The Economic Impact of Improving Regional, Rural & Remote Education in Australia

Closing the Human Capital Gap

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Australia's Global University

Foreword

The typical policy approach to improving economic growth, increasing employment opportunities and improving the standard of living in regional Australia is usually characterised by major investments from governments into regional infrastructure like roads, rail and hospitals. Whilst these investments are welcome, the huge economic effect of investment in education is often underestimated and undervalued.

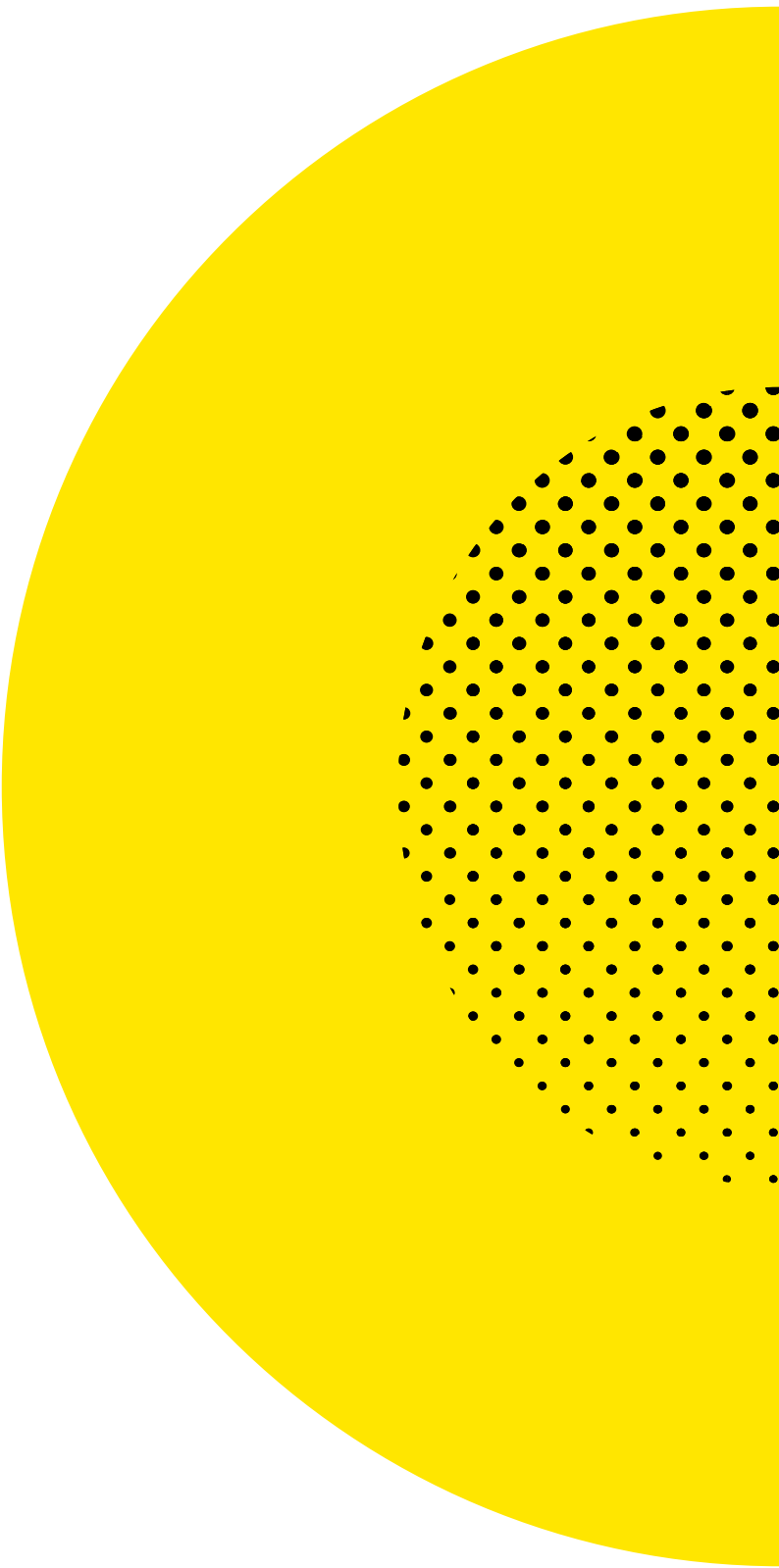
There is an unacceptably large difference in education attainment between people who live in regional and remote Australia compared to those who live in metropolitan centres. Reducing this difference is widely acknowledged as an education and social imperative.

As this report shows there is also a very large economic imperative and economic dividend to be gained by investing in improving the educational attainment of the almost one third of Australians who live outside cities.

Understanding the economic benefit of bridging this gap is a crucial for Ministers, Treasuries and other policy makers when considering the impact of investing scarce resources into our most important assets in regional and remote Australia – our people.

I thank Professor Holden and Ms Zhang for their work.

Professor Adrian Piccoli
Director
Gonski Institute for Education



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Executive Summary

This report documents the differences in educational outcomes between rural, regional & remote Australia and urban Australia. The report then quantifies the economic impact of these disparities in educational outcomes. By linking education to human capital formation—one of the key components of economic output along with physical capital—we estimate the shortfall in Gross Domestic Product (GDP) due to these differences.

If the human capital gap between urban and non-urban Australia was closed, Australia's GDP could be increased by 3.3%, or $56 billion.

To put this in perspective, this is larger than the contribution of the entire Australian tourism industry. Put another way, **one would need to quadruple the size of the Australian beef industry to achieve the same economic improvement.**

Yet these are only the direct effects, on wages, of closing the human capital gap. **There are important spillovers in addition to this, such as improvements in physical and mental health and enrichment of communities.** We do not speculate about the size of these spillovers, but they are likely to be substantial. Furthermore, there is a **multiplier effect throughout the economy from increased productivity and wages which we do not include.** Thus, the size of the benefits we identify are in many ways quite conservative.

Framing the magnitude of the potential benefits from closing this gap is an important first step to achieving these benefits for individuals, households, and the economy more broadly. Clearly, however, a sound understanding of which educational interventions work to close the gap is vital—as is determining which are the most cost effective.

The report summarises work from randomised controlled trials overseas that point to which educational interventions are most promising in this respect. We also outline an approach—building on the concept of *Social Return Accounting*—to calculate the return on investment (or "Social Internal Rate of Return—SIRR") of different interventions.

Ultimately, careful and large-scale randomised controlled trials in Australia are a crucial step to determining which educational interventions yield the highest rates of return and can thus make the most significant contribution to closing the gap between urban and non-urban education in Australia.

“If the human capital gap between urban and non-urban Australia was closed, Australia’s GDP could be increased by 3.3%, or $56 billion.”

Context and Background

Australia continues to face the enormous challenge of promoting access to high-quality education across all areas of the country. Generally, students in regional and remote parts of Australia do not benefit from the same educational opportunities and experiences as their peers in urban areas. While differences in the educational outcomes of students are partly attributable to their different individual abilities, interests and motivations, there remains an ongoing disparity in educational achievement between students in urban areas and students in regional and remote areas. The evidence shows us that, across Australia, students living in regional and remote areas have consistently lower levels of engagement and achievement at school than those living in metropolitan areas.

Emily is in Year 9 and goes to Randwick Girls' High in Sydney. She enjoys science in particular, as well as her mathematics and photography classes, and hopes to study engineering at university. Next week, her science class is going on an excursion to the Museum of Human Disease at the University of New South Wales. She has asked her parents and older brother about university, and has been talking with her friends about where she might apply for her work experience placement in Year 10. During the school week, Emily plays basketball and is part of the school debating team. She hopes to be a peer leader in the peer support program for Year 7 students next year.

Tom lives in Central West New South Wales and is in Year 9 at his local high school in Dubbo. He is interested in geography and has thought about going to university, but doubts that he will be able to get into university – and he knows few people who have a degree. Although his parents are encouraging, Tom does not know how he will support himself if he moves to the city, especially as his family will not be able to support him. Most of his friends are not interested in further study after they finish school, and others plan to drop out after Year 10 to start working. Some of them have started to skip school. Feeling less motivated, he begins to fall behind in his schoolwork.

Educational disadvantage in Australia is a systemic problem. In 2011, the *Review of Funding for Schooling: Final Report*, chaired by David Gonski AC, identified five major factors that can contribute to educational disadvantage in the Australian education system: at the student level, socio-economic status, Indigeneity, English language proficiency, and disability; and at the school level, remoteness.[1]

These individual factors often interact in complex ways, and their interplay can therefore compound the effect of educational disadvantage. Indeed, in Australia the link between student background and educational achievement is stronger than those in other OECD countries with high-quality education systems.[2]

This section provides an overview of the relationship between remoteness, engagement with schooling, and educational outcomes in each State and Territory. We firstly define the geographic areas that will be examined. Secondly, we compare the evidence about urban, regional and remote education on the national, State and Territory levels and summarise state-based and territory-based policies for regional and remote schooling. We then consider the key challenges facing regional and remote schools. Finally, we provide an overview of national policies addressing regional and remote education in Australia.

"Generally, students in regional and remote parts of Australia do not benefit from the same educational opportunities and experiences as their peers in urban areas."

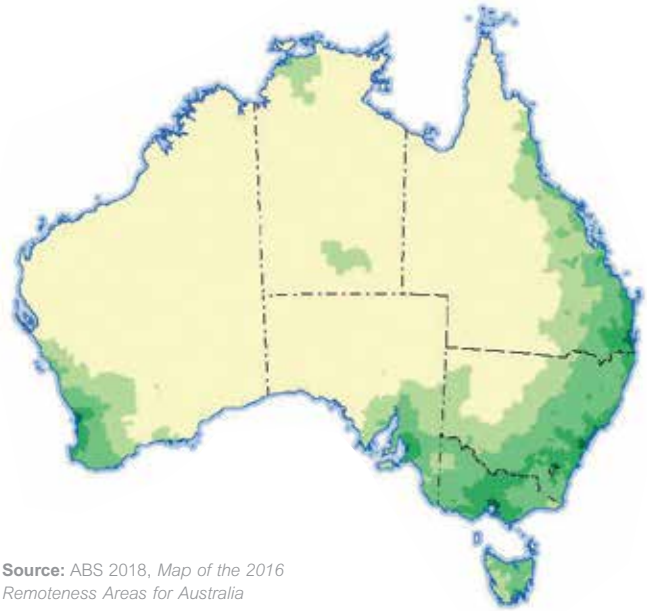
Definition of remoteness areas

The Australian Bureau of Statistics (ABS) has divided Australia into 'Remoteness Areas'. There are five remoteness classes as defined by the Australian Statistical Geography Standard (ASGS) Remoteness Structure, which are measured on the basis of relative access to services:[3]

- Major Cities of Australia
- Inner Regional Australia
- Outer Regional Australia
- Remote Australia
- Very Remote Australia

Relative access to services is measured objectively using the Accessibility and Remoteness Index of Australia (ARIA+), which has been developed by the Hugo Centre for Migration and Population Research at the University of Adelaide. ARIA+ is determined by measuring the road distance from a point to the nearest urban centre and localities for five separate population ranges. Generally, regions become less remote as urban centres increase in size and inter-regional road networks improve.[4]

Our analysis in this report is based upon the above ASGS remoteness indicator. Some of the data relied upon was compiled according to the 2001 Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA, later known as MCEECDYA) classification, which was the predecessor of the ASGS in determining geolocation for educational matters before 2011.[5] For the purposes of broader comparison, in this section the term 'regional' on its own incorporates 'Inner Regional' and 'Outer Regional' categories; while the term 'remote' by itself incorporates both 'Remote' and 'Very Remote' areas, unless otherwise stated. Additionally, the use of the term 'rural' by itself includes both regional and remote areas.



Source: ABS 2018, *Map of the 2016 Remoteness Areas for Australia*

Remoteness compared with indicators of socio-economic disadvantage

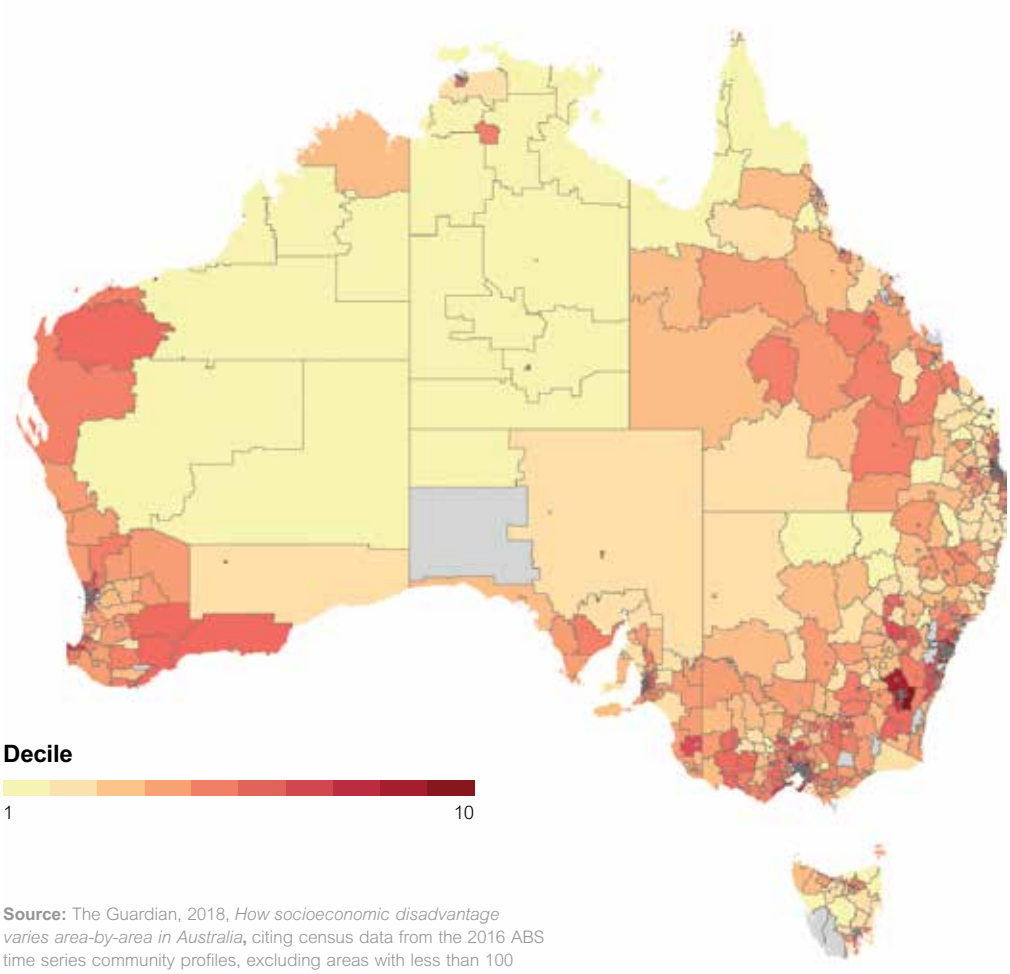
The map below reflects the index of relative socio-economic disadvantage (Irsad) in Australia based on data collected by the ABS in 2016. Whilst a comparison of this map against the map of remoteness areas on page 9 does not demonstrate that remoteness is a cause of socio-economic disadvantage, it does suggest that levels of socio-economic disadvantage increase as geographic remoteness increases.

National overview

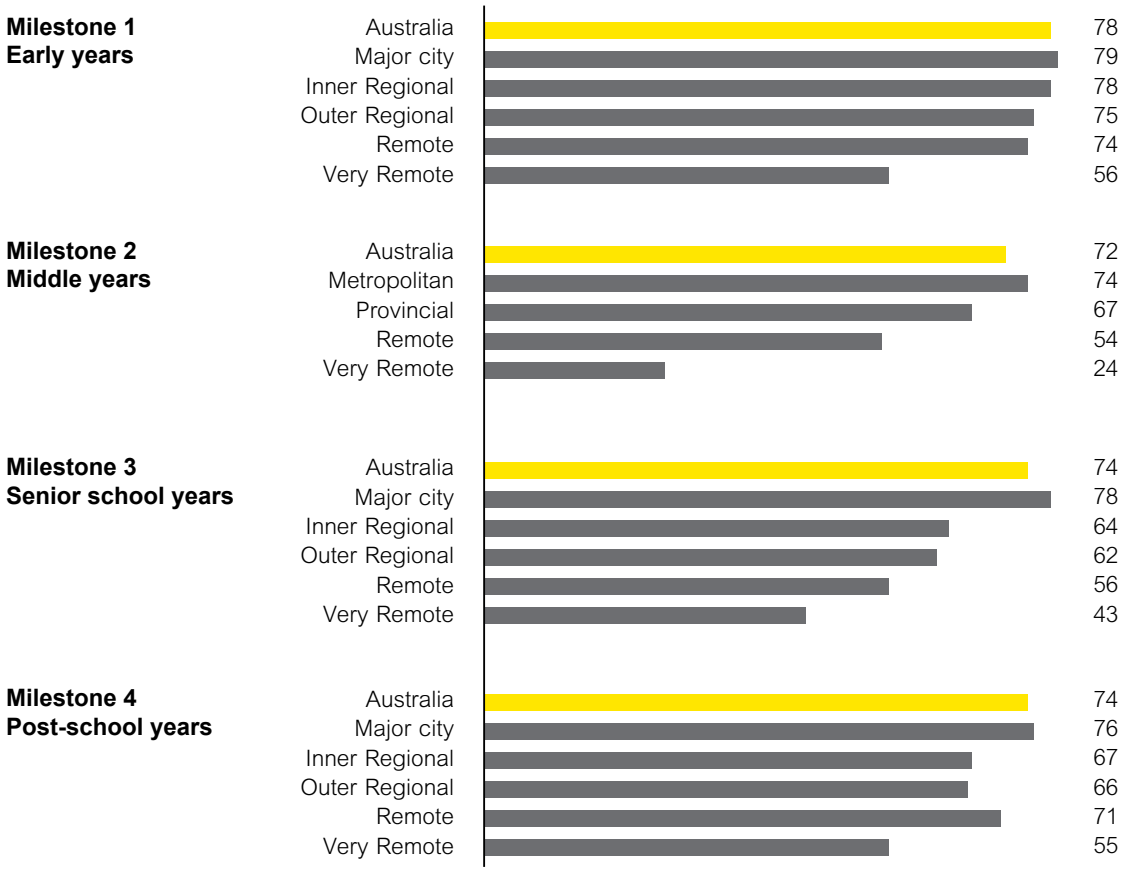
The key findings of *Educational opportunity in Australia 2015*, a comprehensive data study of Australian education conducted by the Mitchell Institute, were that:

- the proportion of students in very remote areas who meet the criteria of certain educational milestones is between 19 and 48 percentage points lower than for the Australian population as a whole;
- students living outside major cities are less likely to catch up once they are off course, as assessed at each milestone;
- regional and remote students have lower access to education services compared with those living in major cities, attend school less frequently, and are less likely to enrol at university and more likely to drop out from university;
- and the dispositions of remote students towards school on aspects such as belonging, self-confidence, purpose and perseverance are less positive than those of students in regional and metropolitan areas.[7]

The chart on page 11 reflects the gap between the proportion of students who meet certain educational milestones in their early, middle, senior, and post-school years by geolocation. Notably, the difference between educational achievement in major cities and regional and remote areas increases during high school over the middle and senior school years. This difference grows substantially when comparing students in major cities and the most remote areas of Australia.



Source: The Guardian, 2018, *How socioeconomic disadvantage varies area-by-area in Australia*, citing census data from the 2016 ABS time series community profiles, excluding areas with less than 100 people. The regions are statistical area level 2.[6]



Source: S Lamb, J Jackson, A Walstab, and S Huo (2015), *Educational opportunity in Australia 2015: Fact sheet 6 – Young people in rural and remote communities frequently missing out*, Melbourne: Mitchell Institute

- **Milestone 1 – Early years** looked at which children were developmentally ready at the point of entry to school, across all five domains of the Australian Early Development Census: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills and communication and general knowledge.
- **Milestone 2 – Middle years** looked at the academic outcomes of Australian students at Year 7 – examining which students were at the mid-point of the third achievement band in reading for the National Assessment Program Literary and Numeracy (NAPLAN).
- **Milestone 3 – Senior school years** examined how many young people had attained Year 12 or an equivalent qualification (at the level of Certificate III or higher) by the age of 19, using ABS Census data.
- **Milestone 4 – Post-school years** used ABS Labour Force data to determine how many young people were engaged in full time work, training or study at age 24.

The results of the National Assessment Program–Literacy and Numeracy (NAPLAN) reflect the ongoing difference in levels of educational achievement between metropolitan and regional and remote students. In 2016, the Grattan Institute published the report *Widening Gaps: What NAPLAN Tells Us About Student Progress*, which demonstrated that the top performing students at disadvantaged schools were up to two and a half years behind the top performing students at advantaged schools.[8] The same disparity is mirrored in the rates of Year 12 certification in each State and Territory, as subsequently considered in this section.

School certification and university attendance nationwide

The number of commencing students from regional and remote areas has increased between 2007 and 2016. This growth has been much greater in relation to students from regional areas (by 62.4%), compared with those from remote areas (by 11.5%).

