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Commonwealth Grants Commission

2020 REVIEW

SCHOOL EDUCATION

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SCHOOL EDUCATION

- 1 The paper provides the Commission staff proposals for the assessment of School education expenses for the 2020 Review.

2015 REVIEW APPROACH

Services included in this category

- 2 The School education category covers spending on both government and non-government schools, and includes preschool education as well as student transport.
- 3 The Commonwealth makes payments to the States to meet a proportion of the cost of government and non-government schools. The expenditure of these payments is included in category expenses.

Category and component expenses

- 4 School education expenses were \$52.8 billion in 2016-17. The breakdown by component is shown in Table 1.
- 5 The Commonwealth has, in recent years, significantly increased its support for school education, with 14% per annum increase in funding between 2013-14 and 2016-17. Further increases in Commonwealth support are anticipated.

Table 1 School education expenses by component, 2016-17

| | Amount | Share | Annual growth in spending, 2013-14 to 2016-17 |
|---|---------------|------------|---|
| | \$m | % | % |
| State funded school education | 34 134 | 65 | 3.8 |
| Commonwealth funded government school education | 6 495 | 12 | 13.6 |
| Commonwealth funded non-government school education (a) | 10 596 | 20 | 7.2 |
| Student transport | 1 530 | 3 | -0.1 |
| Total | 52 755 | 100 | 5.3 |

(a) The assessment of this Commonwealth expense uses the distribution of the associated Commonwealth payment. These offsetting assessments have no impact on the GST distribution.

Source: ABS GFS data.

Data sources and assessment methods

State funded schools

- 6 Expenses are assessed by calculating the actual numbers of students in each State, and making adjustments for the higher costs of:
 - students in government schools (relative to non-government schools)
 - Indigenous students
 - students in remote schools
 - socio-economically disadvantaged students
 - schools in small isolated communities (where schools are smaller).
- 7 The adjustments for higher costs are calculated through a regression of Australian Curriculum, Assessment and Reporting Authority (ACARA) data. The regression finds the relationship between the student profile of each school and its State government funding.
- 8 While State funded school expenses is a single component, it is calculated using two separate regressions, one for Government schools and one for non-government schools.
- 9 An adjustment is also made for wages to reflect that wage costs are higher in some States than others.

Commonwealth funded government schools

- 10 Expenses are assessed separately to give effect to the terms of reference related to the National Education Reform Agreement (NERA), which instructs the Commission to ensure that the recognition of educational disadvantage embedded in the NERA funding arrangements is not unwound by the GST distribution process. Until the 2017 Update the assessment was based on projected application year enrolments and the formula based schooling resource standard (SRS) for government students in each State. Since the 2018 Update, it has been based on assessment year data.

Commonwealth funded non-government schools

- 11 The Quality Schools payment is assessed so that it does not impact on State fiscal capacities. This payment is passed through the States to Independent and Catholic schools, and the States have no flexibility in how these funds are spent. Both the payment and the associated expenses are assessed using the actual allocation of the payment. They represent identical and offsetting assessments. Therefore this funding and the expenses have no impact on the GST.

Student transport

- 12 Student transport is assessed using student numbers, with a different weight given to urban and rural students, and with an adjustment for the distance rural students in each State need to travel to attend school.

Depreciation and investment

- 13 Depreciation and investment in Schools education is assessed in the Depreciation and Investment categories based only on government school enrolments. While certain socio-demographic attributes increase the recurrent cost of schools, most do not affect the need for capital. Only Indigenous students in schools with at least 25% Indigenous enrolments attract a cost weight. The service delivery scale disability is applied to depreciation and investment, as small schools require more capital as well as more recurrent expenditure per student. Growth in enrolments is a major driver of assessed investment need (it is indirectly assessed through population growth and changing disabilities).

GST redistribution

- 14 Table 2 shows the redistribution of GST implied from the last year of the 2018 Update. The School education assessment redistributes around \$1.3 billion.

