passenger services 1132 Urban water transport freight services 1141 Urban railway transport services 1161 Multi-mode urban transport 1171 Pipeline and other transport 1181 R&D - transport 1199 Transport n.e.c.1151 Air transport	<>"21" & own JUR
<b>Investment (gross for Housing, net for urban transport)</b>			
<b>Transactions in non-financial produced assets (TALC 1 fixed produced assets and 2 Other produced assets)</b>			
Housing (gross)	4111 Change in inventories 4112 Acquisitions of non-financial assets under new finance leases 4113 Own-account capital formation 4114 Acquisition of other new non-financial assets 4115 Acquisition of second-hand non-financial assets 4211 Disposals of non-financial assets (excluding depreciation)	0611 Housing development 0698 Housing n.e.c. 1051 Housing	<>"23" & own JUR and <>"21" & own JUR
Urban transport (net)	4111 Change in inventories 4112 Acquisitions of non-financial assets under new finance leases 4113 Own-account capital formation 4114 Acquisition of other new non-financial assets 4115 Acquisition of second-hand non-financial assets 4211 Disposals of non-financial assets (excluding depreciation) 4212 Reductions in non-financial assets due to depreciation	0951 Transportation of non-urban school students 0952 Transportation of other students 1121 Urban bus transport 1131 Urban water transport passenger services 1132 Urban water transport freight services 1141 Urban railway transport services 1161 Multi-mode urban transport 1171 Pipeline and other transport 1181 R&D - transport 1199 Transport n.e.c.	<>"23" & own JUR and <>"21" & own JUR

Table 32A-2 Housing and urban transport and their relevant GFS codes – consolidated GG and PNFC sectors (INST=100, 300) (continued)

Category	ETF	COFOG-A	SDC
<b>Other transactions in non-financial non produced assets (TALC 3 Non-produced assets)</b>			
	4112 Acquisitions of non-financial assets under new finance leases	0611 Housing development 0698 Housing n.e.c. 1051 Housing	<>"23" & own JUR and <>"21" & own JUR
	4113 Own-account capital formation	0951 Transportation of non-urban school students	
	4114 Acquisition of other new non-financial assets	0952 Transportation of other students	
	4115 Acquisition of second-hand non-financial assets	1121 Urban bus transport	
	4116 Costs of ownership transfer on non-produced assets other than land	1131 Urban water transport passenger services 1132 Urban water transport freight services 1141 Urban railway transport services	
	4211 Disposals of non-financial assets (excluding depreciation)	1161 Multi-mode urban transport 1171 Pipeline and other transport 1181 R&D - transport 1199 Transport n.e.c.	



# 33 Consultation

## Consultation process

- 1 The Commission commenced this inquiry in response to terms of reference received from the Australian Treasurer on 28 November 2016. The terms of reference asked the Commission to undertake a review of the methodology used to derive the per capita relativities for distributing the Goods and Services Tax (GST) revenue among the States and Territories (the States) from 2020-21 and to recommend the per capita relativities for distributing GST revenue in 2020-21.
- 2 The methodology review has benefited from substantial consultation with all States, including bilateral meetings with State Treasurers and Heads of Treasuries, a program of visits by Commissioners to each State, and detailed submissions from States in response to Commission discussion papers. The Commission understands that the conduct of its reviews imposes a burden on States. It appreciates the efforts of States in hosting the Commission's visits and in responding to the Commission's discussion papers in accordance with the work program. The work program for the review, including the main consultation dates, is available in Chapter 1, Volume 2, Part A. All Commission discussion papers and State submissions are available on the [Commission website](https://cgc.gov.au/) (<https://cgc.gov.au/>).
- 3 The main Commission consultations during the review were as follows.
  - December 2016 — following receipt of terms of reference, the Secretary of the Commission wrote to Heads of Treasury (HoTs) seeking input on the review work program. Following State input, the work program for the review was finalised in March 2017.
  - August-September 2017 — the Commission conducted bilateral meetings with State Treasurers and State treasury staff on high-level issues relevant to the review.
  - September 2017 — the Commission released a position paper on the approach to the review, the objective of HFE, supporting principles and their implementation.
  - June-September 2018 — the Commission visited each State for discussions to gain a better understanding of the factors affecting State fiscal capacities.
  - June 2019 — the Commission provided the draft report to the Australian Treasurer on 25 June. The States received the report on 6 August.
  - November 2019 — the Commission released a position paper on significant changes to the draft report, as required by the terms of reference.
  - February 2020 — the Commission provided the final report to the Commonwealth and States.
- 4 Over the course of the review, Commission staff also engaged in various formal and informal consultation processes with States. The work program lists the main processes. During the review, the Commission and its staff circulated several papers and reports to facilitate consultation. Table 33-1 lists these papers.