Number of commencing undergraduate students by geolocation, 2007 and 2016

Year	Regional	Remote	All
2007	51483	3524	276769
2016	83634	3931	407737
% change on 2007	62.4%	11.5%	47.3%

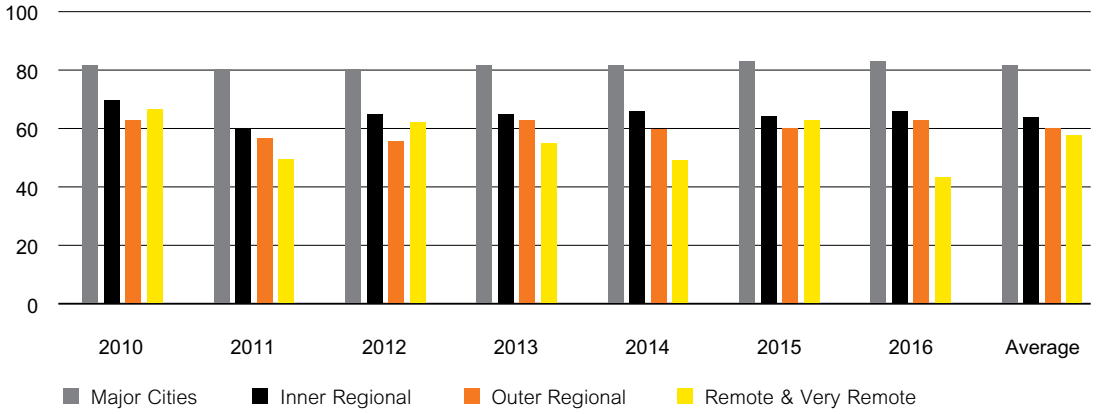
Source: Department of Education and Training 2018, Higher Education Statistics, 2008 and 2016 Student Data, *Table 2.3: Commencing Domestic Students(a) by State, Institution and Equity Group, 2016* **and** *Table 2.1: Commencing and All Domestic Students(a) by Equity Group, 1998 to 2008(b)*

However, there is a substantial gap in the attainment of a Year 12 or equivalent certification between major cities and regional and remote areas across the country. In 2010, it was more likely that young people aged 20-24 had completed Year 12 if they lived in major cities (81%), compared with regional areas (67%) and remote areas (66%) in Australia.[9] This trend has continued over the period up until 2016, with the difference growing further between major cities (86%), regional areas (66%), and remote areas (45%).

Proportion of total population aged 20-24 with Year 12 certification (or equivalent) by geolocation, 2010-2016

Geolocation	2010	2011	2012	2013	2014	2015	2016	Average
Major Cities	81.4	80.4	80.9	81.8	81.3	83.1	85.7	82.3
Inner Regional	69.3	60.7	64.8	64.5	66.8	65.3	67.7	65.4
Outer Regional	62.9	57.0	55.4	63.8	59.4	60.0	63.8	60.2
Remote & Very Remote	65.6	51.4	62.4	55.1	47.5	64.8	44.6	57.3

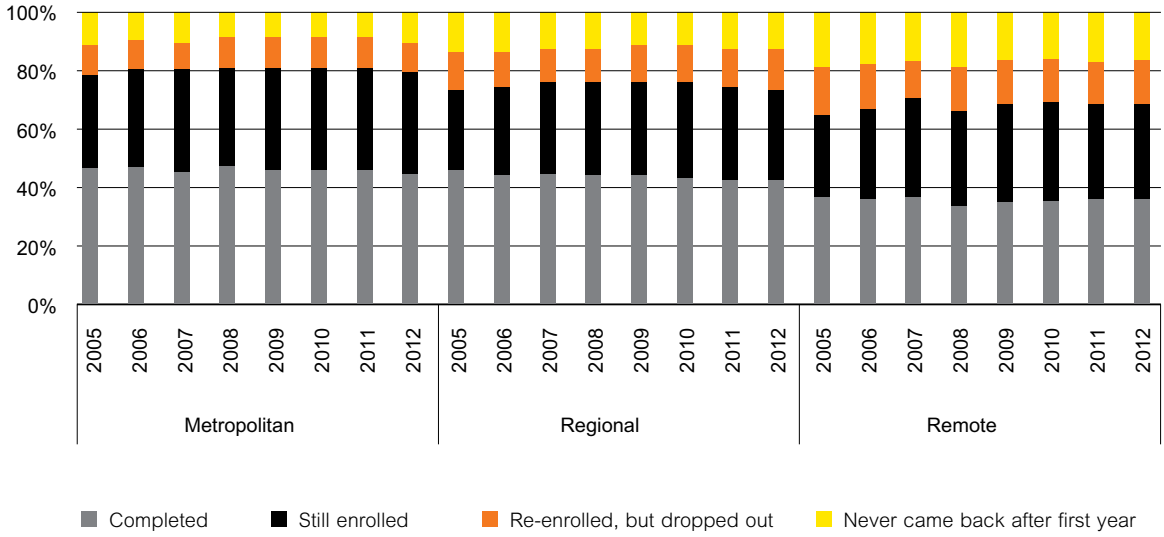
Proportion of persons aged 20-24 years with Year 12 certification (or equivalent) by geolocation, 2010-2016 (%)



Source: Australian Bureau of Statistics 2017, *Table 30 Educational Attainment Year 12 (or equivalent), Persons aged 15–64 years -2004 to 2017*, cat. no. 6227.0, ABS, Canberra, May

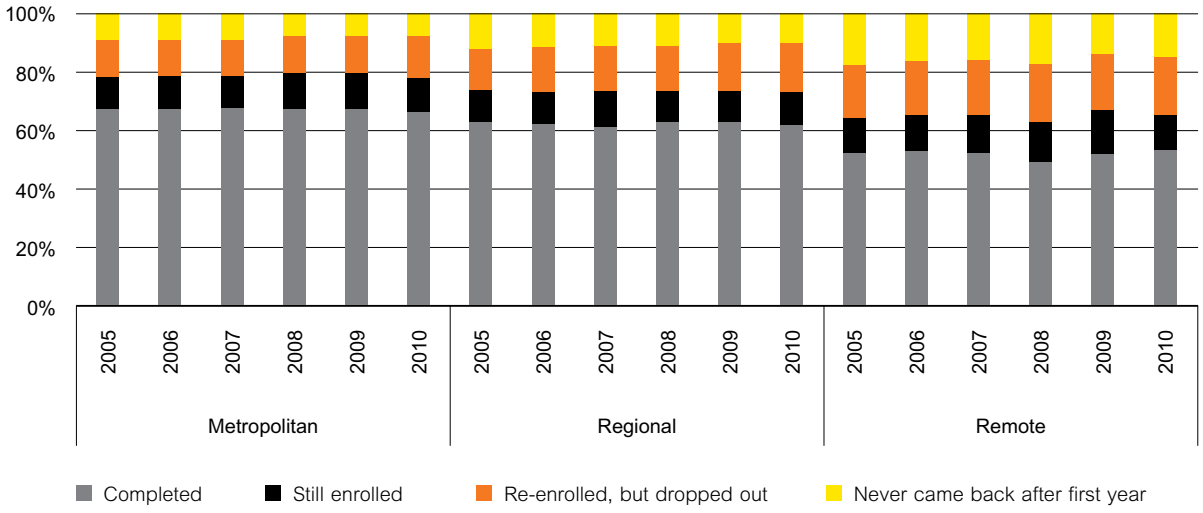
The evidence on the completion rates of all domestic undergraduate cohorts (commencing from 2005 onwards) also demonstrates that fewer students in regional and remote areas complete their undergraduate degree, compared with students from urban centres. Conversely, the proportion of students who drop out of university after their first year increases with geographic remoteness. Moreover, the proportion of Australians aged 25 to 34 with a tertiary qualification in major cities has generally remained twice as high as that in regional and remote Australia according to ABS census data for 2017.

Completion rates of domestic undergraduate students over a 4 year period by geolocation and year commenced



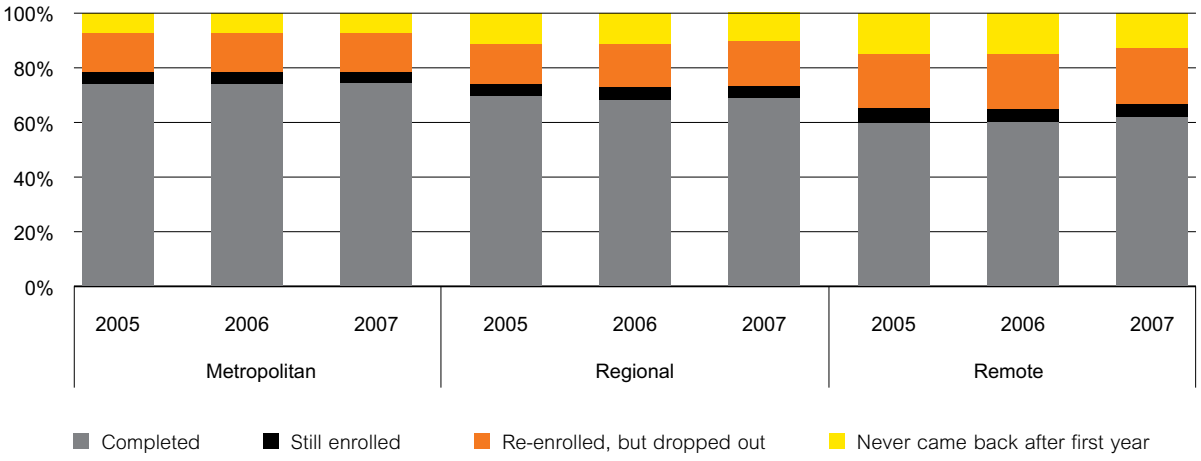
Source: Department of Education and Training 2018, *Table 3: Cohort Analysis for Table A institution and Table B institution commencing domestic bachelor students over a four year period, 2005-2008, 2006-2009, 2007-2010, 2008-2011, 2009-2012, 2010-2013, 2011-2014 and 2012-2015*

Completion rates of domestic undergraduate students over a 6 year period by geolocation and by year commenced



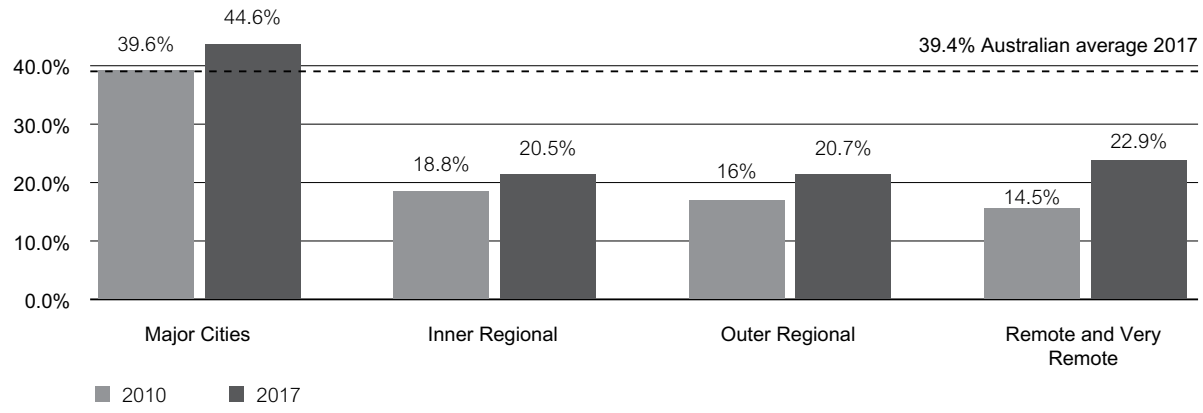
Source: Department of Education and Training 2018, *Table 2: Cohort Analysis for Table A institution and Table B institution commencing domestic bachelor students over a six year period, 2005-2010, 2006-2011, 2007-2012, 2008-2013, 2009-2014 and 2010-2015*

Completion rates of domestic undergraduate students over a 9 year period by geolocation and by year commenced



Source: Department of Education, *Table 3: Cohort Analysis for Table A institution and Table B institution commencing domestic bachelor students over a four year period, 2005-2008, 2006-2009, 2007-2010, 2008-2011, 2009-2012, 2010-2013, 2011-2014 and 2012-2015*

Proportion of people aged 25-34 with a bachelor degree or higher, by geolocation



Source: Universities Australia, 2018, *Data Snapshot | 2018, citing ABS 2017, Education and Work*, cat. no. 6227.0

Overview by State and Territory

New South Wales

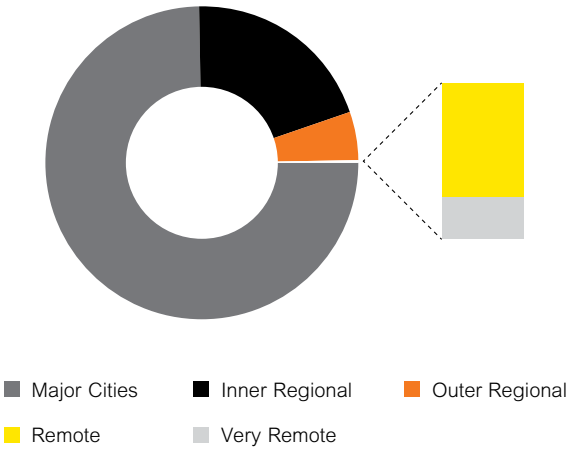
The number of students enrolled in regional and remote schools is significantly lower than that enrolled in metropolitan schools, making up roughly one quarter of the total number of enrolments in New South Wales.

Number of students enrolled in NSW by geolocation (2017)

Remoteness class	Total	Government schools	Non-government schools
Major City	908109	582176	325933
Inner Regional	237051	158465	78586
Outer Regional	58248	46269	11979
Remote	3728	2966	762
Very Remote	1335	1164	171

Source: ABS 2018, *FTE students by ASGS remoteness indicator 2017 (table 46a)*

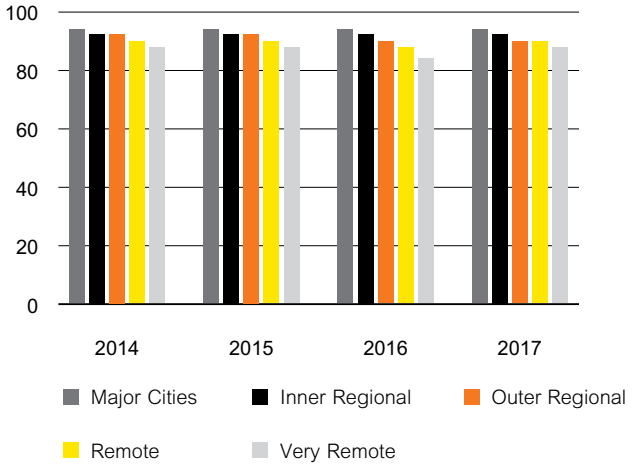
Geolocation of all students enrolled in New South Wales in 2017



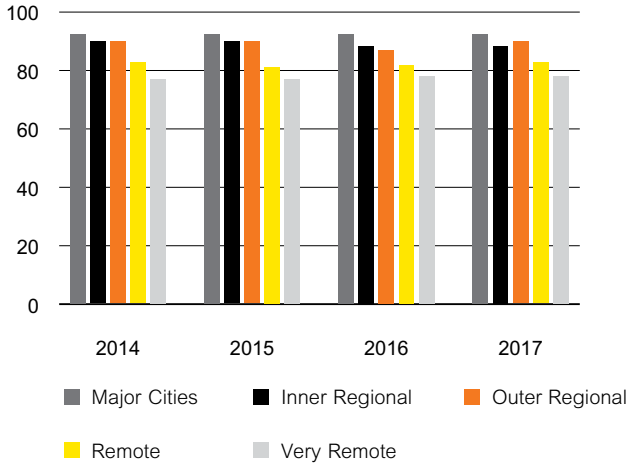
Attendance

Over the past four years, there has been a relatively small variation in school attendance rates across the primary school years between urban areas and regional and remote areas. Importantly, however, there is a significant decline in the number of students who attend secondary school from Years 7 to 10; and schools located in the most remote parts of the state have significantly lower attendance rates. Across each secondary school year, the evidence reveals a further gap in attendance levels between remote and very remote areas, which is over 10 percentage points.

Primary school attendance rates in NSW, Years 1-6 (%)



Secondary school attendance rates in NSW, Years 7-10 (%)



Source: Australia Curriculum Assessment and Reporting Authority (ACARA) 2018, Student Attendance Dataset[10]

Primary school attendance rates in NSW (Years 1-6)

Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	95.2	93.80	93.8	91.1	89.5
2015	94.2	93.3	93.3	90.6	89.1
2016	94.4	93.3	92.7	90.5	88
2017	94.3	93.2	92.6	90.2	89.2

Secondary school attendance rates in NSW (Years 7-10)

Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	92.5	89.7	89.7	83.9	75.6
2015	91.8	89.4	89.4	82.1	75.8
2016	91.9	89.2	87.8	83.4	76.7
2017	91.8	89.2	88	83.9	77.6

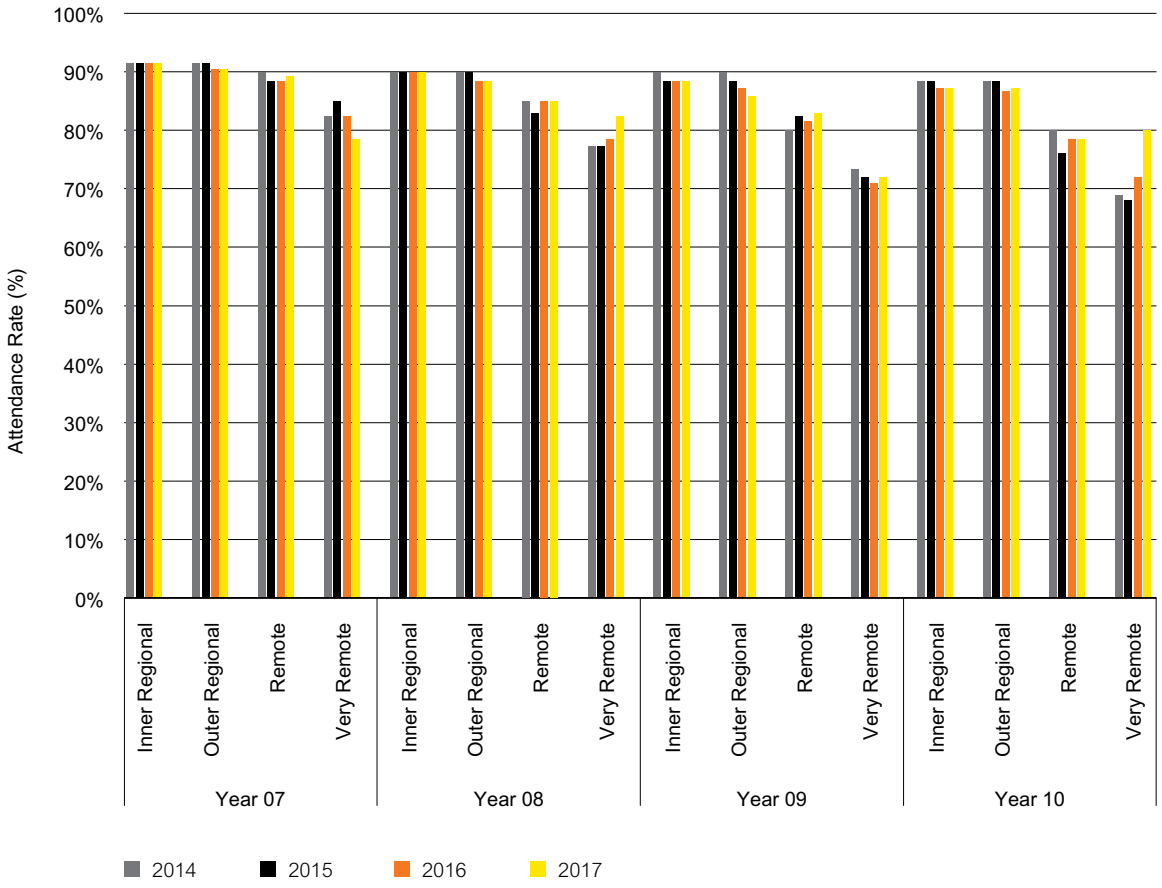
Attendance rates in NSW across Years 7-10 by geographic remoteness

	2014	2015	2016	2017
Year 07				
Major Cities	94.6	93.8	94	94
Inner Regional	92.5	92.2	92.2	91.9
Outer Regional	92.5	92.2	91	91.3
Remote	89	87.3	87.7	88.5
Very Remote	83.7	84.8	83.8	76.7
Year 08				
Major Cities	92.9	92.2	92.3	92.1
Inner Regional	90.3	90.1	90	89.9
Outer Regional	90.3	90.1	88.1	88.6
Remote	85.6	83.4	85.7	85.4
Very Remote	76.8	76.6	78.8	83.7
Year 09				
Major Cities	91.9	91.2	91.2	91.2
Inner Regional	88.9	88.6	88.3	88.5
Outer Regional	88.9	88.6	87.4	86.7
Remote	80.9	82.5	81.9	83.1
Very Remote	74	73	72.4	73
Year 10				
Major Cities	90.7	89.9	90	89.8
Inner Regional	87.1	86.9	86.5	86.4
Outer Regional	87.1	86.9	84.6	85.5
Remote	79.8	75.4	78.2	78.3
Very Remote	68	67.7	72.5	79.4

Source: Australia Curriculum Assessment and Reporting Authority (ACARA) 2018, Student Attendance Dataset. NB: The data only reflects attendance rates for government schools. As the category 'provincial' encompassed 'Inner Regional' and 'Outer Regional' prior to 2016, the 'provincial' value has been used for both of these categories for 2014 and 2015.

"Importantly, however, there is a significant decline in the number of students who attend secondary school from Years 7 to 10; and schools located in the most remote parts of the state have significantly lower attendance rates."