Table 2 GST redistribution, School education, 2016-17

| Component | NSW | Vic | Qld | WA | SA | Tas | ACT | NT | Redist |
|--|-------------|-------------|------------|------------|-----------|------------|-------------|--------------|--------------|
| | \$m | \$m | \$m | \$m | \$m | \$m | \$m | \$m | \$m |
| State funded schools | -248 | -740 | 526 | 208 | 11 | 56 | -43 | 229 | 1 030 |
| Commonwealth funded govt. schools | -76 | -156 | 98 | 88 | -10 | 12 | -10 | 55 | 253 |
| Commonwealth funded non-gov't. schools (a) | -125 | 75 | 36 | -57 | 20 | -9 | 19 | 40 | 191 |
| Student transport | 8 | -38 | 17 | -9 | 14 | 10 | -8 | 6 | 55 |
| Total | -441 | -859 | 677 | 230 | 35 | 68 | -41 | 330 | 1 340 |
| Total effective (a) | -316 | -934 | 641 | 288 | 14 | 78 | -60 | 290 | 1 311 |
| | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc |
| State funded schools | -32 | -123 | 109 | 80 | 6 | 108 | -109 | 940 | 43 |
| Commonwealth funded govt. schools | -10 | -26 | 20 | 34 | -6 | 23 | -26 | 226 | 11 |
| Commonwealth funded non-gov't. schools (a) | -16 | 13 | 7 | -22 | 12 | -18 | 49 | 164 | 8 |
| Student transport | 1 | -6 | 4 | -3 | 8 | 19 | -19 | 24 | 2 |
| Total | -57 | -143 | 141 | 89 | 20 | 132 | -104 | 1 353 | 56 |
| Total effective (a) | -41 | -156 | 133 | 110 | 8 | 150 | -154 | 1 190 | 55 |

(a) While Commonwealth funded non-government school expenses have an effect on the GST, the associated payment has a perfectly offsetting effect. The total effective row, therefore, shows the impact of the Schools assessment excluding this component.

Source: Commission calculation.

ISSUES AND ANALYSIS

- 15 Staff consider that the School education assessment is relatively mature and reliable. However, detailed work on the specification of the regression model used to estimate cost weights suggest that a change in specification of the model can result in a more reliable estimation of the costs of different student population groups.
- 16 The review of model specification can be done alongside a review of the data the model is based on. New data from the Department of Education and Training that can be used to calculate allocated funding, could be helpful in refining the model.
- 17 Two components are immaterial and so will be discontinued.
 - Commonwealth funded non-government school assessments is treated by exclusion and does not redistribute any GST. However in the 2015 Review it was included as both a revenue and expense. This complexity is not required, and the payment will be treated like all other excluded payments.
 - The transport of school students moves less than \$30 for any State. Staff have concerns about the reliability and fitness for purpose of the data used in this assessment.
- 18 Staff also consider that user charges should be incorporated within the School education assessment rather than assessed EPC in the Other revenue category. This is because moving user charges into the regression model (and hence deriving costs for different student population groups on a net basis) may improve the reliability of the model.
- 19 Other issues have been considered, but no change is recommended from the 2015 Review. These issues are as follows.
 - Data source for student numbers – whether to continue the 2015 practice of using ABS data using splits of geographic distribution based on ACARA data.
 - Can the additional cost of students with disabilities be reliably assessed?
 - Are the shares of government and non-government students policy-affected?

Specification of the regression model

- 20 In the 2015 Review, the Commission used a regression of ACARA data to estimate cost weights for different groups of students. Because it used school level data to attribute costs to students, the specification of this model was somewhat complex. It calculated an Indigenous and a non-Indigenous version of each school, with student numbers based on that school's Indigenous and non-Indigenous enrolments. The funding per student was assumed to be equal for both groups of students within a school.
- 21 Part of the reason for this specification was that the simpler model, having a single record for each school, produced results for which Commission staff could not

identify a conceptual basis (and which appeared inconsistent with NERA and State funding models): that Indigenous students in disadvantaged areas were funded at a significantly lower rate than Indigenous students in less disadvantaged areas.