Table 33-1 Position papers, discussion papers and research papers, 2020 Review

Paper	Date issued
<b>Commission position papers and reports</b>	
CGC 2017-21 The principle of HFE and its implementation	27 September 2017
Draft report (a)	25 June 2019
CGC 2019-02 Significant changes since the draft report	29 November 2019
Final report	28 February 2020
<b>Staff discussion and research papers</b>	
CGC 2017-02-S The principle of HFE and its implementation	12 May 2017
CGC 2017-03-S Achieving HFE — Other approaches to distributing the GST	12 May 2017
CGC 2017-04-S State mining policies	12 May 2017
CGC 2017-05-S Options for improving contemporaneity	12 May 2017
CGC 2017-06-S Proposed approach to estimating administrative scale costs for the 2020 Review	1 May 2017
CGC 2018-01-S to 25-S Draft assessment papers	20 April 2018
CGC 2018-02-S A broader assessment approach	20 April 2018
CGC 2018-03-S Draft 2020 Review quality assurance strategic plan	20 April 2018
CGC 2018-05-S Review of substitutability levels for the health category	7 September 2018
CGC 2018-07-S Improving the policy neutrality of the mining revenue assessment	15 November 2018
CGC 2019-01-S New issues for the 2020 Review	8 October 2019

(a) The draft report was released to States on 6 August 2019.

## State submissions

- 5 Written submissions are the main means by which States present their views to the Commission. All submissions are available on the [Commission website](https://cgc.gov.au/) (https://cgc.gov.au/).

## State visits

- 6 The Commission and staff visited each State in 2018. The visits provided an opportunity for each State to present its views on how horizontal fiscal equalisation (HFE) should be implemented and to raise any State specific issues or concerns.
- 7 State visits also provided an opportunity for the Commission to understand first-hand the differences between the States that form the basis of differential assessments in the 2020 Review. The Commission met with head office staff from various agencies (for example, education, health and transport), officers providing services 'on the ground' and officials from central policy agencies, notably State treasuries. Discussions were held on service delivery policy, the difficulties faced by individual States in providing services and revenue raising issues.
- 8 As part of the State visit program, the Commission extended an invitation for State Treasurers to meet with the Commission. All State Treasurers, other than the Victorian Treasurer who was unavailable in the week of the State visit, met with the Commission.
- 9 The following sections highlight some of the key themes of the visits. It is not an exhaustive discussion of all matters discussed.

## New South Wales

- 10 The Commission visited New South Wales from 21 to 23 August 2018. New South Wales highlighted the following issues:
- the challenges of providing transport services in Sydney due to its urban population and employment density, unique topography and security risks
  - the high costs of developing new infrastructure in a densely populated urban environment ('brownfield' sites)
  - the high costs of providing services to a growing migrant population due to the need for interpreters, English language education programs, higher levels of mental and physical health issues in the refugee population and some migrant groups, as well as community inclusion and cultural sensitivity in the provision of welfare services
  - greater demand for housing and welfare services arising from high housing costs linked to the recent housing boom
  - a shift to more complex, technology-enabled crime and a high terrorism risk, which is diverting resources to crime prevention and disruption that is not necessarily borne out in crime statistics
  - the Commission's approach to assessing fire and emergency services levies, gambling revenue and land tax.