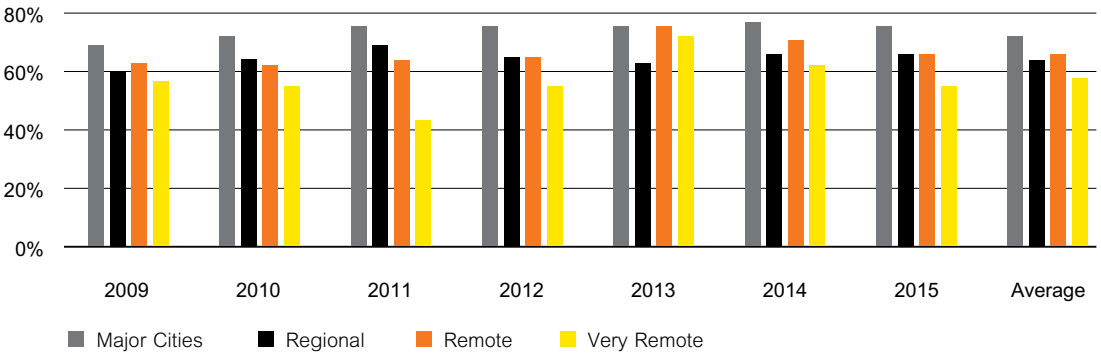
Attendance rates across Years 7-10 by year and by geolocation in NSW



School certification rates

School certification rates in regional and remote NSW have also been consistently lower than in urban areas in the period from 2009 to 2015. On average, the gap in Year 12 certification rates between urban and rural areas is 8 percentage points. This gap grows dramatically to 16 percentage points when directly comparing major cities and the most remote communities in the state.

Year 12 Completion Rates in NSW by geolocation, 2009-2015



Source: NSW Department of Education 2018, *Year 12 Estimated Completion Rates (2009-2015)*[11]

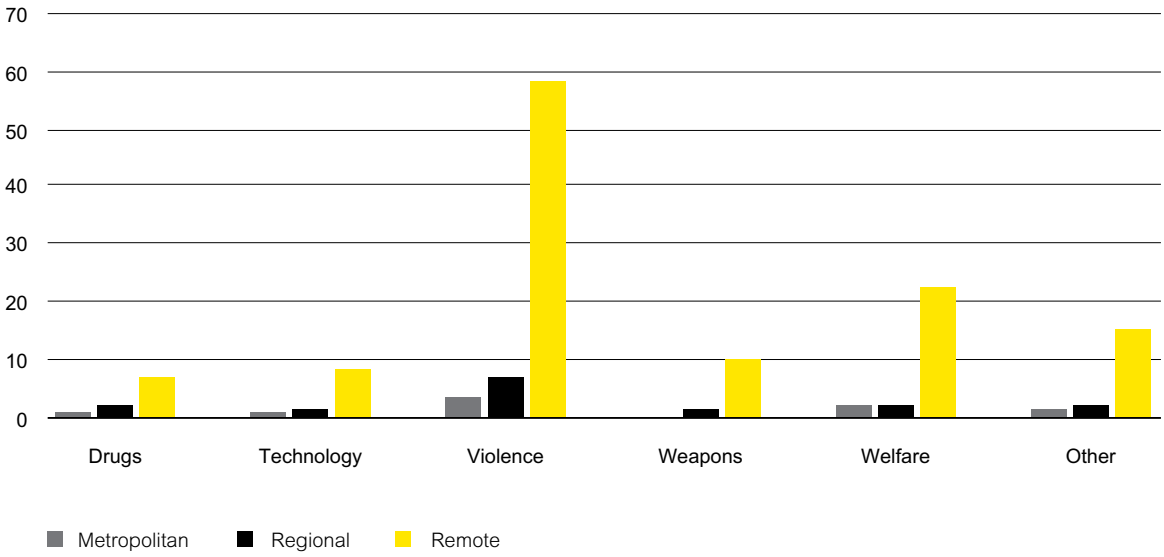
Behavioural issues in schools

The records of incidents reported in schools in NSW for 2016 demonstrate that the number of behavioural incidents occurring increases with geographic remoteness. A disproportionate number of incidents occur at the most remote schools, particularly with respect to incidents concerning violence, weapons or welfare.

Number of incidents reported in NSW schools per 5,000 students

Remoteness	Drugs	Technology	Violence	Weapons	Welfare	Other
Major Cities	1.0	0.8	3.1	0.6	2.2	1.6
Regional	2.6	1.3	7.1	1.4	2.8	2.2
Remote	6.8	7.8	58.3	10.7	23.3	15.5

Number of incidents reported in NSW Schools per 5,000 students by category (2016)



Sources: NSW Department of Education, 2016, *Incident Reporting in Schools: Release 2, 2016 (1 July 2016 – 31 December 2016)* (values rounded to one decimal place), and ABS 2017, *FTE students by ASGS remoteness indicator 2016 (table 46a)*

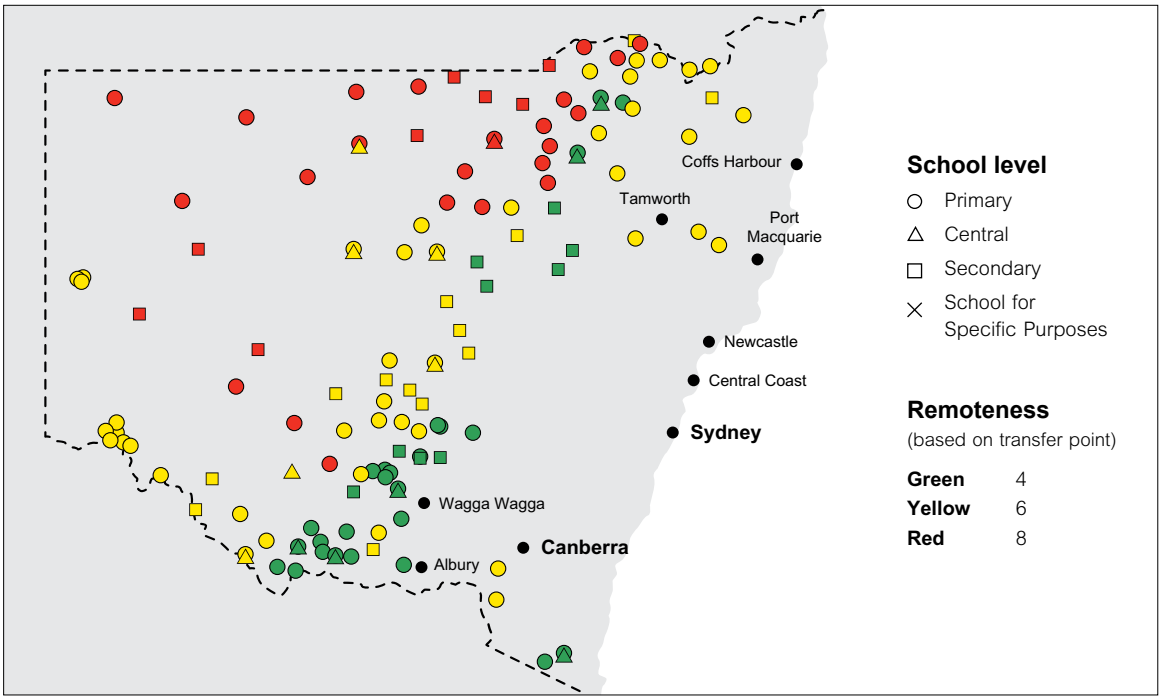
Policies for regional and remote education

In 2013, the NSW Government launched a 'Rural and Remote Education Blueprint for Action', allocating $80 million over the four year period to 2017 in order to decrease the disparity in educational achievement between urban and rural public schools.[12] The Government announced the following initiatives under the Blueprint: over $30 million towards incentives to attract and retain quality teachers and staff; $15 million towards establishing 15 specialist centres to provide health and wellbeing services for students; $8 million to extend curriculum opportunities through launching a virtual secondary school; and $4 million to strengthen early childhood education. In its '5 Year Strategic Plan: 2012-17', the NSW Department of Education established a goal to achieve a 90% rate in the number of those aged 20-24 in regional and rural areas who have attained a Year 12 or equivalent or superior qualification by 2020.[13]

Although teachers are not always appointed in proportion to the geographic distribution of the existing teaching workforce, the Department has made more efforts to align appointments and workforce distributions in recent years, with 9% of appointments in 2014 made for areas in isolated NSW, which represents 5% of the 2014 teaching workforce.[14] The establishment of the Rural Remote Marking Program (RRMP) also gives rural HSC teachers an opportunity to mark the HSC as a means of learning more about the marking process, criteria, questions and syllabus content of the HSC.[15] In November 2017, the Department announced the 'Rural and Remote Education Human Resources Strategy', which is to invest $59.4 million over five years to address the supply and experiences of teachers in regional and remote public schools in NSW, 10 of which are Connected Communities Incentive Schools.[16]

The Rural and Remote Stretegy applies to 154 public schools in NSW.

Ten of these schools are Connected Communities Incentive schools.



Source: NSW Department of Education, *Rural & Remote Human Resources Strategy: Introducing the Strategy*

According to the Department, there is a high demand for teachers in rural and remote areas in NSW, and even in certain metropolitan areas like south-western Sydney and western Sydney.[17] While the Department considers that there is a strong supply of primary teachers in all geographical locations in NSW, as projected for the period to 2022, there is a decreasing supply of teachers in Mathematics and Science, as well as for subjects such as Languages other than English and Technological and Applied Studies.[18]

The Department has also implemented several initiatives to increase teacher supply through the teach.*NSW* campaign and additional support for current and future teachers. In particular, it offers various incentives for teachers in rural and remote areas, including: rental subsidies of 50% to 90% and locality allowances for teachers in certain schools, up to five years of annual retention benefits in 40 of the most isolated schools, enhanced personal leave for teachers in isolated rural schools, additional training and development days, and priority in transfer to a vacancy in an agreed location following the required period of service.[19]

The Department offered 170 teach.*Rural* scholarships from 2013 to 2017 specifically for those prepared to teach in rural and remote locations.[20] On 1 December 2017, the NSW Government announced that it would award 60 scholarships to top scholars for the duration of their university degree if they accept a posting at eligible rural and remote schools.[21] The NSW Government has also affirmed ongoing funding for the Rural and Remote Early Childhood Teaching Scholarship programs, which support early childhood educators to upgrade diploma qualifications to a four year degree.[22]

"There is a decreasing supply of teachers in Mathematics and Science, as well as for subjects such as Languages other than English and Technological and Applied Studies."

Queensland

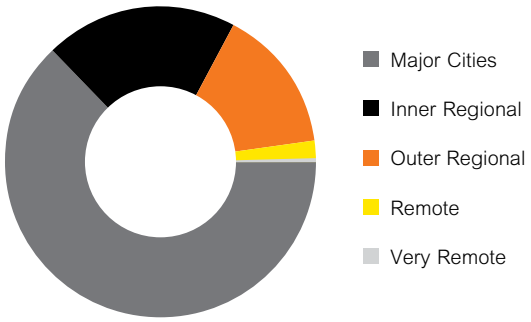
Students enrolled in regional and remote schools make up approximately one third of all enrolments in Queensland. 35 percent of all students are situated in regional areas, with only 2 percent being located in remote areas.

Number of students enrolled in Queensland by geolocation (2017)

Remoteness class	Total	Government schools	Non-government schools
Major City	509951	333699	176252
Inner Regional	159969	110120	49850
Outer Regional	120314	83869	36445
Remote	9757	7589	2168
Very Remote	8415	7602	813

Source: ABS 2018, *FTE students by ASGS remoteness indicator 2017 (table 46a)*

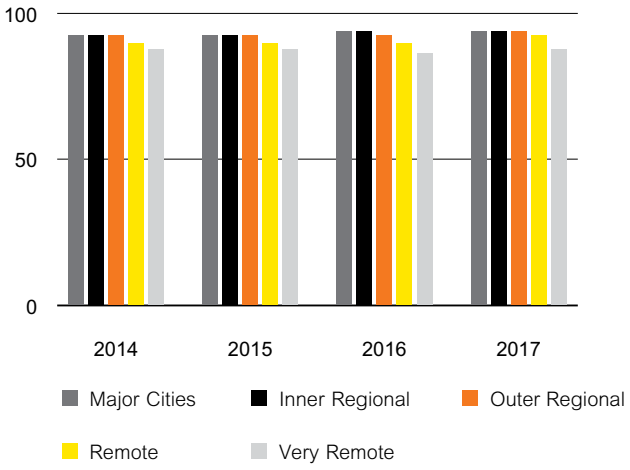
Geolocation of all students enrolled in Queensland in 2017



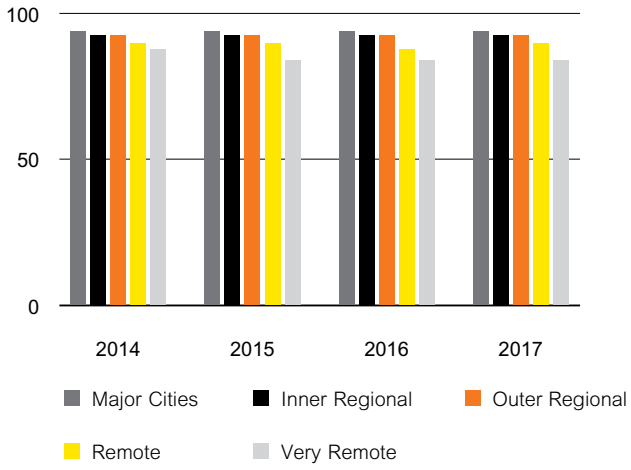
Attendance

The attendance rate in Queensland schools gradually declines with remoteness for Years 1 to 10. Over the course of primary school, the gap in attendance rates between major cities and the most remote areas is approximately 8 percentage points, with very remote areas making up approximately 5 percentage points of this difference. This difference increases to 10-15 percentage points during secondary schooling. At this stage of schooling, attendance rates in regional areas are only marginally lower than their metropolitan equivalents, but drop significantly in the remote and very remote parts of Queensland.

Primary school attendance rates in QLD, Years 1-6 (%)

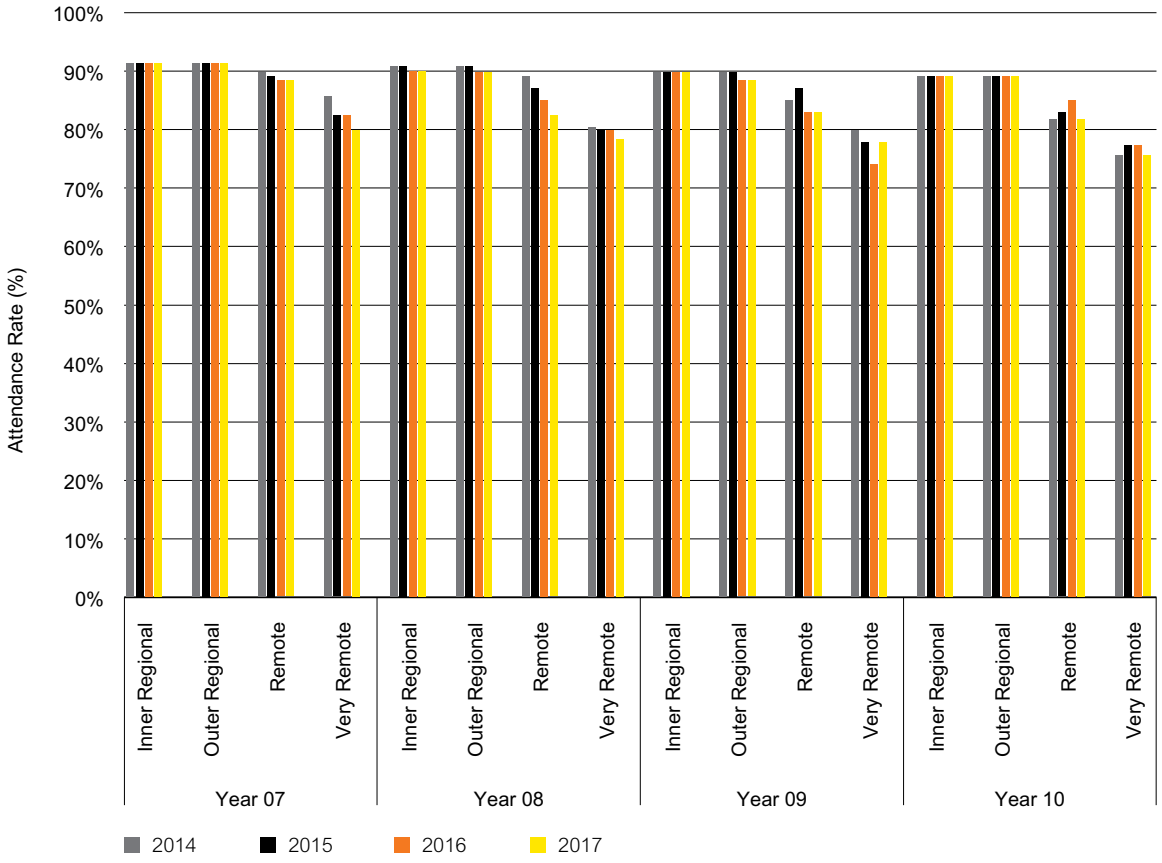


Secondary school attendance rates in QLD, Years 7-10 (%)



Source: Australia Curriculum Assessment and Reporting Authority (ACARA) 2018, Student Attendance Dataset

Attendance rates for Years 7-10 in QLD by geolocation



Primary school attendance rate in Queensland (Years 1-6)

Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	93.4	92.6	92.6	90.7	85.7
2015	93.3	92.8	92.8	90.8	85.1
2016	93.7	93.1	92.5	89.9	85
2017	93.6	92.7	92.4	89.8	85.2

Secondary school attendance rate in Queensland (Years 7-10)

Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	91.4	90.1	90.1	86.6	80.2
2015	91.5	90.4	90.4	86.2	79.2
2016	91.8	90.5	90	85.1	78.9
2017	91.8	90.3	89.9	84.7	76.9

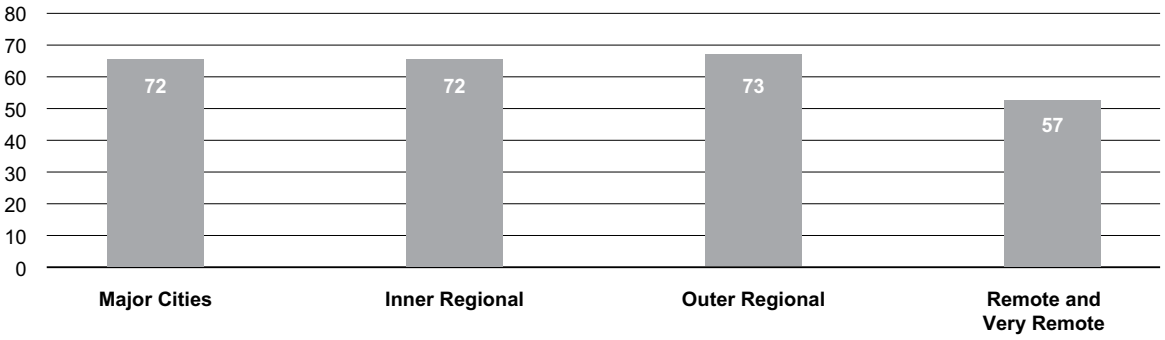
Source: Australia Curriculum Assessment and Reporting Authority (ACARA) 2018, Student Attendance Dataset

Attendance rates across Years 7-10 in QLD by geographic remoteness

	2014	2015	2016	2017
Year 07				
Major Cities	92.9	93.2	93.5	93.4
Inner Regional	92.2	92	92.3	92.1
Outer Regional	92.2	92	91.8	92
Remote	90	88.4	86.9	87.5
Very Remote	84.6	83.3	83	78.9
Year 08				
Major Cities	92.6	92.5	91.7	91.8
Inner Regional	91.6	91.5	90.6	90.4
Outer Regional	91.6	91.5	90.1	90
Remote	88.9	86.5	85.4	84.4
Very Remote	81.1	79.6	79	76.5
Year 09				
Major Cities	90.8	90.9	91.2	90.9
Inner Regional	89.5	89.9	89.7	89.2
Outer Regional	89.5	89.9	89.1	89
Remote	85.4	86.4	83.9	83.5
Very Remote	80	76.7	74	76.6
Year 10				
Major Cities	89.7	89.9	90.5	90.7
Inner Regional	88.1	88.7	88.9	88.8
Outer Regional	88.1	88.7	88.7	88.1
Remote	81.7	83.3	83.5	82
Very Remote	74.7	76.6	77.4	74.7

School certification rates

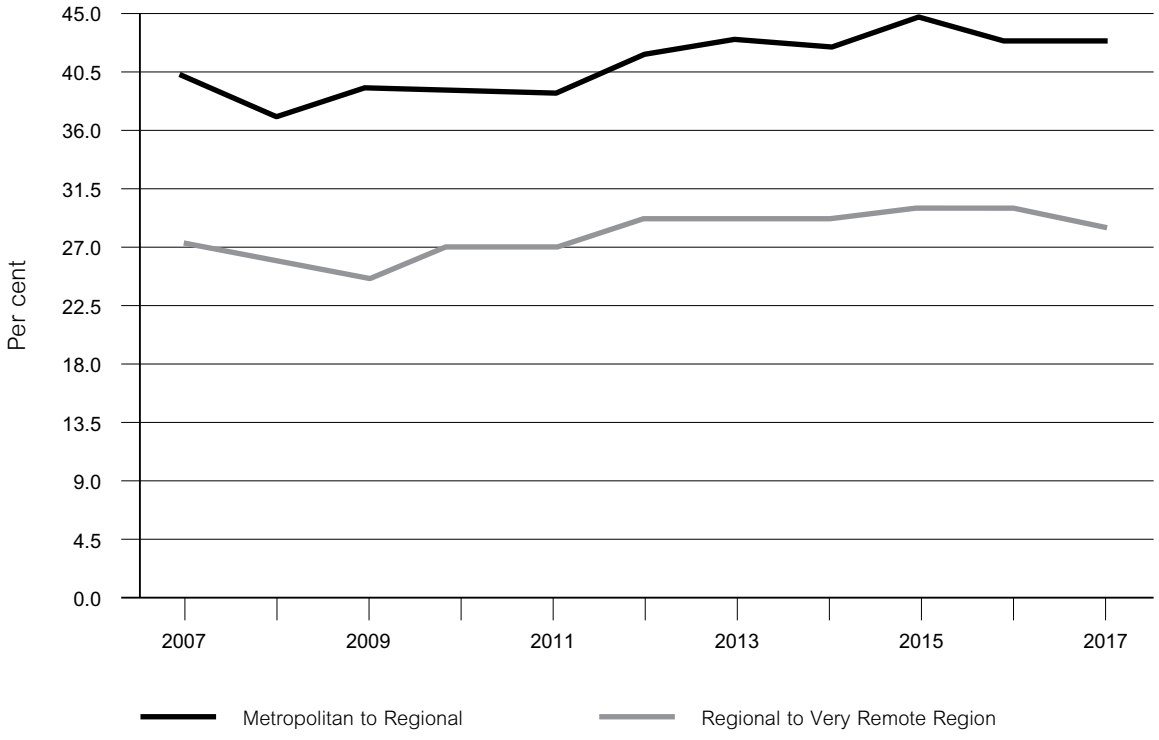
Year 12 Certification Rates in Queensland by geolocation in 2016 (%)



Source: ACARA 2018, *Year 12 Certification rates by geolocation and sex, by state/territory, 2016 (per cent).*[23]

The proportion of students who go on to enrol in a Bachelor's degree differs greatly between metropolitan to inner regional areas and regional to remote communities (see Figures 1 and 2). This difference has hovered at approximately 13 percentage points during the decade from 2007 to 2017. There is a similar gap of approximately 14 percentage points in the proportion of school leavers who continue their tertiary studies between metropolitan to inner regional areas and regional to remote areas (see Figures 3 and 4).