- 22 In this review staff are attempting to develop an assessment in three stages:
- develop a model that explains differences in State expenditure between schools which allows for different students within the same school to be allocated different levels of resourcing
 - incorporate additional data from the Department of Education and Training
 - work with State funding formulas and other sources to refine the model so that the variables included in the model reflect a strong conceptual case for their inclusion and are sufficiently policy neutral.
- 23 The following sections discuss the conceptual basis for certain variables available from the ACARA dataset. Staff have not yet considered variables available from the Department of Education and Training dataset.
- 24 **School administration.** Whether a school is a primary school, secondary school or combined makes a significant difference to the cost of a school, both in terms of the fixed and variable costs. However, the major difference between States in their number of primary and secondary school students is driven by South Australia's policy decision to include Year 7 in a primary school. Whether States have combined primary-secondary schools or have separate schools is at least partly driven by the demographics of an area — combined schools are much more common in small isolated communities. However they also significantly reflect State policy choice.
- 25 Commission staff consider that while school type is a strong predictor of school costs, it is inappropriate to use for the allocation of GST.
- 26 School size is a significant driver and an important attribute of the model. However as a State can choose to have a few large schools or many small schools, school size should not affect its GST. School size is included within the model, but rather than allocating to States on the basis of their actual distribution of schools by size, staff are assuming that service delivery areas represent a reasonable proxy indicator of State differences in this domain. Schools within service delivery scale areas have, on average, more students than those outside. These differences are incorporated into the assessment through the service delivery scale assessment.
- 27 **Attendance.** In the 2015 approach, the model used student enrolments at each school. In respecifying the model, staff have found that using attendance as well as enrolments significantly improves the model. A variable for students enrolled but not attending is also included. Staff consider there could be a conceptual case that students that take significant amounts of time off school require additional resources to assist them to catch up on lost work, or to support them through the issues leading to their absence. However, schools where average attendance is considerably less

than enrolments (which is more common in Indigenous communities) may not require staff resources for all potential students.

- 28 A regression model incorporating this variable suggests that, ignoring other adjustments, States spend:
- \$17 400 per attending Indigenous student
 - \$13 700 per absent Indigenous student
 - \$5 600 per attending non-Indigenous student
 - \$16 100 per absent non-Indigenous student.
- 29 ***Socio-economic status.*** There is a strong conceptual case that students from low socio-economic status (SES) backgrounds attract more State funding than students from high SES backgrounds. There are two feasible approaches to measuring SES using the data available to us.
- The location of the school can be used to allocate each school an IRSEO group for its Indigenous students and a NISEIFA group for its non-Indigenous students.
 - Each student is allocated an Index of Community Socio-Educational Advantage (ICSEA) value based on attributes of the student, parents and the area of residence.
- 30 The key difference between these measures is that ICSEA cannot separately measure Indigenous and non-Indigenous SES, but it can capture the heterogeneity of a school's socio-economic profile, with a proportion of students in each socio-economic quartile, while each school has only one IRSEO score and one NISEIFA score.
- 31 Having an Indigenous specific measure of SES has been important to the Commission as it underpins the Commission's response to the 2015 Review ToR requirement to 'develop methods to appropriately capture the changing characteristics of the Indigenous population.'
- 32 ICSEA is an education specific measure and some States have developed a measure for their funding formulas that is based on similar architecture and data to ICSEA.
- 33 A regression using IRSEO and NISEIFA found that more disadvantaged non-Indigenous students attract greater funding than less disadvantaged students, as expected. However for Indigenous students the pattern was reversed, with students in the most disadvantaged areas attracting less government funding than those in the least disadvantaged areas. This pattern contradicts the State articulated funding models, and presumably reflects some other, as yet unidentified variable correlated with both disadvantage and State funding.
- 34 The model presented throughout this section uses IRSEO and NISEIFA quintiles of students.

Staff propose to recommend the Commission:

- use an appropriate regression model reflecting State funding models once further developed following consultation between staff and the States.

Complementary data on Commonwealth funding allocation

35 The Department of Education and Training has data on all Australian schools, including a range of school and student attributes in addition to those in the ACARA dataset. Staff have requested access to this dataset, and intend to merge this with ACARA data, which identify State spending on each school. The merged database/funding information will enable staff to determine the national average of the State funding formulas used to allocate State funds to government and non-government schools.