## Victoria

- 11 The Commission visited Victoria from 7 to 9 August 2018. Victoria highlighted the following issues:
- significant pressures being created on service delivery areas such as health, education and transport due to consistently strong population growth
  - increasing demand for transport (roads and urban public transport) and other infrastructure due to this same population growth
  - the high costs of developing infrastructure in a densely populated urban environment ('brownfield' sites)
  - key drivers of funding models and service delivery approaches relating to schools, hospitals, services for vulnerable children and families, social housing and homelessness, and the justice system
  - aspects of the Commission's approach to assessing payroll tax, land tax, fire and emergency services levies, mining and gambling revenue.

## Queensland

- 12 The Commission visited Queensland from 28 to 30 August 2018. Queensland highlighted the following issues:
- the challenges of delivering services and associated infrastructure to a rapidly growing population in south-east Queensland, with Brisbane, the Gold Coast and the Sunshine Coast considered one city for State planning and policy purposes

- significant regional costs across all core services due to an above average proportion of its population living outside south-east Queensland, including a relatively large number of people living in small, remote communities
- the high costs of delivering services to its relatively large and ageing Indigenous population due to higher rates of service use including for hospitals, housing and child services
- the high costs of managing Queensland's extensive regional road network and the growing pressures on the urban transport network created by continued urban development in south-east Queensland
- relatively high offender rates in remote and very remote areas, the difficulty in accessing communities in the north of the State in the wet season and the demands on police to 'fill the gap' for other government services in more remote areas
- strong growth in the demand for housing and homelessness services, with 25% of social housing properties in outer regional, remote or very remote locations including the Torres Strait.

## Western Australia

13 The Commission visited Western Australia from 1 to 3 August 2018. Western Australia highlighted the following issues:

- the scope for the Commission's approach to implementing equalisation to be simpler and more transparent, including by adopting broader assessments, particularly for revenue
- the equalisation system does not adequately recognise Western Australia's mining related expenditure, including in relation to the North West Shelf
- the standard Accessibility/Remoteness Index of Australia (ARIA) scale fails to capture the diversity of very remote areas in Australia and recognise Western Australia's very high costs in several service areas including education, health and police
- the national pricing model for hospital services that underpins the Health assessment does not accurately capture Western Australia's health system costs
- the State's electricity network is more costly than the east coast national energy market due to a differing energy mix, more dispersed customer base and isolation from a larger power network that would ensure supply
- regional water costs are significantly higher than metropolitan costs with over 50% of regional schemes having a cost per kilolitre three times greater than the average metropolitan cost
- the high costs of maintaining and developing the State's road network given its large geographical spread, climatic conditions and industry requirements.

## South Australia

14 The Commission visited South Australia on 27 September 2018. South Australia highlighted the following issues:

- the effects of the State's low socio-economic status and older population profile on service provision

- concerns with the wage costs assessment, and the view that public sector wages are influenced more heavily by public sector wages in other jurisdictions than private sector wages in the State
- the difficulties associated with providing an urban transport network given its elongated urban form, attracting and maintaining skilled labour for large infrastructure projects and maintaining an ageing road asset base
- the high costs of providing water services due to the long distances between water sources and users and treating water of low quality
- the State's high minimum fixed costs.

## Tasmania

15 The Commission visited Tasmania on 18 and 19 September 2018. Tasmania highlighted the following issues:

- the challenges of providing services to its dispersed, aging and socio-economically disadvantaged population including in the areas of education, health and police.
- the extent to which Tasmanians experience multidimensional disadvantage and the consequences for service delivery
- the effects of a low density, dispersed urban form, topography and low revenue capacity on the costs of providing urban public transport
- concerns with the wage costs assessment and that Tasmania's private sector wage levels do not reflect public sector wages in the State
- the State's high minimum fixed costs.

## Australian Capital Territory

16 The Commission visited the ACT from 15 to 17 August 2018. The ACT highlighted the following issues:

- the additional costs of infrastructure due to National Capital Authority restrictions on development including urban infill and requirements of the National Capital Plan
- the high costs of policing due to the use of Australian Federal Police (AFP)
- the additional costs of providing services to residents of New South Wales, including for education, welfare, hospital and community health
- the additional costs of providing urban transport due to the Canberra's low density, dispersed urban form
- the ACT's high minimum fixed costs.