Figure 1: Proportion of students whose post-school destination is a Bachelor degree in Queensland



Source: Department of Education, Queensland, 2018, *Next Step Profiles: Post-school destinations of Year 12 completers, Metropolitan to Regional compared with regional to very remote Region.*[24]

Figure 2: Main destination of Year 12 completers, Metropolitan to Regional and Regional to very remote Regions, 2007-2017

	Year						Change
Main destination	**2007**		**2012**		**2017**		**2007-2017**
	number	**%**	**number**	**%**	**number**	**%**	**ppt**
Metropolitan to Regional							
Bachelor Degree	9,540	40.1	11,641	42.0	13,056	43.2	3.1
VET Certificate IV+	1,956	8.2	2,462	8.9	1,905	6.3	-1.9
VET Certificate III	414	1.7	578	2.1	713	2.4	0.6
VET Certificate I–II/other	791	3.3	992	3.6	669	2.2	-1.1
Apprenticeship	1,859	7.8	1,650	5.9	1,622	5.4	-2.4
Traineeship	1,101	4.6	790	2.8	605	2.0	-2.6
Full-time employment	3,112	13.1	2,223	8.0	2,272	7.5	-5.6
Part-time employment	3,396	14.3	4,407	15.9	5,290	17.5	3.2
Seeking work	1,226	5.1	2,462	8.9	3,247	10.7	5.6
NILFET	413	1.7	529	1.9	869	2.9	1.1
Total	23,808	100.0	27,734	100.0	30,248	100.0	0.0
Regional to Very Remote Region							
Bachelor Degree	2,482	27.2	3,095	29.0	3,217	28.9	1.8
VET Certificate IV+	246	2.7	403	3.8	436	3.9	1.2
VET Certificate III	188	2.1	277	2.6	381	3.4	1.4
VET Certificate I–II/other	352	3.9	331	3.1	262	2.4	-1.5
Apprenticeship	1,203	13.2	1,390	13.0	955	8.6	-4.6
Traineeship	829	9.1	596	5.6	487	4.4	-4.7
Full-time employment	1,916	21.0	1,629	15.3	1,374	12.4	-8.6
Part-time employment	1,243	13.6	1,811	17.0	2,381	21.4	7.8
Seeking work	517	5.7	936	8.8	1,316	11.8	6.2
NILFET	164	1.8	209	2.0	309	2.8	1.0
Total	9,140	100.0	10,677	100.0	11,118	100.0	0.0

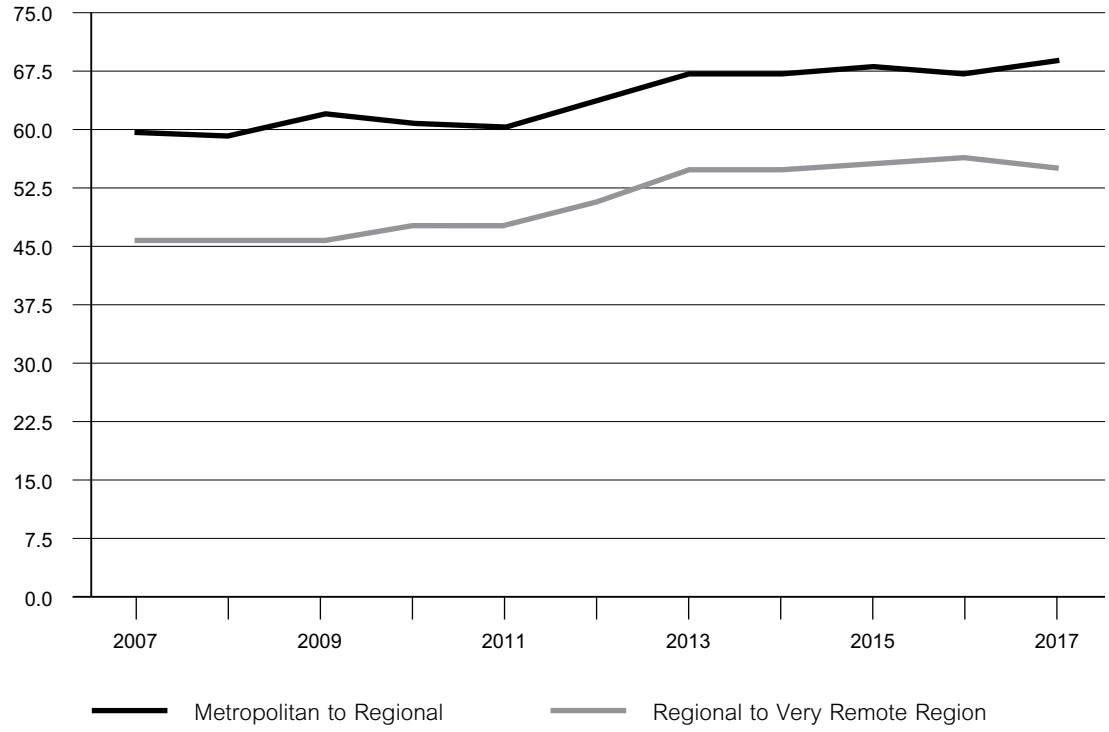
Source: Department of Education, Queensland, 2018, *Next Step Profiles: Post-school destinations of Year 12 completers, Metropolitan to Regional compared with regional to very remote Region*

Figure 3: Level of study of Year 12 completers continuing study over time, Metropolitan to Regional and Regional to very remote, 2007-2017

	Year						Change
Level of study	**2007**		**2012**		**2017**		**2007-2017**
	number	**%**	**number**	**%**	**number**	**%**	**ppt**
Metropolitan to Regional							
Bachelor Degree(b)	9,540	60.9	11,641	64.3	13,138	70.7	9.8
Advanced Diploma(c)	187	1.2	229	1.3	132	0.7	-0.5
Diploma	1,636	10.4	2,024	11.2	1,552	8.4	-2.1
VET Certificate IV	434	2.8	496	2.7	509	2.7	0.0
VET Certificate III	1,663	10.6	2,272	12.5	2,054	11.1	0.4
VET Certificate II	306	2.0	390	2.2	240	1.3	-0.7
VET Certificate I	109	0.7	70	0.4	55	0.3	-0.4
VET Certificate - level not known	744	4.8	238	1.3	426	2.3	-2.5
Other	1,042	6.7	753	4.2	464	2.5	-4.2
Total	15,661	100.0	18,113	100.0	18,570	100.0	0.0
Regional to Very Remote Region							
Bachelor Degree(b)	2,482	46.8	3,095	50.8	3,233	56.4	9.5
Advanced Diploma(c)	29	0.5	45	0.7	34	0.6	0.0
Diploma	190	3.6	315	5.2	360	6.3	2.7
VET Certificate IV	185	3.5	241	4.0	210	3.7	0.2
VET Certificate III	1,123	21.2	1,722	28.3	1,301	22.7	1.5
VET Certificate II	190	3.6	141	2.3	119	2.1	-1.5
VET Certificate I	50	0.9	21	0.3	36	0.6	-0.3
VET Certificate - level not known	417	7.9	144	2.4	208	3.6	-4.2
Other	634	12.0	369	6.1	234	4.1	-7.9
Total	5,300	100.0	6,093	100.0	5,735	100.0	0.0

Source: Department of Education, Queensland, 2018, *Next Step Profiles: Post-school destinations of Year 12 completers, Metropolitan to Regional compared with regional to very remote Region*

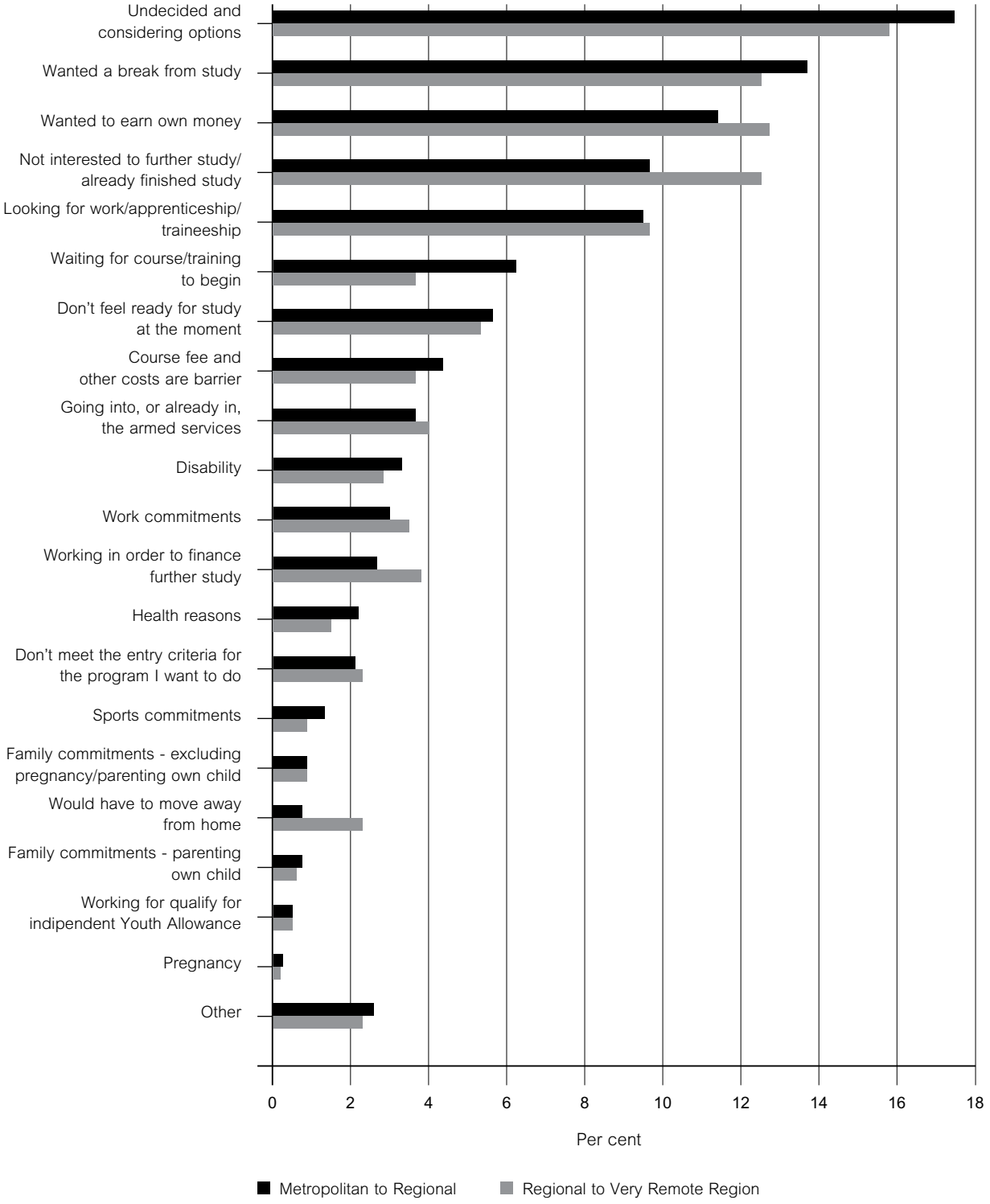
Figure 4: Proportion of students continuing study whose level of study is a Bachelor Degree



Source: Department of Education, Queensland, 2018, Next Step Profiles: Post-school destinations of Year 12 completers, Metropolitan to Regional compared with regional to very remote Region

For those who choose not to enrol immediately in tertiary study, recent survey evidence demonstrates that compared with their peers in metropolitan to regional areas, more students in regional to very remote Queensland are not interested in further study (12%), or want to earn money (12%), or are working in order to finance further study (4%), or do not want to move away from home (2%) (see Figure 5).

Figure 5: Main reason for not studying, Metropolitan to Regional and Regional to very remote, 2017



Source: Department of Education, Queensland, 2018, Next Step Profiles: Post-school destinations of Year 12 completers, Metropolitan to Regional compared with regional to Very Remote Region

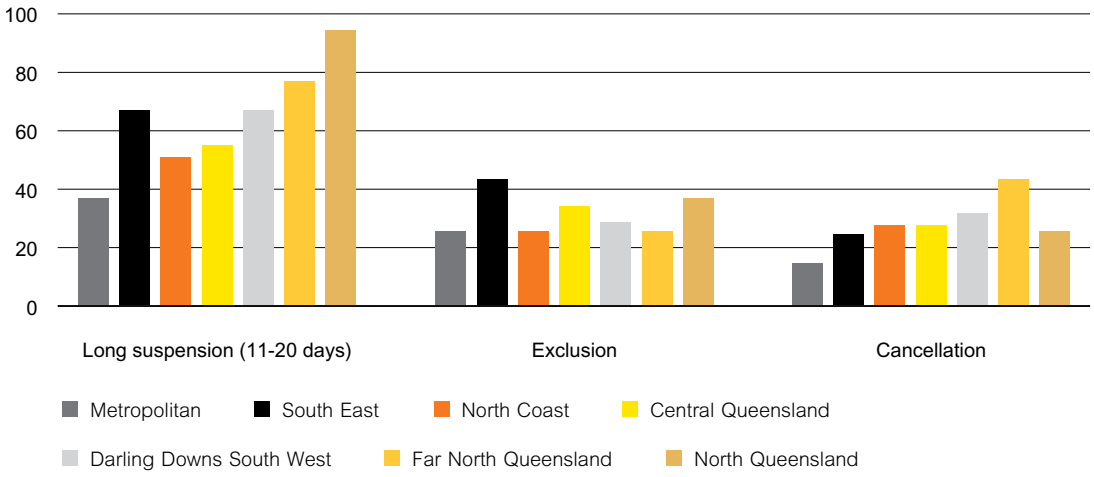
Behavioural issues in schools

In 2017, there were generally greater numbers of school disciplinary absences across all categories in regional and remote areas compared with the metropolitan regions of Queensland.

Number of school disciplinary absences by QLD region per 10,000 students in 2017

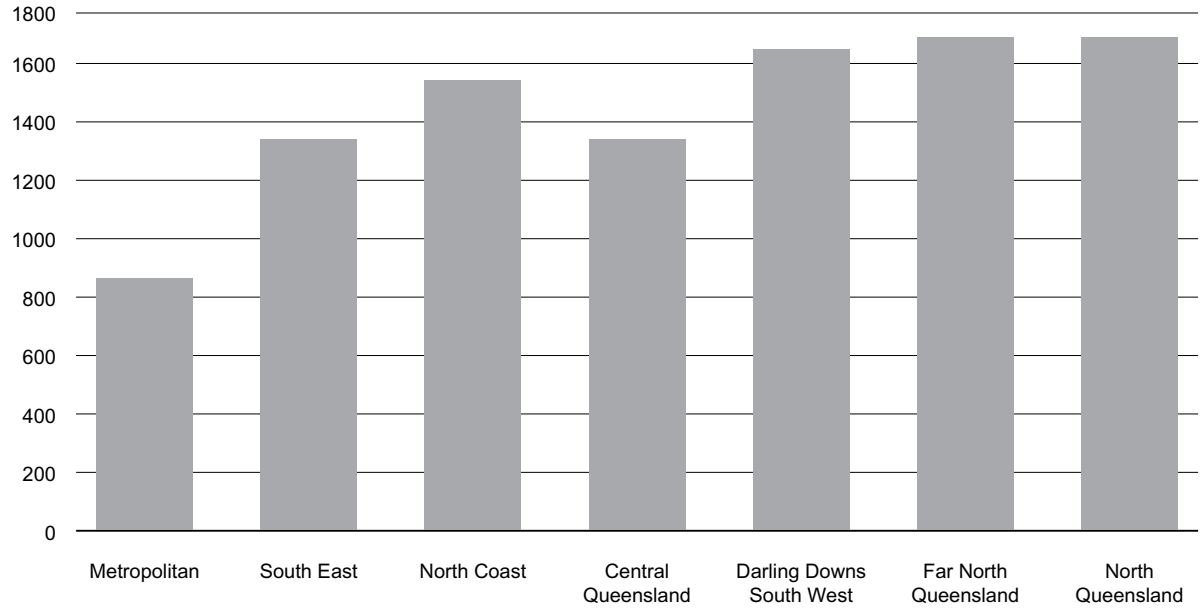
Remoteness	Region	Charge suspension	Short suspension	Long suspension	Exclusion	Cancellation
Major Cities	Metropolitan	0.5	851.1	37.2	22.5	13.1
Major Cities/ Regional	South East	0.3	1343.4	64.2	43.4	21.9
Regional	North Coast	0.3	1520.0	53.2	22.9	26.2
Regional/ Remote	Central Queensland	1.1	1344.1	55.0	34.8	26.2
Regional/ Remote	Darling Downs South West	1.0	1642.7	66.2	32.4	30.2
Regional/ Remote	Far North Queensland	0.6	1692.4	75.0	24.6	42.5
Regional/ Remote	North Queensland	0.3	1708.6	92.9	35.3	24.5

Number of school disciplinary absences by QLD region per 10,000 students in 2017

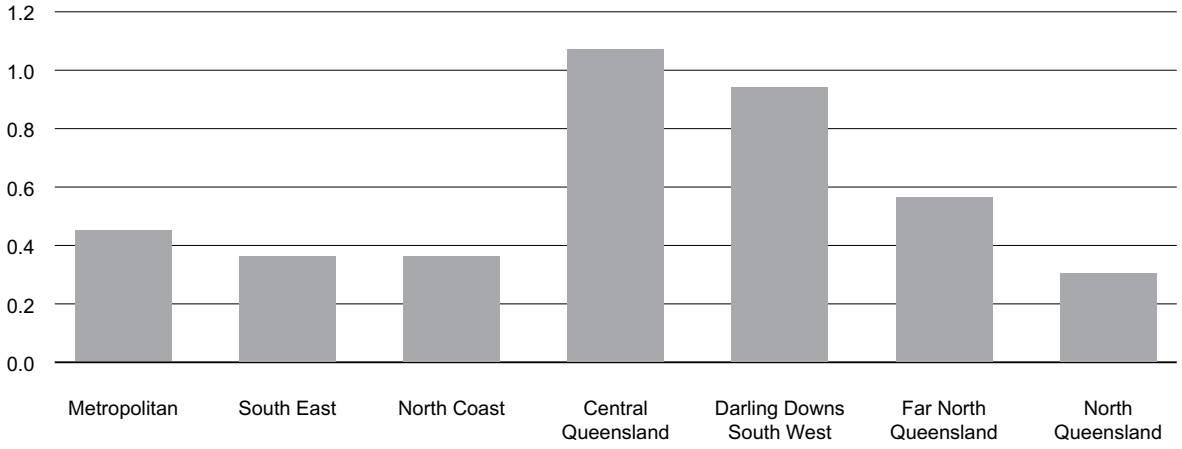


Source: Queensland Department of Education, *2018, School Disciplinary Absences by Region, 2013-17*
NB: Metropolitan, South East are classified as in major city areas; North Coast as regional, and the remaining areas as regional/remote

Number of short suspensions (1-10 days) by QLD region per 10,000 students in 2017



Number of charge suspensions by QLD region per 10,000 students in 2017



Policies for regional and remote education

In its most recent strategy, the Queensland Government has outlined that it will provide children and students in regional and remote areas with 'contemporary, high quality learning opportunities using technology and collaborative experiences'; these will include community partnerships and the delivery of integrated information and communication technology solutions, including improved broadband connectivity for teachers in regional and remote communities.[25] In response to the *Accessing Kindergarten in Queensland* Report, the Department announced the introduction of a needs-based funding scheme to provide further support to services located in disadvantaged and remote areas in November 2011.[26] This included the allocation of up to $1.2 million through the Kindergarten Rural and Remote Teacher Incentive Scheme to offer financial incentives to educators relocating to rural and remote communities. In 2012, the Queensland government outlined a key strategy to provide universal access to kindergarten programmes by increasing the participation of children who are at risk, living in small or remote communities, and who are Indigenous.[27]

In 2003, the Queensland Government launched a *Rural and Remote Education Framework for Action: 2003-2005* as part of the Smart State agenda, which was principally focused on delivering the Education and Training Reforms for the Future Agenda.[28] The Framework aimed to maintain the attendance, retention, and achievement of students in regional and remote areas while respecting cultural diversity, and enhancing multimodal delivery, workforce capability and resourcing.