User charges

36 According to GFS figures, States raised \$1.1 billion from user charges in School education. This ranged from 1% of the government funding of schools in New South Wales to 6% in South Australia. ACARA data shows that government schools with the most disadvantaged students raise \$333 per student from fees, charges and parental contributions. Schools with the most advantaged students raise \$801 per student.

37 In 2015, this revenue was assessed EPC in Other revenue. Staff consider it could be better assessed offset against expenses in the assessment of State funded government schools. The ACARA dataset classifies all revenue a school receives as from:

- the Australian government
- State government, or
- fees, charges and parental contributions.

38 The ACARA State government expenses, therefore, appear to relate to the GFS State expenses net of user charges and Commonwealth payments.

Staff propose to recommend the Commission:

- net user charges off the State funded government school assessment
- model student cost weights with a regression that predicts State government recurrent funding.

Commonwealth funded government schools

- 39 In the 2015 Review, the Commission received terms of reference directing it not to unwind the measures of educational disadvantage in the NERA. In the 2020 Review, staff consider the Commission has two options.
- Assess this expenditure based on the Commonwealth intent, using the Commonwealth's SRS, as the Commission currently does.
 - Specify the ACARA data regression to include both Commonwealth and State funded government schools.
- 40 Staff consider that the Commission is still bound by the 2015 Review terms of reference requirement not to unwind the recognition of education disadvantage embedded in the NERA funding arrangements.

Staff propose to recommend the Commission:

- Use the Commonwealth's SRS to assess need for Commonwealth funded government schools.

Commonwealth funded non-government schools

- 41 When the Commission calculates a national spend for a category, it excludes spending funded by Commonwealth payments which have no impact on the assessment.
- 42 In the 2010 Review, this approach was followed for all such payments except:
- National Partnership Agreement on Remote Indigenous Housing
 - Commonwealth payments for non-government schools
 - 50% of national network roads.
- 43 By the 2015 Review, both the national network roads and the remote Indigenous housing payments were treated in the same way as all other excluded payments. Only the Commonwealth payment for non-government schools remained being assessed as both a revenue and an expense.
- 44 Staff consider there is no analytic benefit to the current treatment and merely adds complexity to the calculation of the GST.

Staff propose to recommend the Commission:

- assess Commonwealth funding to non-government schools in the same way as for other Commonwealth payments that do not affect State shares of GST revenue.

Data source for student numbers

- 45 There are two different data sources which count student numbers. The ABS publishes Schools Australia, while ACARA publishes the My School website, and the related data behind it. These data reconcile very closely for most States and the Commission staff are hopeful that future data will better reconcile.
- 46 The ACARA data is a richer dataset, including data on geographic data (remoteness and socio-economic status (IRSEO and NISEIFA) as well as attendance rates. However, the ACARA data are not as timely as the ABS data. In the 2018 Update, staff had access to 2015 ACARA data and 2016 ABS data.
- 47 To ensure the latest available data is used, staff consider that the 2015 Review practice of using student attribute shares from ACARA data to allocate ABS student numbers should continue.