## Northern Territory

17 The Commission visited the Northern Territory from 5 to 7 June 2018. The Northern Territory highlighted the following issues:

- the high minimum fixed costs faced by the Northern Territory including additional costs associated with its dual service delivery arrangements due to a relatively large Indigenous population

- the complexity and high costs of service provision given its large Indigenous population including in the areas of education, health, welfare and police
- the high costs of service provision to remote communities.

## Consultants' reports

- 18 The Commission engaged consultants to provide expert advice on several issues. A list of consultant reports prepared for the Commission for the 2020 Review appears below. The reports are available on the [Commission website](https://cgc.gov.au/) (<https://cgc.gov.au/>).
- *State tax elasticities of revenue bases*, Tax and Transfer Policy Institute, Crawford School of Public Policy, The Australian National University, Ralf Steinhauser, Mathias Sinning and Kristen Sobeck, March 2019.
  - *Modelling of urban transport recurrent and infrastructure expenditure requirements, Stage 1 Report*, Jacobs Australia Pty. Ltd, September 2017.
  - *Urban Transport Consultancy Stage 2 — Final Report*, Jacobs Australia Pty. Ltd, October 2018.

# Glossary

This glossary provides a list of the main terms that have a meaning specific to the Commission. The term 'State(s)' includes the Australian Capital Territory and the Northern Territory.

## **actual per capita (APC) assessment method**

The assessed expense or revenue for each State is set equal to its actual expense or revenue. It is used when, in the Commission's judgment, the policies of all States are the same and any differences in expenses or revenue per capita are due to differences in State circumstances.

## **adjusted budget**

A representation of State budgets used by the Commission to calculate the average per capita revenue and expenditures. The scope of the adjusted budget covers all transactions of the State general government sector and urban transport and housing public non-financial corporations.

## **administrative scale disability**

A disability that measures differences in costs that States incur in providing the minimum level of administration and policy development required to deliver services. It relates to core head office functions and to specialised State-wide services provided centrally.

## **application year**

The year in which the recommended relativities are to be used to distribute the GST revenue. For example, for the 2020 Review the year of application is 2020-21.

## **assessed differences (also known as needs)**

The measure of the effect of a State's disabilities. They are calculated, for example, as the difference between assessed expenses and average expenses, assessed revenue and average revenue. Assessed differences can be either positive or negative.

## **assessed expenses**

The expenses a State would incur if it were to follow average expense policies, allowing for the disabilities it faces in providing services, and assuming it provides services at the average level of efficiency. Assessed expenses exclude differences from the average due to policy choices under the control of a State.

## **assessed GST requirement**

A State's requirement for funds from GST revenue in an assessment year. It is measured as the sum of its assessed expenses and assessed investment, less the sum of its assessed revenue, assessed Commonwealth payments and assessed net borrowing.

## **assessed investment (also referred to as gross investment)**

The expenditure on new and replacement infrastructure a State would incur if it were to follow average policies, allowing for disabilities it faces in providing infrastructure, and assuming it requires the average level of infrastructure to deliver the average level of services. The Commission's method for calculating assessed investment assumes that each State has the average infrastructure at the start of each year. Assessed investment excludes differences from the average due to policy choices under the control of that State.

**assessed net lending/borrowing**

The transaction-based change in net financial worth that a State would require to achieve the average net financial worth at the end of each year. The Commission's method for calculating assessed net lending/borrowing assumes that each State has the average net financial worth at the start of each year.

**assessed revenue**

The revenue a State would raise if it were to apply the average policies to its revenue base and raise revenue at the average level of efficiency. Assessed revenue excludes differences from the average due to policy choices under the control of that State, for example a higher or lower tax rate applied by a State compared to the average.

**assessment years**

The financial years used in a review or an update for which annual relativities are calculated. The Commission uses data for three assessment years to calculate the three year average relativities. For example, the relativities recommended in this review for the 2020-21 application year are based on the relativities for three assessment years, 2016-17, 2017-18 and 2018-19.