Policies under the Framework included the creation of curricula that sought to: reduce alienation in the middle years of schooling, strengthen literacy skills and enhance the appropriateness of curricula in remote and very remote schools. The Framework also trialled a preparatory year in distance education, as well as for secondary school through a regional School of Distance Education for students in geographically-isolated areas.

Recognising that more than half of government schools in Queensland are situated in regional and remote communities, the Queensland government offers incentives for those who choose to teach in rural and remote schools.[29] Benefits include permanency of employment, cash benefits, extra leave entitlements, specialised induction programs, subsidised accommodation, flight allowances and substantial transfer and relocation financial assistance.[30] There are also 'Professional Experience Grants' for those who undertake their professional experience placements in a high priority state school, particularly in Central Queensland, Darling-Downs-South West, Far North Queensland or North Queensland.[31] The Department has also continued to deliver the community-based Remote Area Teaching Education Program (RATEP), which providers culturally appropriate teacher education courses to Aboriginal and Torres Strait Islander students in remote communities.[32]

In its 2015-2019 strategy, the Department of Education stated its objective to create innovative options for quality early childhood programs in rural and remote communities.[33] In the 2016-19 'Early Childhood Education and Care Workforce Action Plan', it was affirmed that ongoing challenges are especially present in rural and remote areas with regard to qualification requirements and educator-to-child ratios.[34] The Department has launched the 'Growing Our Own' and 'Rural and Remote Early Childhood Teacher Scholarship' programmes to support early childhood educators in priority remote communities across the state.[35]

Victoria

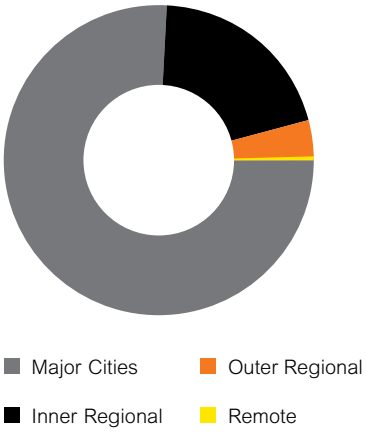
Over three quarters of Victorian students are enrolled in schools in major cities, with those at regional schools making up just under one quarter of all enrolments in the state. Students in remote communities make up less than 1% of the total student population. Attendance rates across all regions during both primary and secondary school years, however, have remained fairly similar, differing approximately one to four percentage points between major cities and remote areas over the past four years.

Number of students enrolled in Victoria by geolocation

Remoteness class	Total	Government schools	Non-government schools
Major City	726698	456309	270389
Inner Regional	189126	120025	69101
Outer Regional	36651	28179	8472
Remote	588	559	29

Source: ABS 2018, *FTE students by ASGS remoteness indicator 2017 (table 46a)*

Geolocation of all students enrolled in Victoria in 2017



Attendance

The school attendance rates across metropolitan, regional and remote areas in Victoria have remained relatively uniform compared to those in other states. Attendance rates do decline with remoteness nonetheless, however the percentage gap between the rates in major cities and remote areas is very small.

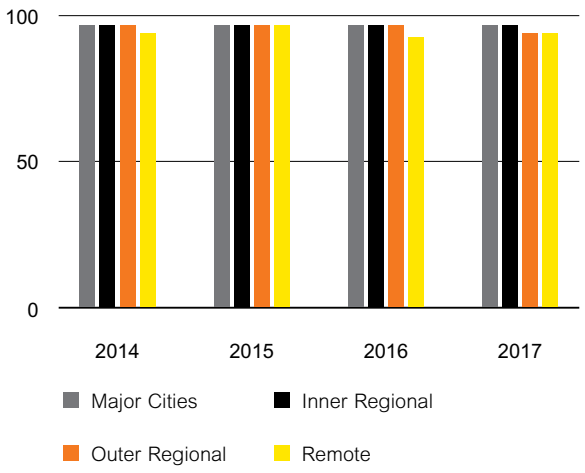
Primary school attendance rates in Victoria (Years 1-6)

Year	Major Cities	Inner Regional	Outer Regional	Remote
2014	93.8	93.2	93.2	91.9
2015	94.2	93.5	93.5	93.4
2016	94.1	93.5	93.1	92.5
2017	93.8	93.1	92.9	92.7

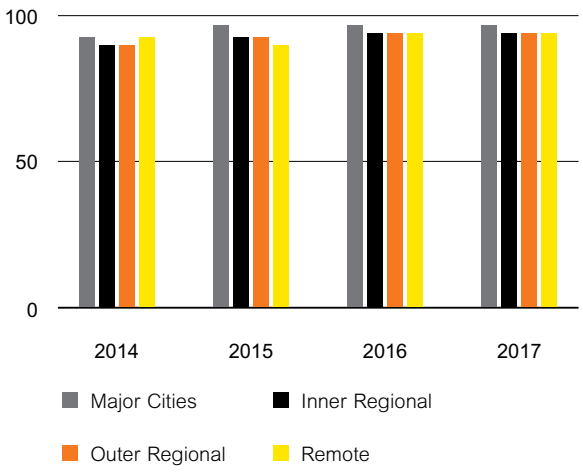
Secondary school attendance rates in Victoria (Years 7-10)

Year	Major Cities	Inner Regional	Outer Regional	Remote
2014	92.7	90.6	90.6	91.5
2015	93.1	91.1	91.1	88.7
2016	92.9	90.8	91	90.6
2017	92.6	91	90.6	90.2

Primary school attendance rates in VIC, Years 1-6 (%)



Secondary school attendance rates in VIC, Years 7-10 (%)

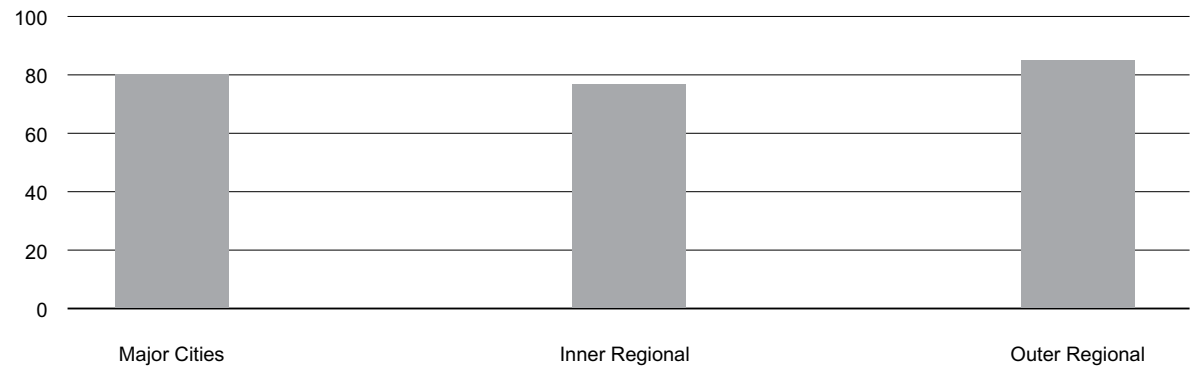


Source: Australia Curriculum Assessment and Reporting Authority (ACARA) 2018, Student Attendance Dataset

School Certification Rates

In contrast to the other States and Territories, Year 12 certification rates in Victoria in 2016 remained consistent across the metropolitan and regional areas of the state. No data was available for remote Victoria.

Year 12 Certification Rate in VIC by remoteness, 2016 (%)



Source: ACARA 2018, *Year 12 Certification rates by geolocation and sex, by state/territory, 2016 (per cent)*

Policies for regional and remote education

The Department of Education and Early Childhood Development (DEECD) has established a Rural School Size Adjustment Factor allocation that is offered to small rural schools (i.e. in non-metropolitan and non-provincial areas) to ensure that their educational resources are equivalent to those of schools in urban regions.[36] The DEECD also enables eligible schools to apply for incentives where they are having difficulty attracting high-quality graduate teachers.[37]

In 2017, the Minister for Education announced that 347 small regional and rural government schools would receive a stronger digital education through a $16.4 million state-wide investment under the 2017/18 Victorian Budget. The initiative was aimed at improving bandwidth and digital connectivity to increase access to online resources and a broader range of subjects.[38] The Department also provides eligible students residing in rural and regional communities or those attending specialist schools with transport assistance, which includes a conveyance allowance, financial assistance, and access to the rural and regional or specialist school bus network.[39]

Previously, the Department has allocated additional funding to rural schools, supported a variety of small programs designed to reduce disadvantage, and implemented reforms in the Victorian Education sector. This enabled education providers in rural communities to provide more targeted and localised programs and services. However, the Victorian Auditor-General concluded in an audit in 2014 that the contemporary initiatives had not significantly improved the performance of rural students.[40]

“In 2017, the Minister for Education announced that 347 small regional and rural government schools would receive a stronger digital education through a $16.4 million state-wide investment under the 2017/18 Victorian Budget.”

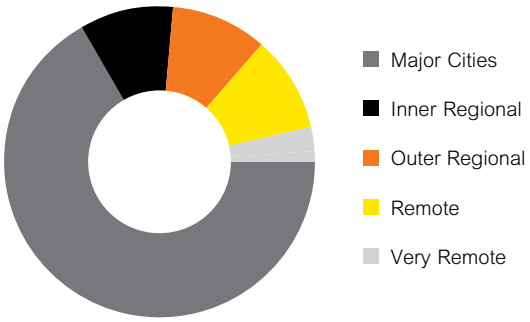
South Australia

The vast majority of students in South Australia attend schools in major cities (74%), while 22% of all students are enrolled in regional schools. Of those located in remote areas, 3% are studying in remote communities and 1% in very remote communities.

Number of students enrolled in South Australia by geolocation in 2017

Remoteness class	Total	Government schools	Non-government schools
Major City	197270	120761	76508
Inner Regional	30363	22005	8358
Outer Regional	29098	22350	6749
Remote	6890	5514	1376
Very Remote	2008	1905	103

Geolocation of all students enrolled in South Australia in 2017



Attendance

Attendance rates have remained fairly consistent across the metropolitan, regional and remote areas of South Australia in both primary and secondary schools from 2014 to 2017. However, there is a big decline in attendance rates in very remote communities, where the difference is approximately 10 percentage points over the primary school years and 10-15 percentage points over Years 7 to 10, dropping noticeably in Years 8, 9 and 10.

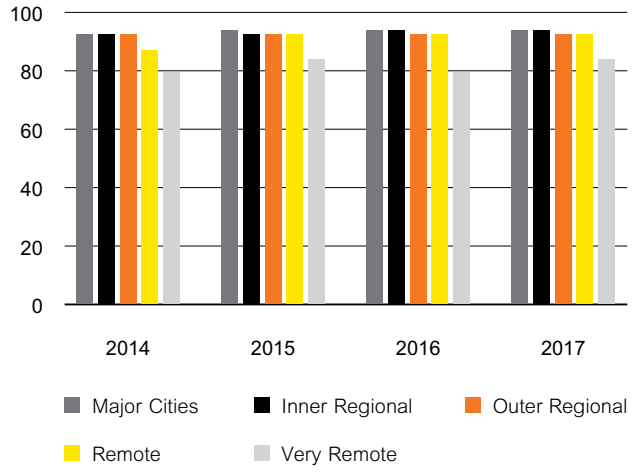
Primary school attendance rate in South Australia (Years 1-6)

Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	93.3	92.5	92.5	91.8	80.3
2015	93	92.1	92.1	91.8	82.4
2016	93	92.6	91.5	91.6	79.6
2017	92.9	92.4	91.1	91.2	81.4

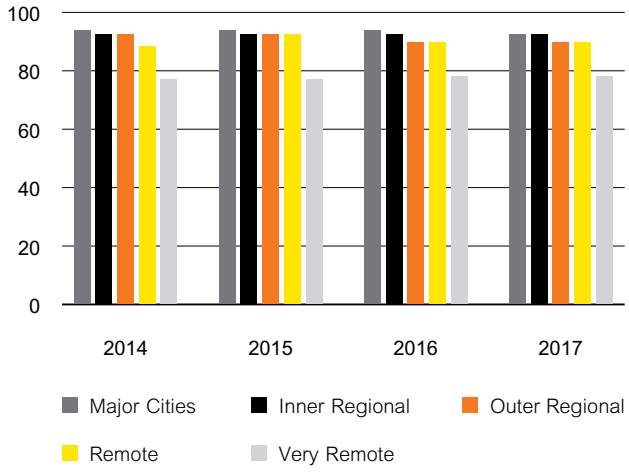
Secondary school attendance rate in South Australia (Years 7-10)

Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	91.3	90.2	90.2	88.9	73.5
2015	91.3	89.7	89.7	89.7	74.7
2016	91.3	90.6	89	88.9	76
2017	91.1	90.2	88.5	88.7	74.7

Primary school attendance rates in SA, Years 1-6 (%)

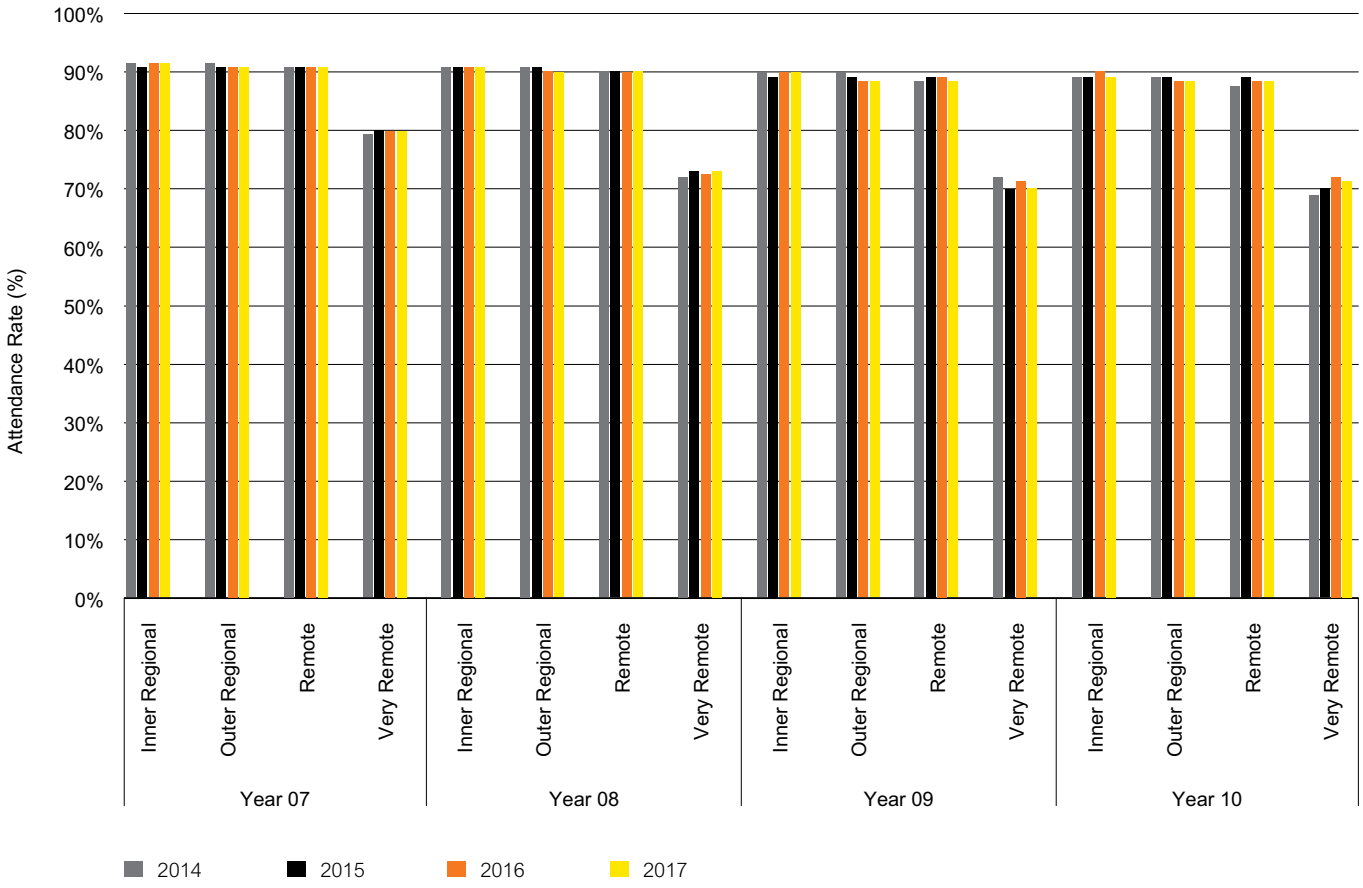


Secondary school attendance rates in SA, Years 7-10 (%)



Source: Australia Curriculum Assessment and Reporting Authority (ACARA) 2018, Student Attendance Dataset

Attendance rates across Years 7-10 by geolocation in SA



Source: Australia Curriculum Assessment and Reporting Authority (ACARA) 2018, Student Attendance Dataset

Policies for regional and remote education

The Department for Education provides flexible learning options (FLO) enrolment to all government schools in the state to assist a student who may be having difficult staying in school.[41] The Department also offers up to 20 regional and rural professional experience scholarships of up to $4,000 for those seeking placements in regional and rural government preschools and schools in South Australia.[42] Staff who are relocating to rural and remote regions may receive payments for the cost of removals, and allowance for packing, furniture depreciation and transferring to the new school base.[43]

The Department also has a 'country incentives scheme' under the *South Australian School and Preschool Education Staff Enterprise Agreement 2016*, which offers an annual cash incentives payment over a 5 year period to eligible teachers in rural schools. Eligible teachers may be entitled to allowances for the completion of each year of approved study, paid leave after continuous service, relocation allowances, additional allowances and transfers to a position in another metropolitan or country school. From 2003, the Department has offered cash incentives over 5 years and a one-off 'incidentals payment' for those who are permanently recruited in eligible rural schools and preschools.[44]

Northern Territory

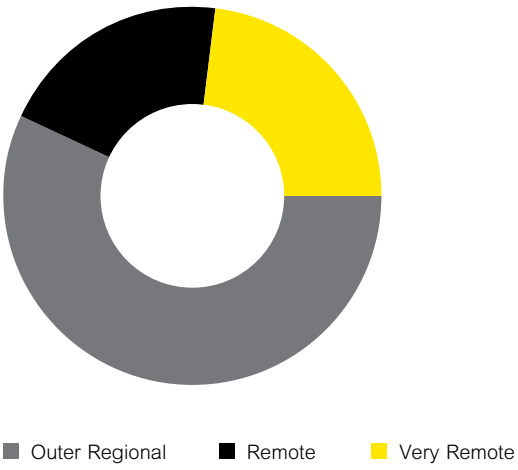
Student enrolments in the Northern Territory span from outer regional to very remote areas. The majority of all students are located in outer regional communities, 20% are located in remote areas, and 23% in very remote communities. 73 percent of government schools are located in remote and very remote areas.[45] However, note that the Northern Territory Government internally classifies the ASGS 'outer regional' category as 'urban'.[46]

Number of students enrolled in the Northern Territory by geolocation in 2017

Remoteness class	Total	Government schools	Non-government schools
Outer Regional	23762	17089	6673
Remote	8346	5035	3311
Very Remote	9415	8223	1192

Source: ABS 2018, *FTE students by ASGS remoteness indicator 2017 (table 46a)*

Geolocation of students enrolled in the NT in 2017



Attendance

There has been a steady decline in school attendance rates from outer regional areas to remote areas. For secondary schooling, this has grown to over 10 percentage points for the past two years. Even more significant is the further gap in attendance rates between remote areas and very remote areas, both across primary schools (from 18 to 21 percentage points) and secondary schools (from 24 to 29 percentage points). This decline in school attendance in very remote communities seems to markedly increase beyond Year 8. Further, there has been a decreasing trend overall in the attendance rates of both remote and very remote communities over the past four years.