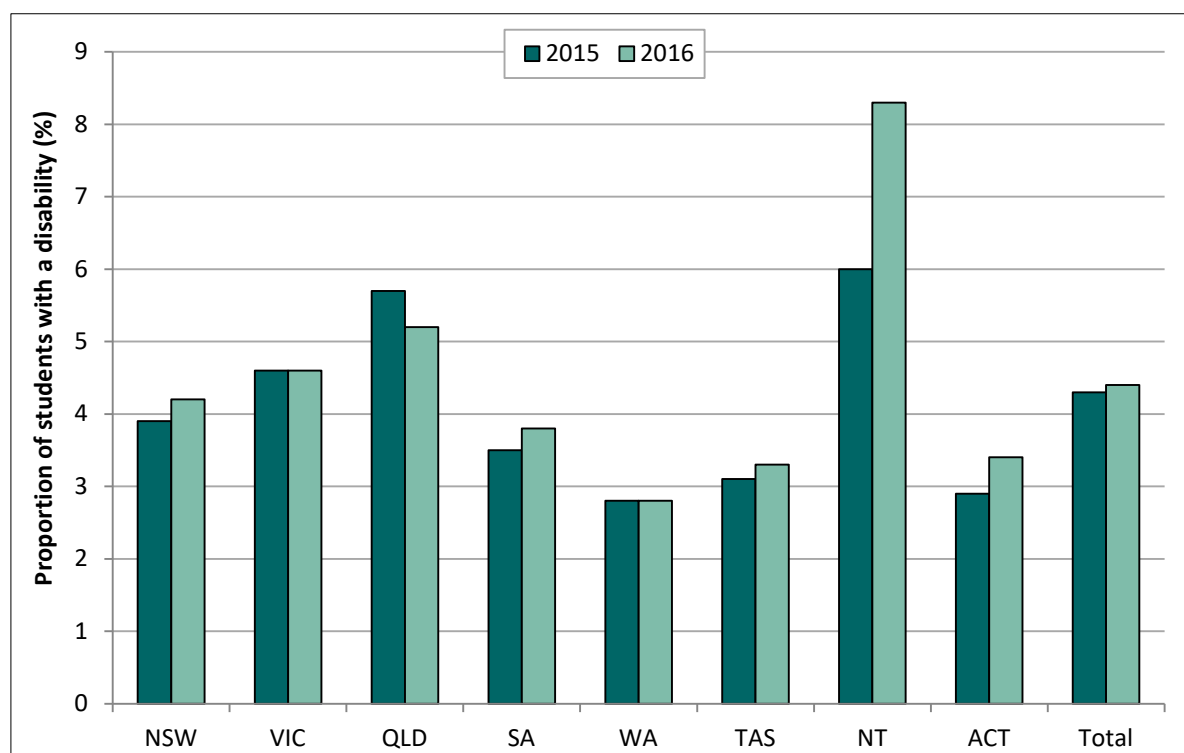
Staff propose to recommend the Commission:

- continue the 2015 Review practice of using ABS data using splits of geographic distribution based on ACARA data.

Students with disabilities

48 States provide additional resources to students with disabilities. In previous reviews staff have not had reliable data that identifies the number of students with disabilities and so have been unable to attempt an assessment. In recent years the States and the Commonwealth have developed the ‘Nationally consistent collection of data on school students with disability’ (NCCD). The proportion of students with a disability varies considerably between States, as shown in Figure 1. The Quality Schools funding formula indicates that students with a disability cost about three times as much as students without a disability. If State spending is also around this level, an assessment of students with a disability is likely to be highly material. The NCCD classifies students into one of 4 different categories, depending on the level of adjustment provided by the school to enable the student to participate in education on the same basis as other students. Figure 1 shows the proportion of students who receive extensive or substantial adjustments, as these are likely to be significantly more costly to States. The quality schools funding formula applies a cost weight to 200,000 students, about the number receiving extensive or substantial adjustments.

Figure 1 Proportion of students with a disability provided with extensive or substantial educational adjustments.



Source: Council of Australian Governments (COAG) Education Council.

49 The measure of students with disabilities is explicitly labelled ‘nationally consistent’. However, the Commonwealth Education Minister Senator Simon Birmingham said ‘this data ... hasn't come to a credible landing point just yet ... There's much more

work to be done by the States and territories to ensure that (the NCCD data) truly is nationally consistent.’¹

- 50 It seems unlikely that the data will be proven to be reliable in time for the 2020 Review.