**average (or Australian average)**

The benchmark against which a State's fiscal capacity is assessed. It is an average derived from the policies or financial data of all States, and hence may be a financial average or a policy average.

**average expenses**

The average per capita expense in a category or component, is calculated as the sum of expenses of all States, divided by the Australian population.

**average policy**

The average policies as reflected in the practices of the States in the collection of revenue and delivery of services. These averages are usually weighted according to the size of the user or revenue bases in each State.

**average revenue**

The average per capita revenue in a category or component is calculated as the sum of State revenues, divided by the Australian population.

**backcasting**

Changes made to assessment year data to reflect application year Commonwealth or State policies. Backcasting is mainly used to reflect major changes in federal financial arrangements. In effect, backcasting produces notional financial data that simulate a changed distribution of a Commonwealth payment, State revenue or expense. Actual data for the assessment period are adjusted to reflect what is reliably known to be happening in the application year.

**capital assessments**

In this report, the term capital assessments refers to the Investment and Net borrowing assessments.



**category**

A classification of in scope transactions relating to distinct services or revenue sources, used for assessment purposes. In this review, the adjusted budget is divided into Commonwealth payments, seven own-source revenue categories, eleven expense categories, investment and net borrowing.

**category factor**

The combined effect of all the disabilities in a category expressed as a ratio to the average. For example, in an expense category, a category factor of 1.05 means that the State's disabilities require it to spend 5% more than the average to follow the average expense policy at the average level of efficiency.

**Commonwealth payments**

Payments to States made by the Australian Government, including general revenue grants (other than GST revenue), payments for specific purposes (PSPs) and Commonwealth own purpose expenses. The Commission examines the purpose of each payment using an established guideline to decide whether the payment has an impact on State fiscal capacities.

**component**

A part of an expense or revenue category that is separated from others in the category because different disability factors apply to it.

**cross-border factor**

A disability factor that measures the net effects on a State's costs of the use of its services by residents of other States and vice versa.

**disability**

An influence beyond a State's control that requires it to:

- spend more (or less) per capita than the average to provide the average level of service, or
- make a greater (or lesser) effort than the average to raise the average amount of revenue per capita.

**disability factor**

A measure of a State's use, cost or revenue raising disability, expressed as a ratio of the State's assessed expense or assessed revenue over the corresponding average figure. Policy differences between States are specifically excluded when calculating disability factors. The population weighted average of a disability factor is 1.0.

**discounting**

Where a case for including a disability in a category is established by the Commission, but the measure of that disability is affected by imperfect data or methods, the Commission may decide to apply a discount. When an assessment is to be discounted, a uniform set of discounts is used (12.5%, 25%, 50% or 100%), with higher discounts being applied where there is more concern attached to the data or method.

**distribution**

State shares of GST revenue based on the principle of horizontal fiscal equalisation (HFE).

### **distribution model**

A mathematical formulation of the way in which State GST requirements (and relativities) are calculated using assessed expenses, investment, revenue, Commonwealth payments and net borrowing. A mathematical presentation of the model is provided on the [Commission's website](https://www.cgc.gov.au/about-us/fiscal-equalisation) (<https://www.cgc.gov.au/about-us/fiscal-equalisation>).

### **equal per capita (EPC) assessment method**

Each State's assessed expense or assessed revenue in a category is set equal to the Australian average per capita amount. It is typically used when there are judged to be no material disabilities between the States, or no reliable assessments could be developed due to data or other limitations. Such an assessment means that no needs are assessed for any State and that there is no impact on the GST distribution.

### **equalisation**

See horizontal fiscal equalisation (HFE).

### **expenditure**

This term is used to refer to expenses and gross investment.

### **expenses**

Operating outlays under an accrual budgeting framework as defined in Government Finance Statistics (GFS).

### **fiscal capacity**

The fiscal capacity of a State is a measure of its ability to provide average services, including infrastructure, to its population if it raised revenue from its own revenue bases at average rates and taking account of its actual Commonwealth payments, excluding the GST. Once the GST has been distributed using the Commission's recommendations, State fiscal capacities should be equal.

The relative capacity of each State is a comparison of its fiscal capacity with the average capacity.