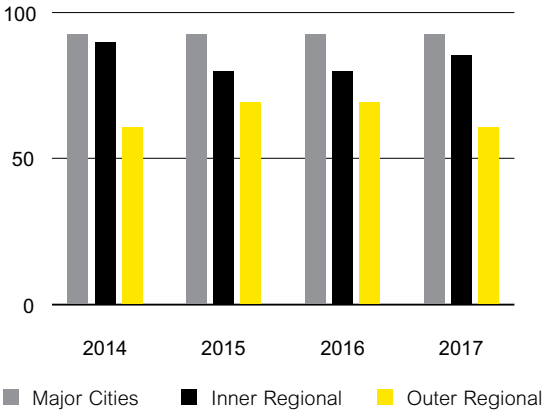
Primary school attendance rate in the Northern Territory (Years 1-6)

Year	Outer Regional	Remote	Very Remote
2014	90.7	86.9	68.4
2015	92.3	86.1	68.5
2016	91.7	86.4	67
2017	92	85.2	64.3

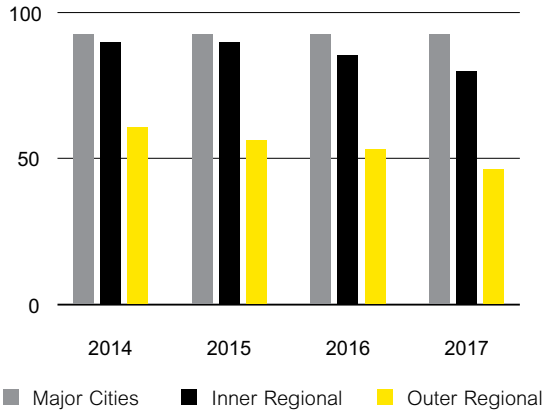
Secondary school attendance rate in Northern Territory (Years 7-10)

Year	Outer Regional	Remote	Very Remote
2014	87.4	83.8	59
2015	89.2	85.5	56.8
2016	88.3	77.7	54
2017	87.6	75.8	48.6

Primary school attendance rate in the NT (Years 1-6) (%)

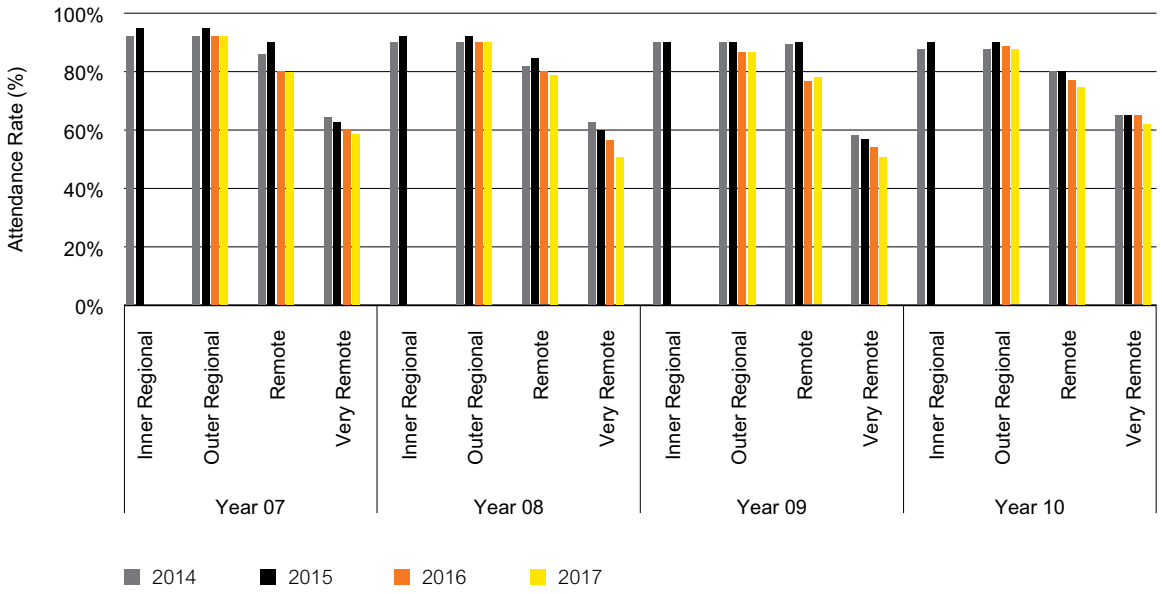


Secondary school attendance rate in the NT (Years 7-10) (%)



Source: ACARA 2018, Student Attendance Dataset

Attendance rates for Years 7-10 in the NT by geolocation

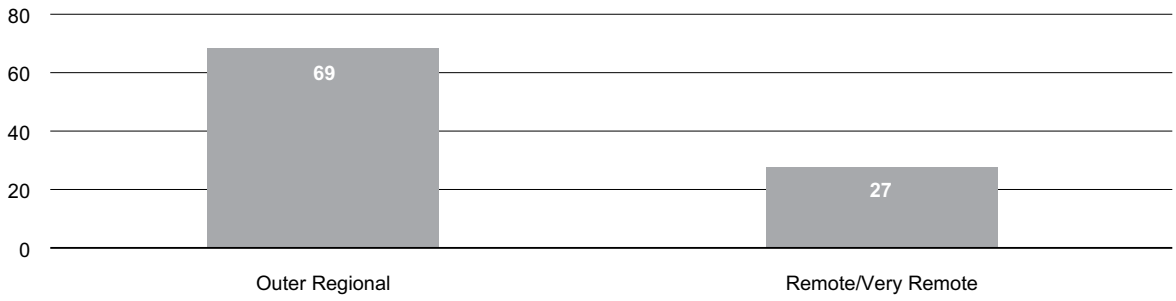


Source: ACARA 2018, Student Attendance Dataset

School certification rates

An increasing number of Northern Territory Certificates of Education and Training (NTCET) has been issued to completing students in the Territory, from 1041 in 2010 to 1405 in 2016.[47] However, there is a disparity between outer regional areas and remote areas in terms of the proportion of students who are issued the NTCET; which was reflected by a gap of 42 percentage points in 2016.

Year 12 Certification Rate in the NT, by geolocation 2016 (%)



Source: ACARA 2018, *Year 12 Certification rates by geolocation and sex, by state/territory, 2016 (per cent)*

Behavioural issues in schools

The rate at which students are suspended is fairly similar (at approximately 7%) across both outer regional and remote schools in the Northern Territory. However, the proportion of students being suspended is significantly higher when compared with other States.

Proportion of Students Suspended in the Northern Territory in 2017

	Average Enrolment	Number of Students Suspended	Proportion Suspended
Remote	6987	483	6.91%
Outer Regional	15708	1127	7.17%

Proportion of Students Suspended in the NT, 2017

Source: Northern Territory Department of Education, *2017 Average Enrolments and Suspensions*.[48]
NB: does not include schools for which data was not publishable (where enrolments were less than 12 and/or the number of students suspended was less than 12). Note also that the NT Government's Remoteness Definition for the ASGS classification 'Outer Regional' is 'Urban'.

Policies for remote education

A key area of focus of the Northern Territory Department of Education's Strategic Plans is educational reform in remote and very remote communities. In particular, the Department's 2018-2022 strategy seeks to implement a 'Community Led Schools' initiative and targeted investment for schools that aims to promote access to quality education for all students.[49] Through the Northern Territory's School Resourcing Model, school funding is directly allocated through a student needs-based funding formula, which accounts for aspects such as the school's remoteness, Aboriginal status, and socio-economic disadvantage.[50]

In 2016, key policy actions included: the implementation of the mandated literacy and numeracy curriculum in remote and very remote primary schools through the Direct Instruction Program; assistance from the Transition Support Unit to very remote students in preparing for secondary schooling options; the provision of integrated child and family services in remote communities, and providing health screen checks for students in remote and very remote schools.

The Department also developed a new 'School Attendance Strategy 2016-18' in partnership with families, communities, schools and government agencies to encourage regular patterns of attendance.[51] This builds on the strategy of the 'Remote Schools Attendance Strategy' funded by the Commonwealth Government.

The Department currently offers alternative distance learning schools for students who cannot attend a government school in person. Students receive lessons through satellite, internet and telecommunications technologies, along with hard copy materials.[52] The Alice Springs School of the Air and Katherine School of the Air provide educational services to isolated school children from preschool to Year 9 to and from primary school to middle school respectively. The Northern Territory School of Distance Education (NTSDE) offers flexible distance education for students from Years 10 to 12 across the Territory.

Recently, $20.03 million was allocated for the completion of the Dawurr regional boarding facility, which offers boarding for up to 40 students of Nhulunbuy High School.[53] Financial assistance is also provided to eligible students in remote communities to attend schools or distance courses, to assist with boarding, or to assist with tertiary course fees.[54]

The Department supports home education by approved parents and part-time home education for secondary school students enrolled in the NTSDE.[55] In secondary education, the NT Government provides flexible options to support the retention of students who might otherwise drop out from school across all parts of the state. These include part-time senior secondary schooling options, access to vocational education and training, and employment pathways in schools.[56]

The Northern Territory Government provides integrated child and family services through dedicated facility centres and the Commonwealth Government's 'Connected Beginnings' program. These are located on or near a school and retain accessibility to local communities, offering early childhood education and care, health and family services, and adult education services. Further, in 2009, the Department launched the 'Families as First Teachers' program to offer quality early child development and family support programs, which is presently operating across 32 sites in the Territory.[57]

There is also a range of benefits for teachers in remote schools, including teaching allowances, relocation allowances, paid study leave, fully subsidised rental accommodation, airfares out of isolated locations, free counselling services; and after three years of employment, guaranteed transfer to an outer regional location.[58]

Western Australia

In 2017, more than three quarters of Western Australian enrolments were in metropolitan schools. 17 percent of students enrolled were situated in regional areas, 4% in remote areas and 2% in very remote communities.

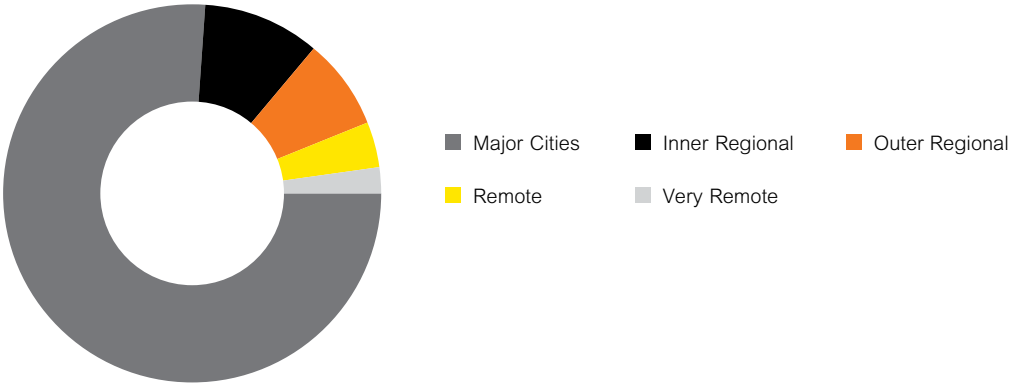
Number of students enrolled in Western Australia by remoteness in 2017

Remoteness class	Total	Government schools	Non-government schools
Major City	317203	202965	114238
Inner Regional	40141	30177	9965
Outer Regional	31356	22505	8851
Remote	16768	14263	2505
Very Remote	7236	6043	1193

Source: ABS 2018, *FTE students by ASGS remoteness indicator 2017 (table 46a)*

"Recently, $20.03 million was allocated for the completion of the Dawurr regional boarding facility, which offers boarding for up to 40 students of Nhulunbuy High School."

Geolocation of all students enrolled in WA in 2017



Attendance

There has been a significant decline in student attendance rates from those in major city and regional areas on the one hand, to those in remote and very remote areas on the other. This decline becomes considerable from Year 9 onwards. At the primary school level, this difference in attendance rates is from 3 to 5 percentage points for remote schools, while for very remote schools the gap is substantially larger, ranging from 13 to 16 percentage points. This disparity is more acute at the secondary school level, ranging from 5 to 10 percentage points for remote schools, and from 19 to 25 percentage points for very remote schools.

Primary school attendance rate in Western Australia (Years 1-6)

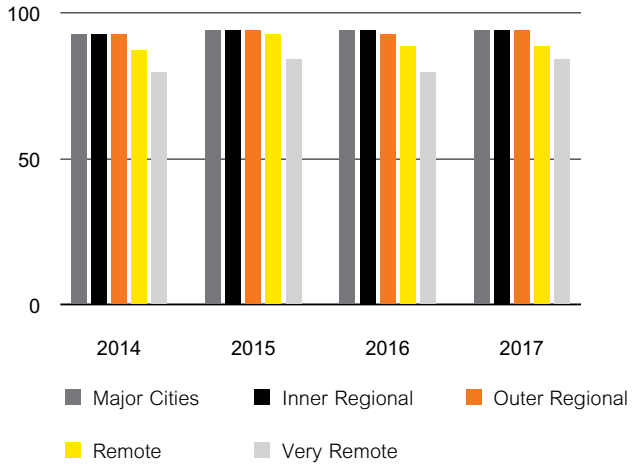
Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	93.7	92.1	92.1	89.3	79.5
2015	94	92.5	92.5	89.5	79
2016	93.9	92.8	91.6	88.7	78.5
2017	94	93	91.9	88.6	77.9

Secondary school attendance rate in Western Australia (Years 7-10)

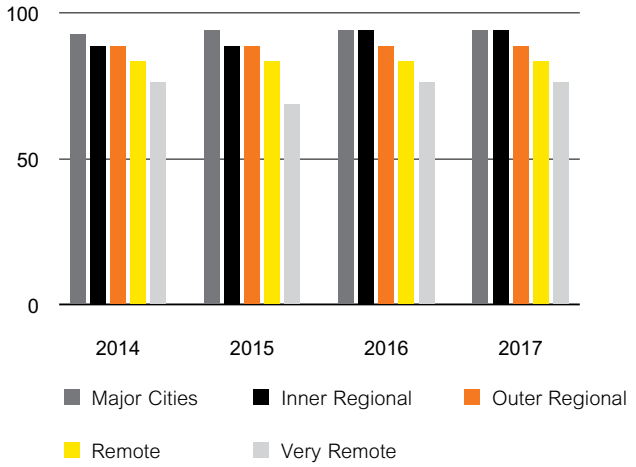
Year	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
2014	91.1	88.8	88.8	83.6	69.9
2015	91.3	88.8	88.8	83.7	67.2
2016	91.1	89.2	87.3	82.1	67.7
2017	91.4	89.1	87.4	81.2	66.5

Source: ACARA 2018, Student Attendance Dataset

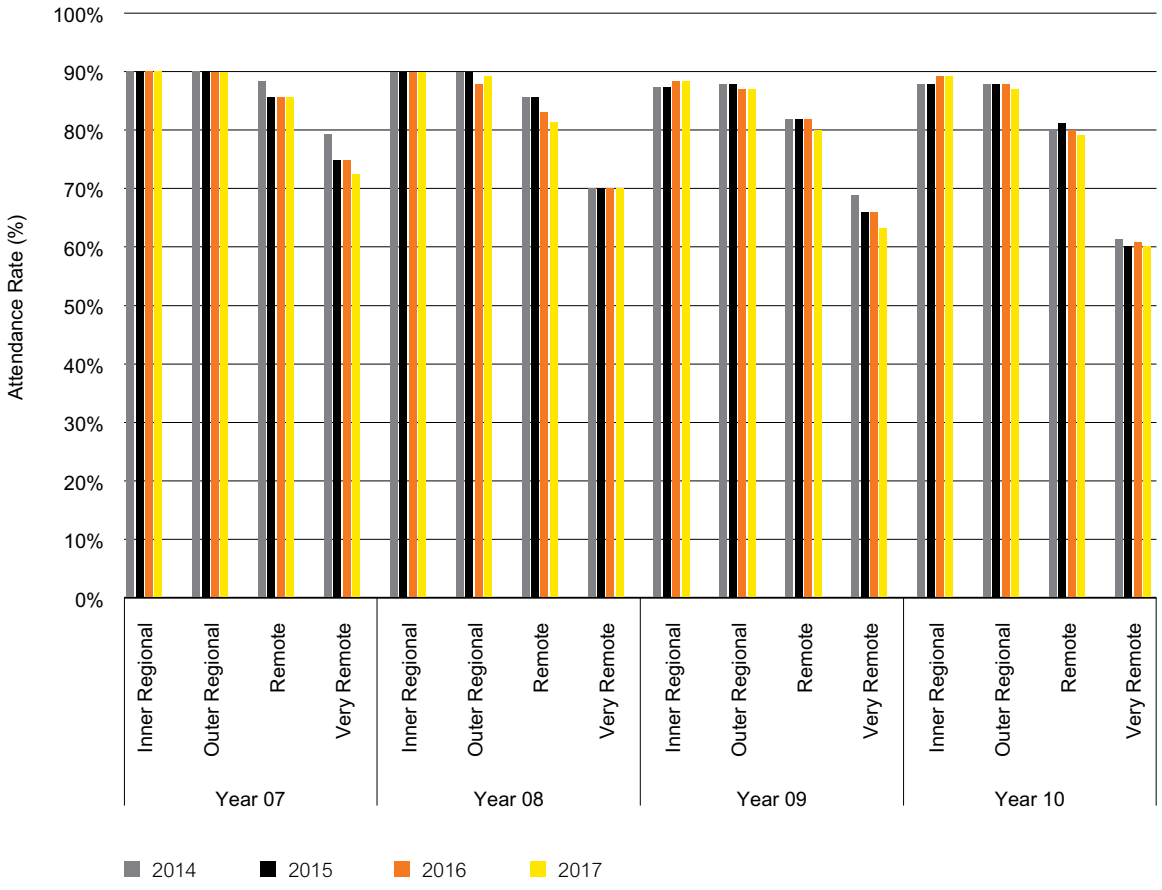
Primary school attendance rate in Western Australia (Years 1-6) (%)



Secondary school attendance rate in Western Australia (Years 7-10) (%)



Attendance rates across Years 7-10 in WA by geolocation

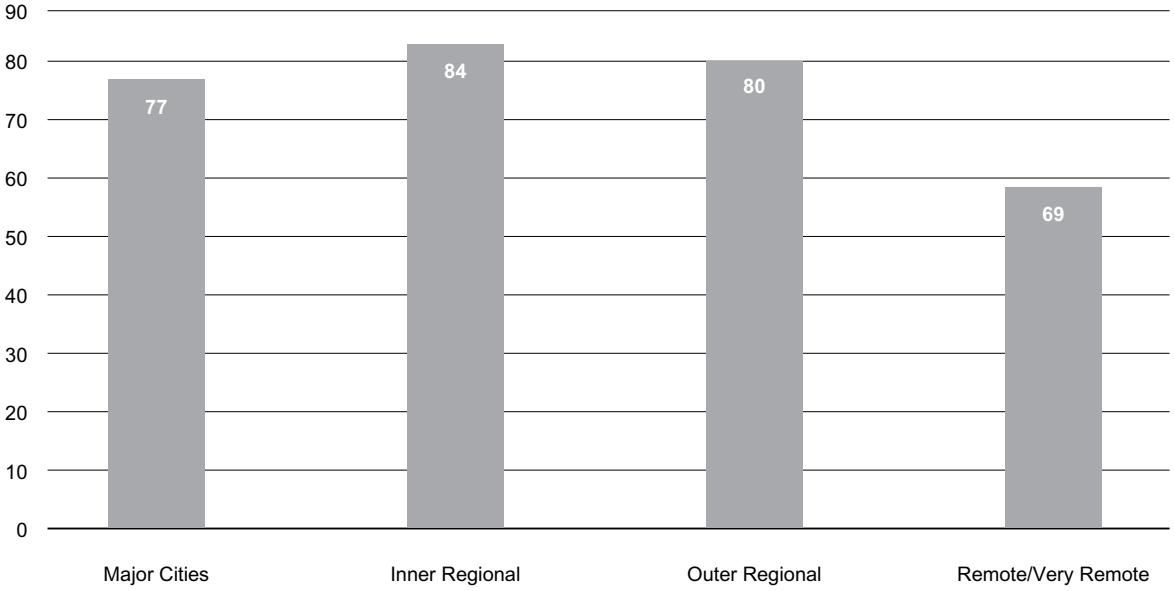


Source: ACARA 2018, Student Attendance Dataset

School certification rates

In 2016, Year 12 certification rates in Western Australia remained fairly similar across major city and regional areas, but dropped by 11% in remote and very remote areas.

Year 12 Certification Rates in WA by geolocation in 2016 (%)



Source: ACARA 2018, *Year 12 Certification rates by geolocation and sex, by state/territory, 2016 (per cent)*

Policies for regional and remote education

The Department of Education of Western Australia has supported students in regional and remote areas through several programs and services. The student-centred funding model, established in 2015, was extended to 770 schools in 2016, which include remote community schools and schools of the air. Funding was also allocated to schools for Aboriginal students.[59] In 2014, the Remote Indigenous Professional Development Project provided Aboriginal educators in Child and Family Centres with training.[60] Over $100.5 million was allocated to a 2010-2014 Regional Schools Plan to address barriers to quality education in regional and remote areas, such as the development of school infrastructure. In 2009, $4 million in funding was allocated under the Priority Country Areas Program to support specialist learning activities and equipment; educational, artistic or cultural groups; resource production; ICT technical support. Part of this funding was also channelled into Schools of Isolated and Distance Education.[61]

Since 2013, the Department has also invested in technologies to improve bandwidth and access to online learning services for remote schools, including recently through creating 4G links in 2016. Over 2016 and 2017, 113 regional and remote schools were provided with fibre optic technology to facilitate internet access.[62]

The Department has also provided a 'Boarding Away From Home Allowance' for isolated children who do not have access to local primary or secondary schools as a supplement to the Centrelink Allowance. Since 2010, it has funded the Food Bank of Western Australia to deliver a School Breakfast Program targeting schools with a low index of socio-economic advantage in regional and remote areas.[63]

The Department has a dedicated group of 200 teachers in 38 remote communities, where the majority of students are from local Aboriginal families. The Department supports teachers in remote areas through additional allowances and benefits, including permanency after two years of employment, additional leave and locality and remote allowances. The Department has also recruited a 'Flying Squad' of teachers to fill in vacancies at short notice in regional and remote areas, who receive free travel, accommodation and specific allowances.[64] Student teachers also receive financial support for selecting rural and remote schools for their final placements.