Staff propose to recommend the Commission:

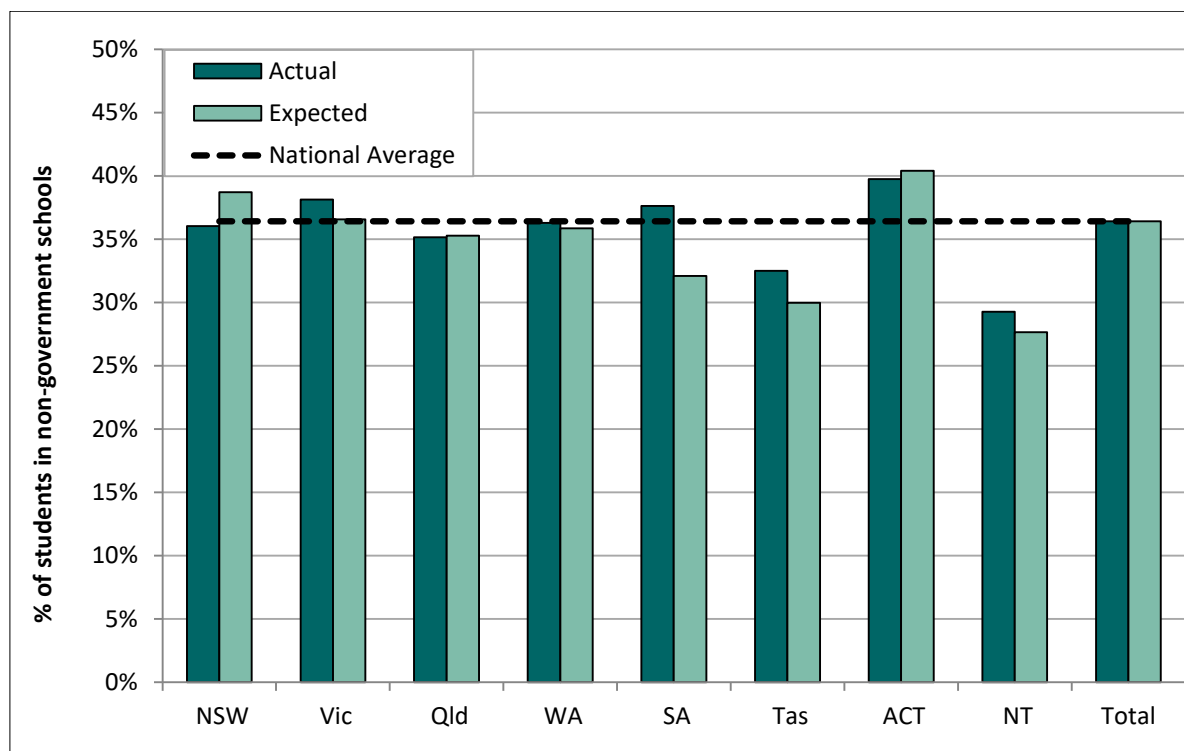
- not incorporate students with a disability into the Schools education assessment unless it is clear these data are comparable across States.

Policy effects on States’ shares of government and non-government students

- 51 There are significant demographic drivers of school choice. Students from certain religious groups, from higher income families and from less remote areas are more likely to attend non-government schools.
- 52 However there may also be some differences due to State government policy, such as the level of funding support and the quality of the government school system.
- 53 Staff can calculate the expected share of non-government students in each State given the religious, income and remoteness mix of the student body in each State. Figure 2 shows that New South Wales has 8% fewer non-government schools than would be expected given its socio-demographic mix, while South Australia (18%) and Tasmania (11%) have more than would be expected.
- 54 This could either reflect policy differences, or residual socio-demographic or other differences beyond the control of the State governments.

¹ <http://www.abc.net.au/news/2017-02-16/new-figures-point-to-a-massive-shortfall-in-funding-for-student/8271824>.

Figure 2 Actual and expected non-government sector share of enrolments, 2016



Source: Commission calculation, 2016 Census TableBuilder.