### **Goods and Services Tax (GST) revenue or GST pool**

The funds made available by the Australian Government for transfer to the States as untied financial assistance, consistent with the principle of horizontal fiscal equalisation.

### **grant design inefficiency**

A flaw in a method of assessment which would allow a State to influence its relativity by changing its expense or revenue policies (apart from any effect of these policies on the average expense or revenue).

### **gross investment**

The acquisition of produced assets less disposals of produced assets, before depreciation is deducted. This mainly comprises the acquisition less disposals of fixed produced assets. Fixed produced assets are goods and services that are used in production for more than one year. It often referred to simply as investment.

### **horizontal fiscal equalisation (equalisation)**

Horizontal fiscal equalisation (HFE) seeks to reduce fiscal disparities between sub-central governments. Australia gives effect to HFE by distributing GST revenue to States according to the principle of HFE, which ensures that each of Australia's States has the same fiscal capacity, under

average policies, to provide services and the associated infrastructure to their communities.<sup>144</sup> Separate equalisation arrangements apply to local government in Australia.

**impact on relativities (previously called inclusion), see also no impact on relativities**

Treatment applied to a Commonwealth payment that provides budget support for State services for which expenditure needs are assessed. The expenditure funded by payments that affect the relativities are assessed in relevant categories and the revenue (or payment) is assessed on an actual per capita basis.

**infrastructure**

Infrastructure refers to the stock of fixed assets owned by a State's general government sector and its urban public transport and housing public non-financial corporations for the purpose of delivering services. It includes buildings, non-building construction (such as roads and railways) and plant and equipment for economic and social purposes.

**material, materiality**

A test used to assist decisions about whether a separate assessment of a disability, or a data adjustment, should be undertaken. The materiality levels are defined in terms of the amount of GST redistributed per capita for any State. Different thresholds are used for disabilities and data adjustments. An assessment or adjustment is said to be material if it exceeds the materiality threshold (see the assessment guidelines section in Chapter 3, Volume 2, Part A).

**national capital disability**

A disability that measures the additional costs that the ACT incurs because of Canberra's status as the national capital or because of legacies inherited from the Commonwealth at self-government, that continue to affect its costs of service delivery.

**national partnership payments**

National partnership payments (NPPs) are payments from the Commonwealth to States to support the delivery of specified projects, facilitate reforms, or reward jurisdictions that deliver nationally significant reforms.

**native title and land rights disability**

A disability that measures differences in costs that States incur because of the operation of the Australian Government *Native Title Act 1993*, the additional costs that the Northern Territory incurs because of the operation of the Australian Government *Aboriginal Land Rights (Northern Territory) Act 1976* and the land rights expenses of other States under their land rights legislation.

**natural disaster relief**

Expenses incurred by States under the Disaster Recovery Funding Arrangements 2018 (DRFA).

**needs**

See assessed differences.

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<sup>144</sup> From 2021-22 the horizontal fiscal equalisation (HFE) system in Australia will begin to transition from the current arrangements to new arrangements that will ensure State have the capacity to provide services at the standard of New South Wales or Victoria, whichever is higher.

**net financial worth**

Net financial worth is the sum of financial assets minus the sum of liabilities.

**net borrowing**

The outcome of an operating budget calculated as the sum of expenses and gross investment less the sum of State own-source revenues and revenues received from the Australian Government. Negative net borrowing is referred to as net lending.

**no impact on relativities (previously called exclusion)**

Treatment applied to a Commonwealth payment that does not provide budget support for State services or for which expenditure needs are not assessed. Both the payment and the expenses relating to it are removed from the adjusted budget to ensure they have no impact on a State's fiscal capacity. Occasionally the terms of reference instruct the Commission to ensure a particular payment has no impact on relativities. (See quarantine.)

**payments for specific purposes**

Payments for specific purposes (PSPs) are payments from the Commonwealth to the States relating to policy areas for which the States have primary responsibility. These payments cover most functional areas of State (and local government) activity, including health, education, skills and workforce development, community services, housing, Indigenous affairs, infrastructure and the environment. PSPs include specific purpose payments (SPPs), National Health Reform funding, Quality Schools funding and NPPs.