Tasmania

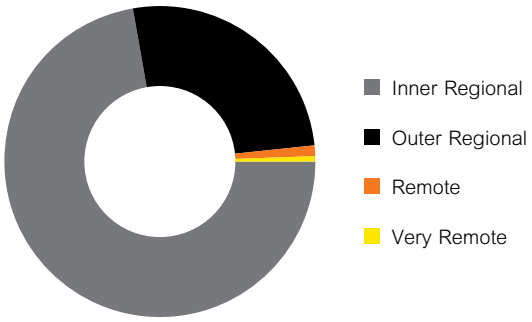
Almost all Tasmanian students attend schools in regional parts of the state (98%), with 72% situated in inner regional areas. Less than 2% of student enrolments are in remote and very remote areas.

Number of students enrolled in Tasmania by remoteness in 2017

Remoteness class	Total	Government schools	Non-government schools
Inner Regional	58519	38422	20097
Outer Regional	21330	17287	4043
Remote	701	539	163
Very Remote	259	259	0

Source: ABS 2018, *FTE students by ASGS remoteness indicator 2017 (table 46a)*

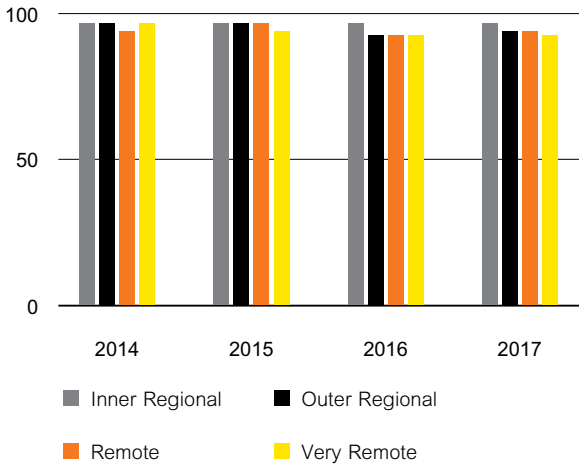
Geolocation of students enrolled in TAS in 2017



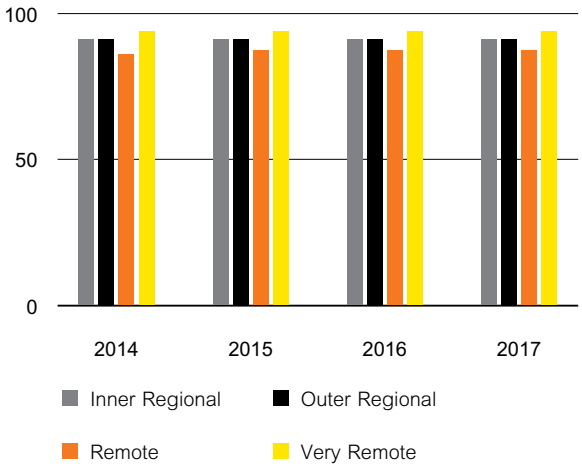
Attendance

Attendance rates in Tasmanian schools have remained almost uniform across the primary school years over the 2014-2017 period. The same trend is reflected in the corresponding rates for secondary schools, although at this stage of schooling the attendance levels in remote areas in particular is up to 6 percentage points lower than those in the other geolocation categories.

Primary school attendance rates in TAS (Years 1-6) (%)



Secondary school attendance rates in TAS (Years 7-10) (%)

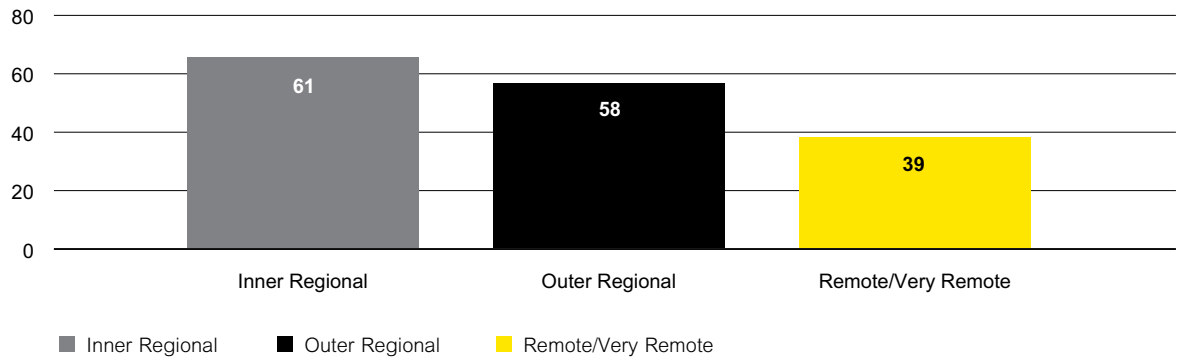


Source: ACARA 2018, Student Attendance Dataset

School certification rates

Despite the fairly consistent attendance rates across all regions, educational outcomes in Tasmania are more uneven. There is a substantial gap of over 20 percentage points between the Year 12 certification rates of regional schools and those of remote or very remote schools.

Year 12 Certification Rates in TAS by geolocation in 2016 (%)



Source: ACARA 2018, *Year 12 Certification rates by geolocation and sex, by state/territory, 2016 (per cent)*

Policies for regional and remote education

The Tasmanian Department of Education provides government schools with a range of online Kindergarten to Year 12 courses and programs that can complement or extend local educational services to provide students with curricula that they may otherwise be unable to access.[65] The Tasmanian government has extended 38 schools to senior secondary levels (Years 11 and 12) from 2018, as part of its commitment to extend 21 regional high schools to Year 12 by 2018.[66] The Department also offers an annual scholarship for two years for Aboriginal students from remote or rural areas to complete senior secondary study, with the objective of facilitating their access to further study at university.[67]

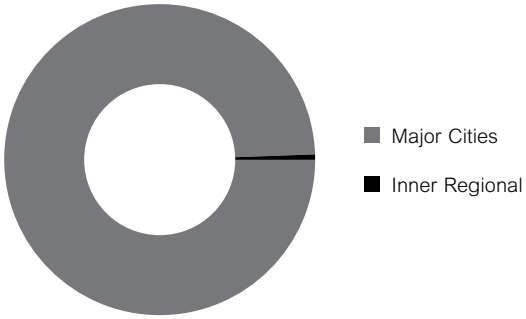
Australian Capital Territory

Unlike the other states and territories, almost all of the student population in the Australian Capital Territory are located in a major city, with less than one percent living in inner regional areas.

Number of students enrolled in the Australian Capital Territory by geolocation in 2017

Remoteness class	Total	Government schools	Non-government schools
Major City	69034	41564	27471
Inner Regional	234	206	28

Geolocation of students enrolled in the ACT in 2017

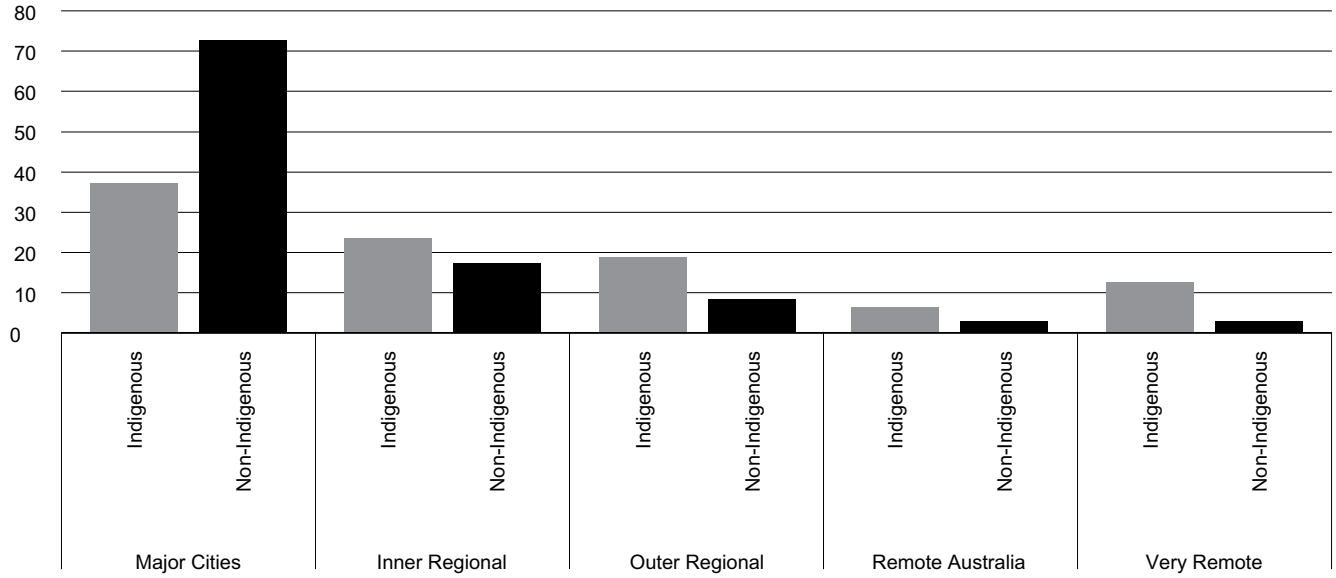


Indigenous Australia

According to ABS census data for 2016, 37% of Australia's Indigenous population lived in major cities, 44% in regional areas and nearly one fifth in remote areas of the country. Over 60% of Aboriginal and Torres Strait Islander people lived in New South Wales and Queensland, with the majority residing in regional areas and major cities. In the Northern Territory, 21% of the Aboriginal and Torres Strait Islander population lived in remote areas and 58% in very remote areas. In Western Australia, 13% of Aboriginal and Torres Strait Islander people lived in remote areas, and a quarter lived in very remote areas.

Although there has been in a shift in the residence of the Indigenous population towards urban areas over the past decade, Indigenous Australians are still more likely to live outside major cities compared with non-Indigenous Australians.[68]

Proportion of population in remoteness area by Indigeneity, 2016 (%)



Remoteness area by indigenous status and state/territory, 2016 (%)

	Major Cities		Inner Regional		Outer Regional		Remote Australia		Very Remote	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
NSW	46.4	75.9	34.5	18.3	15.3	5.3	2.6	0.3	0.9	0
VIC	51.8	77.4	34.9	18.5	12.6	3.9	0.1	0.1	. .	. .
QLD	33.8	64.7	22.2	19.8	26.5	13.3	5.9	1.2	11.1	0.7
SA	51.9	74.2	10.7	12.8	22	9.9	3.8	2.5	10.8	0.5
WA	39.8	79.4	7.7	8.7	13.7	7	12.7	2.9	25.3	1.7
TAS	. .	. .	56.2	68.3	40.7	29.6	2.1	1.4	0.8	0.5
NT	. .	. .	. .	. .	20.5	74.7	20.7	18.2	57.5	6.1
ACT	99.3	99.7	0.2	0.2	. .	. .	. .	. .	. .	. .
AUS TOTAL	37.4	72.6	24	17.9	19.7	7.9	6.2	1	12.2	0.4

Source: ABS 2018, *Census of Population and Housing - Counts of Aboriginal and Torres Strait Islander Australians, cat.* no. 2075.0

Attendance

The proportion of Aboriginal and Torres Strait Islander students aged 25 to 64 who left school in or before Year 9 decreased by 5 percentage points from 2011 to 2016. Yet compared with non-Indigenous people, Aboriginal and Torres Strait Islanders were still more likely to have left school before the end of Year 9 in 2016 (19% compared to 6.7%)—although this reflects an improvement for both groups from 2006 (24% and 8.6% respectively).[69]

As reflected by the data from the past four years, the attendance of Aboriginal and Torres Strait Islander students declines with increasing remoteness. The attendance rate in primary schools for Aboriginal and Torres Strait Islander children has hovered at approximately 80% in remote areas and 70% in very remote areas. In secondary school and averaged over the four years, the attendance rate for Indigenous students drops to 70% in remote areas and 58% in very remote areas.

The gap in the attendance rates of Indigenous and non-Indigenous students continues to persist. For primary school, the percentage gap between the attendance rates of Indigenous and non-Indigenous student begins at five percentage points in metropolitan and regional areas, and has consistently climbed to over 10 percentage points in remote areas and over 20 percentage points in very remote communities. During secondary school up to the end of Year 10, the difference in attendance rates between Indigenous students and non-Indigenous students begins at around 10 percentage points in metropolitan and regional areas, and dramatically increases to approximately 20 percentage points in remote areas and over 30 percentage points in very remote communities. Looking at the recent data, this gap in attendance rates appears to have gradually increased over time for remote Australia.

Attendance rates in Australia by geolocation and Indigeneity, 2014 to 2017 (%)

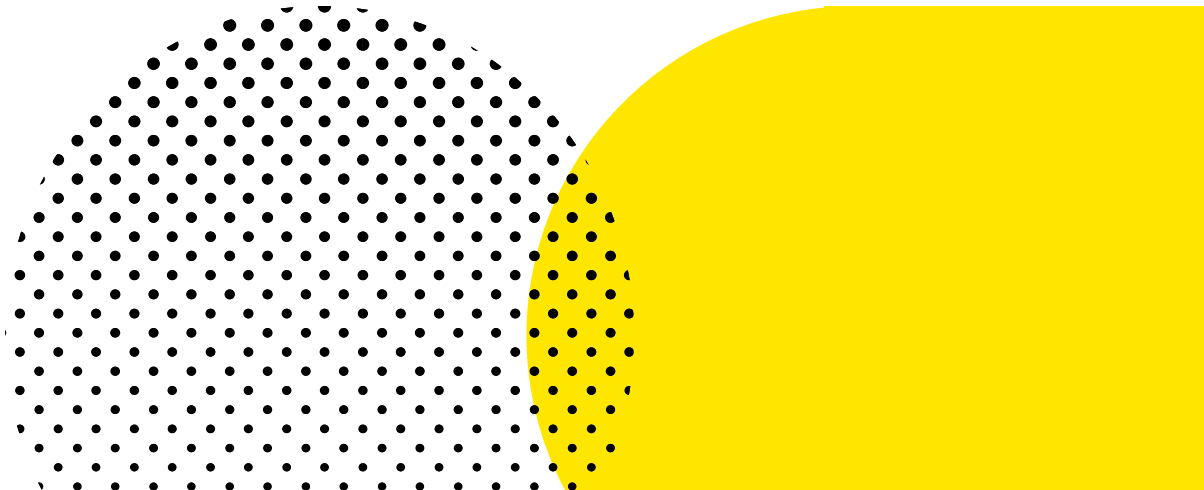
		Years 1-6		**Years 7-10**	
Year	**Geolocation**	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
2014	Major Cities	88.8	94.3	82.7	92.3
	Inner Regional	88.7	93.5	81.2	90.7
	Outer Regional	88.7	93.5	81.2	90.7
	Remote	82.1	92.5	72.4	90.3
	Very Remote	71.3	91.8	60.5	89.8
2015	Major Cities	89	94.1	82.4	92.2
	Inner Regional	88.7	93.5	81.5	90.8
	Outer Regional	88.7	93.5	81.5	90.8
	Remote	81.9	92.7	72.6	90.5
	Very Remote	71.5	92	58.3	90.2
2016	Major Cities	89	94.1	82.3	92.2
	Inner Regional	89.9	93.6	82.2	90.6
	Outer Regional	86.9	93.3	79.9	90.7
	Remote	80.4	92.7	67.8	90.2
	Very Remote	70.6	91.5	57.2	90.1
2017	Major Cities	88.9	94	82.2	92.2
	Inner Regional	89.7	93.4	82.2	90.6
	Outer Regional	87	93.3	79.9	90.7
	Remote	80	92.5	66.8	89.8
	Very Remote	69.4	91.5	54.3	89

Source: ACARA 2018, Student Attendance Dataset

Attendance rate by school year and Indigeneity in 2017 (%)

	Indigenous	Non-Indigenous
Year 07		
Major Cities	86.4	94
Inner Regional	86.8	92.7
Outer Regional	85.2	92.7
Remote	73.4	91.7
Very Remote	61.4	90.6
Year 08		
Major Cities	83.3	92.3
Inner Regional	83.2	91
Outer Regional	80.5	91.1
Remote	68	90.3
Very Remote	54.6	89.1
Year 09		
Major Cities	80.4	91.4
Inner Regional	80.3	89.7
Outer Regional	77.4	89.9
Remote	65.1	89
Very Remote	50.7	88.2
Year 10		
Major Cities	78.5	90.8
Inner Regional	77.5	88.8
Outer Regional	75.1	88.7
Remote	59.3	87.5
Very Remote	48.6	87.6

Source: ACARA 2018, Student Attendance Dataset



School certification rates

From 2011 to 2016, the proportion of Aboriginal and Torres Strait Islander students completing Year 12 increased from 37% to 47%, an increase of over a third.[70] Despite this progress, when compared with non-Indigenous students, the proportion of Aboriginal and Torres Strait Islanders obtaining their Year 12 or equivalent certification remains substantially lower.

In higher education, there has been a significant increase in the number of Indigenous students commencing university in each year from 2007 to 2016. This increase represents a growth of 104.6% in the number of Aboriginal and Torres Strait Islander students commencing each year over the past decade.

Proportion of Aboriginal and Torres Strait islanders with Year 12 or equivalent certificate (%)

	Year 12 or equivalent		**Year 11 or equivalent**		**Year 10 or equivalent**		**Year 9 or equivalent**	
	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous	Indigenous	Non-Indigenous
NSW	28.4	63.4	8.3	5.1	34.6	22.3	21	7.2
VIC	35.6	65.5	14.6	12.5	23.6	12.5	18.7	7.5
QLD	35.7	60.4	10.7	7.8	30.3	23.9	16	6.1
SA	26.3	57.0	21.3	20.1	23.8	14.5	16.7	6.4
WA	25.1	61.8	14.1	10.4	31.6	21.1	15.0	4.7
TAS	27.3	46.2	10.6	9.3	42.5	34.6	14.7	7.6
NT	18.1	61.8	13.5	12.3	22.1	17.9	30.3	5.5
ACT	52.4	80.2	7.8	4.0	24.4	11.7	10.2	3.0
AUS TOTAL	**29.6**	**62.7**	**11.4**	**9.3**	**30.6**	**19.4**	**19.1**	**6.7**

Number of commencing undergraduate students by Indigeneity, 2006 and 2017

Year	**Indigenous**	**Non-Indigenous**
2007	4017	272752
2016	8219	399518
% change on 2007	104.6%	46.5%

Source: Department of Education, Higher Education Statistics, 2008 and 2016 Student Data, *Table 2.3: Commencing Domestic Students(a) by State, Institution and Equity Group, 2016* and *Table 2.1: Commencing and All Domestic Students(a) by Equity Group, 1998 to 2008(b)*

"From 2011 to 2016, the proportion of Aboriginal and Torres Strait Islander students completing Year 12 increased from 37% to 47%, an increase of over a third."

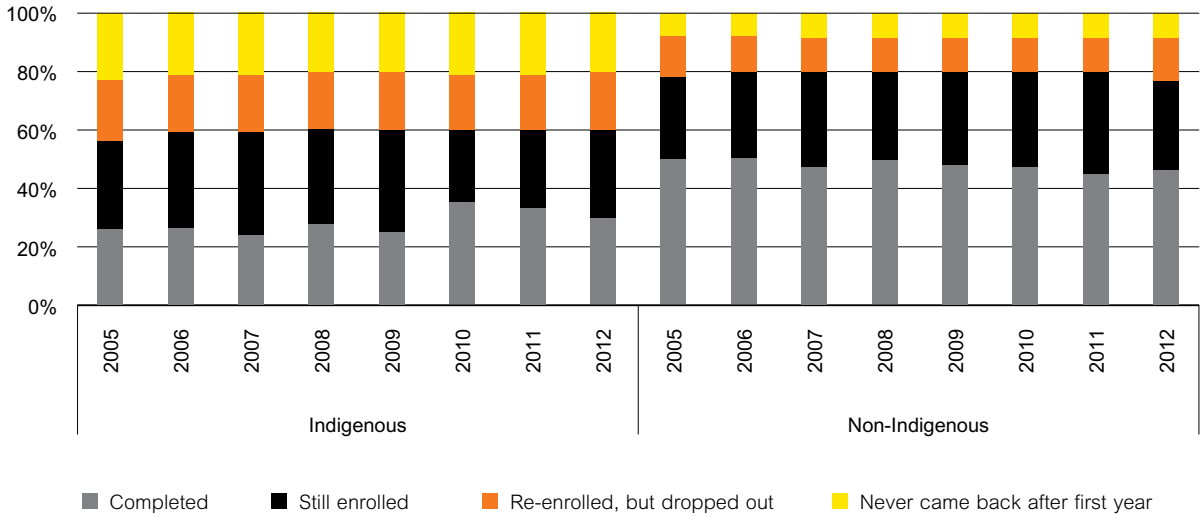
However, over any four year or six year period from 2005 to 2015 at university, the number of Indigenous students who dropped out after their first year was almost double that for non-Indigenous students. Indigenous students also dropped out later in their degree at higher rates (from 18-26%, compared with 10-14%) and completed their degrees at substantially lower rates than their non-Indigenous peers, with an average difference of 18.5 percentage points over 4 years and 26 percentage points over 6 years.