- 55 There are some policy differences between States that are likely to influence sector of enrolment. The ACT only provides 11% of the funding per student to non-government students than it provides to government students, while Queensland provides nearly twice that (20%), and the Northern Territory 29%.
- 56 Increasing income increases the chances of a child attending a non-government school. However, the cost of living varies significantly between States. In a high housing cost city such as Sydney, the increase in disposable income that comes from a higher income is not as great as in a low housing cost city. This potentially explains why the increase in non-government school attendance with increasing income is much less in Sydney than in Adelaide or Hobart.
- 57 The South Australian system contains a large Lutheran school system. Lutheran schools provide for 13% of non-government enrolments in South Australia and 3% nationally. This network does not seem to be restricted to Lutheran families, but may offer a low-cost religious education alternative for parents who would not consider sending their children to a Catholic school.
- 58 This suggests that much of the differences between actual and expected enrolment patterns shown in Figure 2 reflect circumstances beyond the control of the State government.
- 59 While there are likely to be some policy differences between States, staff consider that the actual proportion of non-government students is the best available measure

of the policy neutral proportion of non-government students in each State. As such we propose using it.

Staff propose to recommend the Commission:

- use the actual numbers of government and non-government students in each State.

Student transport

- 60 The current assessment of student transport is based on poor quality data and is immaterial. The standard, of \$1.6 billion in 2015-16, is not thought to be reliable, as some States struggle to separate the costs of transport of school students from the costs of transport of other people. Because of this difficulty, the split between urban and rural transport is based on an assumed 50-50 split, as State GFS data are deemed too unreliable.
- 61 The Commission has a rather complex assessment incorporating road distance to nearest town of 1 000 people and the number of students within 60km (primary school) or 80km (secondary school) of such a town, which staff consider is not necessarily an accurate proxy of the costs of student transport.
- 62 The overall assessment is immaterial, redistributing \$27 per capita to the Northern Territory.
- 63 Given the unreliability and immateriality of the assessment, staff consider it should not be separately assessed. These expenses could be:
- included in other expenses and not differentially assessed
 - grouped with school expenses and assessed using the state funded school education disabilities
 - grouped with transport expenses and assessed using the urban transport assessment.
- 64 Staff consider that the poor quality of the expense data is because the split from other transport expenses is unreliable. Including it with such expenses will improve the quality of the expense data. The disabilities affecting the cost of transporting school children are likely to be more closely related to the disabilities affecting the cost of transporting other people, than to the disabilities affecting the cost of educating school children.

Table 3 Assessment of transport of school students, 2015-16

| | NSW | Vic | Qld | WA | SA | Tas | ACT | NT | Total |
|--------------------------------------|------|------|------|------|------|------|------|------|-------|
| | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc | \$pc |
| Number of urban students | 32 | 33 | 33 | 35 | 31 | 24 | 46 | 25 | 33 |
| Number of rural students | 32 | 30 | 38 | 26 | 38 | 60 | 1 | 66 | 33 |
| Distance travelled by rural students | 2 | -3 | -2 | 2 | 5 | 0 | 0 | -2 | 0 |
| Total transport of school students | 67 | 59 | 69 | 62 | 74 | 84 | 46 | 89 | 66 |

Source: Commission calculation.

Staff propose to recommend the Commission:

- include transport of school children expenses with transport expenses and assess this using the same the disabilities as those for the urban transport assessment.

Other issues considered and settled

65 Staff propose to recommend the retention of assessments for wages and service delivery scale. These disabilities are discussed further in separate chapters.

CONCLUSION AND WAY FORWARD

66 In conclusion, staff propose to redevelop the ACARA regression, changing the model specification and incorporating data from the Department of Education and Training.

67 Staff propose to remove two components of the assessment that are immaterial — Commonwealth funded non-government schools, and student transport.

Proposed assessment structure

68 Staff propose the following assessment structure for this category in the 2020 Review.

Table 4 Proposed School education category structure

| Component | Disability | Influence measured by disability |
|--------------------------------------|------------------------|---|
| State funded school education | SDC | Recognises that student numbers, adjusted for Indigeneity, low SES and remoteness affect the use and cost of providing services. Recognises that State support for non-government schools is less than for government schools. |
| | Wages | Recognises the differences in the cost of labour between States |
| | Service delivery scale | Recognises the diseconomies of small schools in small isolated communities. |
| Commonwealth funded school education | SDC | Recognises the 2015 Review terms of reference instructing the Commission not to unwind the funding allocated for educational disadvantage by the Commonwealth |
| | Wages | Recognises the differences in the cost of labour between States |