**policy neutral assessment**

An expenditure or revenue assessment that is unaffected by the policies of an individual State, other than through the influence of its policies on the averages.

**quarantine**

The treatment of a Commonwealth payment, and where possible the expense for which it is used, in such a way as to have no impact on the relativities. Quarantining always results from instructions given directly to the Commission in its terms of reference and the term is used only in this context.

**ratio of actual expenses to assessed expenses**

A ratio that reflects how a State's policies on the level of services provided and the relative efficiency with which they are provided vary from the average policies. It is measured by dividing actual expense per capita by assessed expense per capita.

**ratio of actual investment to assessed investment**

A ratio that reflects how a State's policies on the level of capital provided varies from average policies. It is measured by dividing actual investment per capita by assessed investment per capita.

**ratio of actual revenue to assessed revenue**

A ratio that indicates the actual effort made by a State to raise revenue relative to the average effort. It is measured by dividing actual revenue per capita by assessed revenue per capita.

**ratio of assessed expenses to average expenses**

A ratio of a State's assessed per capita cost of providing services at average standards, relative to average per capita cost. It is calculated by dividing per capita assessed expenses by per capita average expenses.

**ratio of assessed investment to average investment**

A ratio of a State's assessed investment per capita to the Australian average investment per capita. It is measured by dividing per capita assessed capital by per capita average capital.

**ratio of assessed revenue to average revenue**

A ratio that indicates the capacity of a State to raise revenue relative to the average. It reflects the size of a State's revenue base per capita relative to the average and is measured by dividing assessed revenue per capita by average revenue per capita.

**redistribution**

The difference between an equal per capita distribution of GST revenue and one based on the principle of horizontal fiscal equalisation.

**regional costs disability**

A disability that measures cost differences within a State due to differences in the wages paid, and in the price and/or quantity of other inputs to State services.

**relativity**

A per capita weight assessed by the Commission for use by the Commonwealth Treasury in calculating the share of the GST revenue a State requires to achieve horizontal fiscal equalisation.

**revenue base**

A measure of the transactions, activities, or assets that are taxed by the States. Differences between the revenue bases of each State are used by the Commission to determine the relative capacities of each to raise revenue.

**revenue effort**

The intensity of use of a revenue base (the implied tax rate) measured as actual revenue divided by the assessed revenue. It is influenced by the rate of tax or charge, the exemptions, and concessions provided, actual scope of the revenue base in a State, and the effort it put into ensuring compliance.

**review**

The process in which the Commission reconsiders the methods used to calculate the GST distribution, according to terms of reference given to it. From 1988 onwards, reviews have usually occurred every five years. By contrast, an update is conducted every year other than a review year and updates the GST distribution using the methods determined in the last review and the latest data.

**service delivery scale**

Service delivery scale (SDS) is a disability that measures the additional costs of providing a service because the population served is small and isolated from other points of service delivery.

**socio-demographic composition**

Socio-demographic composition (SDC) is a disability that measures differences in both the average use and cost of providing services due to differences between States in the relative size of various socio-demographic groups. It can reflect differences between States in some or all population characteristics such as age, socio-economic status, Indigenous status and location.

**specific purpose payments**

Specific purpose payments (SPPs) are payments from the Commonwealth to States for purposes that enable national policy objectives to be achieved in areas administered by States.

**State(s)**

Unless the context indicates otherwise, the term 'State(s)' includes the Australian Capital Territory and the Northern Territory.

**tax base**

See revenue base.

**update**

The annual assessment of the GST distribution undertaken by the Commission between reviews. Updates incorporate new budgetary developments and the most recent available data. In general, the methods used are those adopted in the most recent review.

**user charges**

Fees and charges raised by States through the provision of goods or services. In the adjusted budget, user charges for some functions or categories are deducted from related expenses. Other user charges are included in the Other revenue category and have no effect on a State's fiscal capacity.

**wage costs disability**

A disability that recognises that otherwise comparable public sector employees in different States are paid different wages, in large part due to differences in labour markets beyond the control of State governments.