Completion rates of domestic undergraduate students over a 4 year period by Indigeneity and year commenced, 2005-2015

Indigenous Indicator	Year	Completed	Still enrolled	Re-enrolled, but dropped out	Never came back after first year
Indigenous	2005	28.3%	27.6%	18.3%	25.8%
	2006	30.3%	28.2%	19.6%	21.9%
	2007	27.0%	31.8%	18.4%	22.9%
	2008	29.8%	30.0%	20.2%	20.0%
	2009	27.0%	32.8%	20.3%	19.9%
	2010	25.6%	33.5%	20.2%	20.7%
	2011	26.3%	33.2%	19.8%	20.7%
	2012	28.2%	32.0%	19.5%	20.2%
Non-Indigenous	2005	47.5%	30.2%	11.4%	10.8%
	2006	47.1%	32.8%	10.4%	9.7%
	2007	46.3%	33.8%	10.3%	9.6%
	2008	47.0%	33.5%	10.7%	8.7%
	2009	46.5%	34.3%	10.9%	8.3%
	2010	45.6%	34.7%	11.0%	8.8%
	2011	45.5%	34.5%	11.5%	8.5%
	2012	44.6%	34.3%	12.0%	9.2%

Source: ABS 2018, *Census of Population and Housing - Counts of Aboriginal and Torres Strait Islander Australians*, cat. no. 2075.0

Completion rates of domestic undergraduate students over a 4 year period by Indigeneity and year commenced, 2005-2015

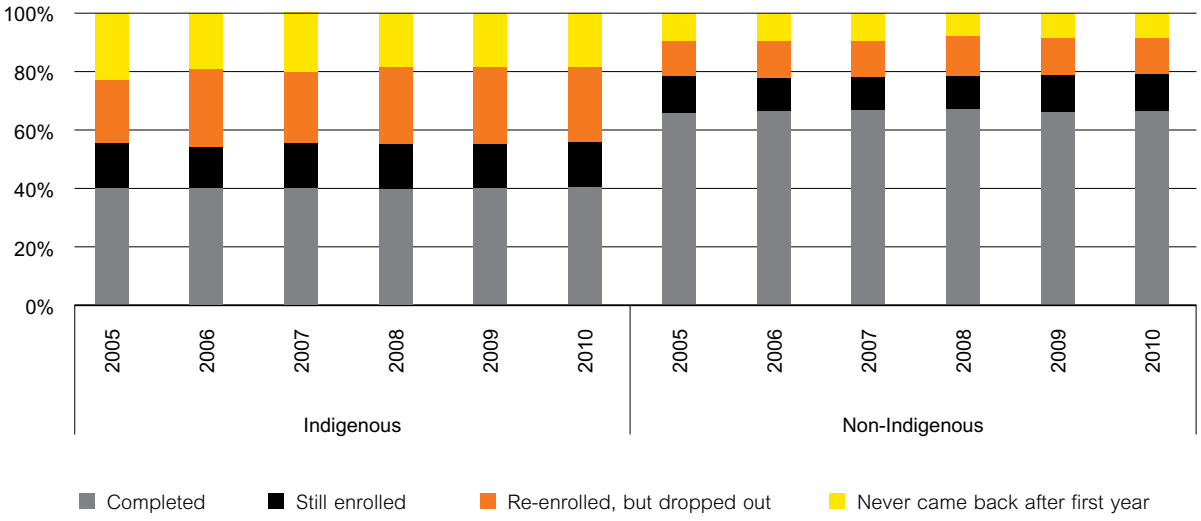


Source: Department of Education, *Completion Rates of Higher Education Students - Cohort Analysis, 2005-2015, Table 3: Cohort Analysis for Table A institution and Table B institution commencing domestic bachelor students over a four year period, 2005-2008, 2006-2009, 2007-2010, 2008-2011, 2009-2012, 2010-2013, 2011-2014 and 2012-2015*

Completion rates of domestic undergraduate students over a 6 year period by Indigeneity and year commenced, 2005-2015

Indigenous Indicator	Year	Completed	Still enrolled	Re-enrolled, but dropped out	Never came back after first year
Indigenous	2005	40.8%	13.8%	22.8%	22.6%
	2006	40.9%	13.4%	25.9%	19.8%
	2007	40.2%	15.1%	24.7%	20.1%
	2008	41.1%	14.4%	26.2%	18.2%
	2009	40.9%	14.8%	26.4%	17.9%
	2010	40.5%	15.0%	25.9%	18.6%
Non-Indigenous	2005	67.3%	11.0%	12.8%	9.0%
	2006	67.3%	10.9%	13.3%	8.5%
	2007	67.0%	11.3%	13.2%	8.5%
	2008	67.6%	11.2%	13.5%	7.7%
	2009	67.3%	11.6%	13.9%	7.2%
	2010	66.4%	11.7%	14.2%	7.7%

Completion rates of domestic undergraduate students over a 6 year period by Indigeneity and year commenced, 2005-2015



Source: Department of Education, *Completion Rates of Higher Education Students - Cohort Analysis, 2005-2015, Table 2: Cohort Analysis for Table A institution and Table B institution commencing domestic bachelor students over a six year period, 2005-2010, 2006-2011, 2007-2012, 2008-2013, 2009-2014 and 2010-2015*

Challenges for regional and remote education

In 2017, the Commonwealth Government commissioned an Independent Review into Regional, Rural and Remote Education (IRRRRE), which was conducted by Emeritus Professor John Halsey from Flinders University. The Review consulted education authorities, peak bodies, schools and communities, and other stakeholders, and was the first major national review since the *2000 Human Rights and Equal Opportunity Inquiry* into rural and remote education. It particularly highlighted the need for all children to access a high-quality education regardless of where they live or their circumstances; especially in a context where young Australians must prepare themselves for competitive domestic and global labour markets in light of the impacts of globalisation, digitisation and automation.[71]

According to the Grattan Institute, by Year 3 students in disadvantaged schools perform much more poorly than their peers in high advantage schools. This gap substantially increases as these students progress through school, from one year and 3 months to three years and eight months by Year 9.[72] As we find, the data aggregated nationally and by each State and Territory demonstrates that students in regional and remote areas continue to fall behind urban students in their educational achievements in NAPLAN, in Year 12 or equivalent qualifications and in their completion of tertiary studies. The data analysed above also reflects a continuing relationship between rates of attendance, Year 12 or equivalent certification and the location of students across Australia. Student attendance rates continue to decline considerably in regional and remote areas, particularly in secondary education. The reasons for these gaps are multifaceted and may encompass any or a combination of the following challenges faced by schools in regional and remote areas, many of which are educationally disadvantaged.

Geographic remoteness

Regional and remote schools face barriers to implementing a broad or standard range of curriculum opportunities for their students because of low enrolments, small class sizes, and shortages of experienced teachers—particularly for specialist subjects in secondary school. Conversely, smaller schools in regional and remote areas have also expressed concerns about the potential for administrative overload with respect to the breadth and depth of the curriculum.[73]

Location is also a vital factor that can determine access to high speed, cost-effective and reliable information and communications technologies (ICT) to facilitate education.[74] ICT access is an issue for not only schools, but also for homes with school-aged children or for those who are studying through distance education or home-schooling. As ICT access is inherently more difficult to secure in regional and remote areas compared to urban zones, its availability, accessibility, and affordability for schools and communities in these areas is imperative to promoting access to education.

Remoteness can be a further barrier to school attendance and accessing secondary education where long distances must be travelled. Although boarding schools are an alternative for some regional and remote students, these are generally expensive and such arrangements can be socially and culturally incompatible with the lifestyles of students and their families in regional and remote parts of Australia.[75]

Low socio-economic status (SES) of the student body: impact of family and communities

Students in low SES areas are likely to make less progress at school, and research has demonstrated a general positive correlation between geographic remoteness and educational disadvantage.[76] In 2016, the Grattan Institute found that students in regional and rural areas are likely to fall two years behind their peers in metropolitan areas between Year 3 and Year 9.[77]

In 2011, the Gonski Review noted that the composition of a school's student body also significantly impacts upon the outcomes of all students. Importantly data, using the Australian Early Development Index, which is a population measure of young children's development, affirms that educationally disadvantaged students are more likely to be developmentally vulnerable when beginning at school.[78]

Research demonstrates that students whose parents have low education levels tend to have a learning gap of 10 months by Year 3, which grows to two and half years by Year 9.[79]

Even where two students have similar capabilities in Year 3, a student with parents with low levels of education is less likely to consistently make progress than similarly apt students whose parents are highly educated.[80]

Beyond the level of parental education, the environment of a student's home and community are factors that can impact negatively upon their attendance and success at school. Factors include poor health and inadequate nutrition, family stress at home and the risk of homelessness; and outside of the home, the strength of the local economy, community well-being and the availability of employment opportunities.[81]

Difficulty in retention of teachers and school leaders

Teachers have a highly—if not the most—significant impact on student learning in schools.[82] Maintaining a highly competent workforce of educators at every school for every year level is therefore imperative to improving the achievements of students in regional and remote schools. However, despite the efforts of the Australian Government and State and Territory governments to provide a range of financial and other incentives to date, the difficulty in attracting and retaining excellent teaching staff in regional and remote areas remains a persistent challenge. The shortage of teachers is especially acute in the Northern Territory, where the retention rate of teaching staff was 69% (85.2% for all school-based employees) from 2016 to 2017.[83]

Several studies, as Downes and Roberts conclude, highlight the challenges that arise more frequently for regional and remote schools when compared with urban schools, which include: higher staff turnover rates and the consequent transience of teachers, the relative inexperience of teachers who tend to be recent and younger graduates, and the lack of expertise of staff to teach certain subjects.[84] Further, a challenge presented by modern technologies is the degree of teachers' capacities to harness them. This can limit the learning experiences of children, particularly those undertaking distance education in regional and remote communities.[85]

Personal and professional challenges also pose an obstacle to the successful retention of teachers in regional and remote communities. These include issues such as their adaptation to a new working environment and lifestyle, a lack of understanding of rural contexts and communities, feelings of personal and professional isolation, and difficulties in living in close proximity to other staff members.[86]

Submissions to the IRRRRE highlighted the lack of assistance given to facilitate this transition for the partners and families of teachers appointed to rural or remote schools, particularly considering their need to secure employment and educational arrangements in a new location.[87]

Further, as outlined in the IRRRRE, school principals in regional and remote areas often face greater pressure in their role in light of various other responsibilities they may have to assume. School leaders in regional and remote communities may have to balance teaching responsibilities alongside administrative duties, such as organising school transport, staff accommodation, as well as other local community leadership positions outside of school.[88]

Meeting the needs of Aboriginal and Torres Strait Islander students

In 2016, nearly 63% of all Aboriginal and Torres Strait Islander people lived in regional and remote Australia, compared with 27.4% of non-Indigenous Australians. The socioeconomic and geographical challenges facing regional and remote students and schools therefore have a disproportionately greater impact on Indigenous Australians; in particular, issues of equity, access and inclusion. Furthermore in 2015, the Australian Early Development Census indicated that Indigenous children were twice as likely to be developmentally vulnerable on two or more developmental domains (such as physical health and wellbeing, social competence, communication skills and general knowledge) than non-Indigenous children.[89]

The turnover rate and experience of teachers in Aboriginal and Torres Strait Islander schools particularly require further attention. Teachers at the beginning of their careers are typically one of the key sources of staffing in remote Aboriginal and Torres Strait Islander schools. As demonstrated through the Good to Great Schools Australia (GGSA) initiative, many programs are unable to draw long-term benefits from the significant amounts of time, resources and effort they invest into the induction and training of newly appointed staff, many of whom eventually transfer out once they are eligible to do so.[90]

Moreover, as identified in the IRRRRE, the resourcing of remote Aboriginal and Torres Strait Islander schools also faces obstacles because school funding is principally based on enrolments, which may not align with the enrolment patterns of students who may change schools for cultural reasons. A further challenge noted by the IRRRRE is the delivery of the Western school curriculum to Aboriginal and Torres Strait Islander students in a way that is more relevant to the lives of Indigenous people living in remote areas and strengthens the representation of Indigenous perspectives in the curriculum.[91] Providing a culturally safe environment for Indigenous children, where their Aboriginal and Torres Strait Islander heritage is respected by all students and staff, is fundamental to addressing the concerns of Indigenous parents about the cultural identity of their children being supported.[92]

"Regional and remote schools face barriers to implementing a broad or standard range of curriculum opportunities for their students because of low enrolments, small class sizes, and shortages of experienced teachers."

National policies targeting regional and remote education

The Australian Government, and individual States and Territories have established a number of policies and programs to enable regional and remote students to better access quality education and to promote a successful transition to tertiary education, training and employment. In May 2018, the Australian Government accepted all 11 recommendations of the IRRRRE.

Funding and grants

For 2018-2022, the Government has pledged to invest approximately $300 million in regional loading to universities with regional campuses. In the 2018-19 Budget, the Government is allocating $28.2 million to enable greater access to higher education for rural and regional students by increasing the availability of sub-bachelor places and offering Commonwealth supported places from 2019 at regional campuses.[93]

The Government's *Quality Schools* reform package, announced in 2017 with the objective of needs-based funding to support all students, will increase Commonwealth funding for students in regional and remote areas from $3.9 billion in 2017 to $6.8 billion in 2027.[94] In 2016, the Coalition Government declared a $152 million *Regional Student Access to Education* package to assist students from regional and remote areas.[95]

Previously, the Government's key equity initiative was the Country Areas Program (CAP), which provided financial support to increase school retention rates in rural and remote schools for over 25 years. The program treated distance as a mainly cultural deficit and aimed to address this by facilitating access to cultural resources through excursions and additional funding.[96]

Delivery of targeted educational programs

The Government's $24 million 'Regional and Rural Enterprise Scholarships Program' will provide at least 1200 student scholarships of up to $18,000 for STEM disciplines, including agriculture and health, with at least 600 scholarships to be allocated in each academic year in 2018-2019.

The Australian Government has also established a 'Flexible Literacy for Remote Primary Schools' program, which has introduced two alphabetic teaching approaches to support the improvement of students' literacy results in these schools.[97] This program is managed by Good to Great Schools Australia, and as of May 2018, has been implemented in schools across the Northern Territory and Western Australia, as well as one in Queensland.[98]

In 2014, the Government established the 'Remote School Attendance Strategy' in partnership with communities and schools in New South Wales, South Australia, Western Australia, Queensland and the Northern Territory. The Strategy currently operates in 77 schools across 74 communities, cooperating with local providers to employ school attendance supervisors and officers to encourage attendance.[99]

Teachers in regional and remote areas

A key priority for the Australian Government is to work with all education ministers through the Education Council to progress national goals to improve the quality of the teaching workforce. Nationally, the Government has established the 'Accreditation of Initial Teacher Evaluation Programs in Australia: Standards and Procedures' to set high level requirements to ensure that all graduate teachers satisfy the relevant requirements of the *Australia Professional Standards for Teachers.*

The Australian Government also funds *Teach for Australia (TFA)*, a program which accelerates the training of talented, non-teaching graduates (Associates) who are assigned to disadvantaged schools that have partnered with TFA. In 2018, over 230 Associates have been recruited to fill hard-to-staff teaching roles. The Government has affirmed its support of 10 cohorts of the program, and its allocation of $77 million in funding through arrangements from 2008 to 2020-2021.[100]

Provision of social resources and surrounding infrastructure

The Government has also committed to prioritising the rollout of the National Broadband Network to underserved areas where it is commercially and operationally viable. NBN Co has extended eligibility to home-schooled students who are geographically isolated, including through the NBN Co's Sky Muster satellite services which facilitates additional data allowances for distance education students.[101]

Through the Regional Growth Fund, the Australian Government offers a range of regional grants programs to local governments and not-for-profit organisations, which seek to promote economic growth, create jobs and build strong regional communities.[102] The Government has committed to providing and funding the maintenance of infrastructure, technology facilities and internet access, and academic and pastoral support for students studying through distance education at university at eight community-owned regional study hubs.

In 2016, the Government launched its Connected Beginnings Program, which offers the integration of child care, maternal and child health, and family support services in schools where Indigenous communities are facing disadvantage.[103]

Support for the states and territories through bilateral agreements

The Government is currently cooperating with the States and Territories on a new series of National Partnership Agreements, including one for 'Skilling Australians'.

At the end of 2008, the Commonwealth Government entered into a series of bilateral agreements for Smarter Schools with the States and Territories in the form of National Partnership Agreements. These Agreements separately addressed: low socio-economic status school communities, improving teacher quality, and literacy and numeracy. The Australian Government has also signed a series of National Partnership Agreements on Early Childhood Education since 2009 and has extended the National Partnership for Universal Access to Early Childhood Education until 2019. The Government has stated that it will develop a new national school agreement,[104] and is finalising related bilateral agreements with the States and Territories for 2019.[105]

In 2011, the Government established the National Partnership Agreement for Closing the Gap in the Northern Territory, which was replaced by the National Partnership on Stronger Futures in the Northern Territory. The Government has committed $550 million for housing needs in remote Aboriginal and Torres Strait Islander communities across the Northern Territory under the 2016-18 National Partnership Agreement on Remote Housing. Under this agreement, Employment and Education Housing (EEH) seeks to provide accommodation to support education, employment and training for Aboriginal and Torres Strait Islanders outside their communities.[106]

In March 2008, the federal, state and territory governments agreed to collaboratively achieve equality in the areas of health, education and employment between Indigenous and non-Indigenous Australians, and set targets to be implemented through the Closing the Gap strategy. The four education-related targets were: to close the gap in school attendance by 2018; to halve the gap for Indigenous children in reading, writing and numeracy achievements by 2018; to halve the gap for Indigenous Australians aged 20-24 in Year 12 attainment or equivalent rates by 2020; and to achieve a 95 percent enrolment rate of all Indigenous four-year old children in early childhood education by 2025.[107]

From Education to GDP

Overview

In order to frame the size of the opportunity in addressing the disparities between regional & remote education and urban education, it is crucial to be able to translate the benefits into a common unit of measure. In this section, we discuss how differences in educational attainment can be translated into economic output—in particular, Gross Domestic Product (GDP).

Human Capital

Economists have always understood that economic output is generated by bringing together different inputs or "factors of production". Capital (financial or physical capital) and labour are the two generic examples. According to standard theory, each factor of production receives some share of the output generated depending on how valuable and scarce the different factors of production are.

Beginning in the early 1960s economists like Theodore Schultz, Jacob Mincer and Gary Becker began to understand that in thinking about the economic returns earned by labour, it was important and useful to think of each individual as having a form of capital—human capital—that bore certain analogies to physical capital. One can invest in human capital; it can depreciate over time; it can sometimes be used as collateral; and so on.

Indeed, human capital can embody a broad range of attributes. As Becker himself put it:

To most of you, capital means a bank account, one hundred shares of IBM, assembly lines, or steel plants in the Chicago area…These are all forms of capital in the sense that they yield income and other useful outputs over long periods of time. But I am going to talk about a different kind of capital. Schooling, a computer training course, expenditures on medical care, and lectures on the virtues of punctuality and honesty are capital too in the sense that they improve health, raise earnings, or add to a person's appreciation of literature over much of his or her lifetime. Consequently, it is fully in keeping with the capital concept as traditionally defined to say that expenditures on education, training, medical care, etc., are investments in capital. However, these produce human, not physical or financial, capital because you cannot separate a person from his or her knowledge, skills, health, or values the way it is possible to move financial and physical assets while the owner stays put.[108]

By understanding that the basis of how productive people are in different jobs is their stock of human capital, economists and certain other social scientists have come to understand the benefits and impact of all manners of educational programs at all stages of life. Beyond that, neighbourhood and family environment, the effects that peers have in school, and a whole host of other factors have been able to be analysed, documented and quantified.

In the context of education in Australia—and the geographic divide in it—thinking about investments in human capital is the key way to understand both the magnitude of the divide and how to bridge it.

"In order to frame the size of the opportunity in addressing the disparities between regional & remote and urban education, it is crucial to be able to translate the benefits into a common unit of measure."

The GDP Impact of Improved Rural, Regional & Remote Education

The ideal way to measure the GDP impact of improved rural, regional & remote education in Australia would be to have studies that identify the true causal impact of interventions and track those impacts throughout students' lives to see the ultimate impact on labour market outcomes. This would involve relatively large-scale randomised controlled trials coupled with ongoing tracking of student outcomes.

Unfortunately, such studies do not exist in Australia. Indeed, as we comment on briefly in our concluding remarks, there is a significant opportunity and need for research that identifies the true causal impact of various educational interventions in Australia. Fortunately, such studies do exist in the United States and we can adapt some of those studies to gain a better understanding of what is possible in the Australian context.

To map educational outcomes into GDP one needs to begin with a well-defined measure of educational attainment.

We use NAPLAN scores across all grades in 2017. We have also used prior-year scores and found similar implications for the impact on GDP, so we present the results using the most recent data.

Although a great deal of detail is available, the broadest and most useful way to understand the data is to look at NAPLAN scores for urban versus non-urban schools. There are, of course, very important and meaningful differences within those categories, but this distinction frames the opportunity for improvement in rural, regional & remote schools at its most general.

Comparing the average scores for urban and non-urban schools across Australia we find that urban schools attain scores 0.26 standard deviations higher than their non-urban counterparts. Scaling the average difference by the spread of outcomes gives us a unit-free measure of the difference in educational outcomes between the two groups.

The next step is to observe a comparison group in another educational context where the mapping between educational and economic outcomes is well identified and understood. For this purpose, we use the work of Harvard economist Roland Fryer, summarised in Fryer (2016). He shows that the black-white test score gap in the United States is 0.341 standard deviations and further that the earnings gap attributable to human capital differences between blacks and whites in the US is 24.0%.

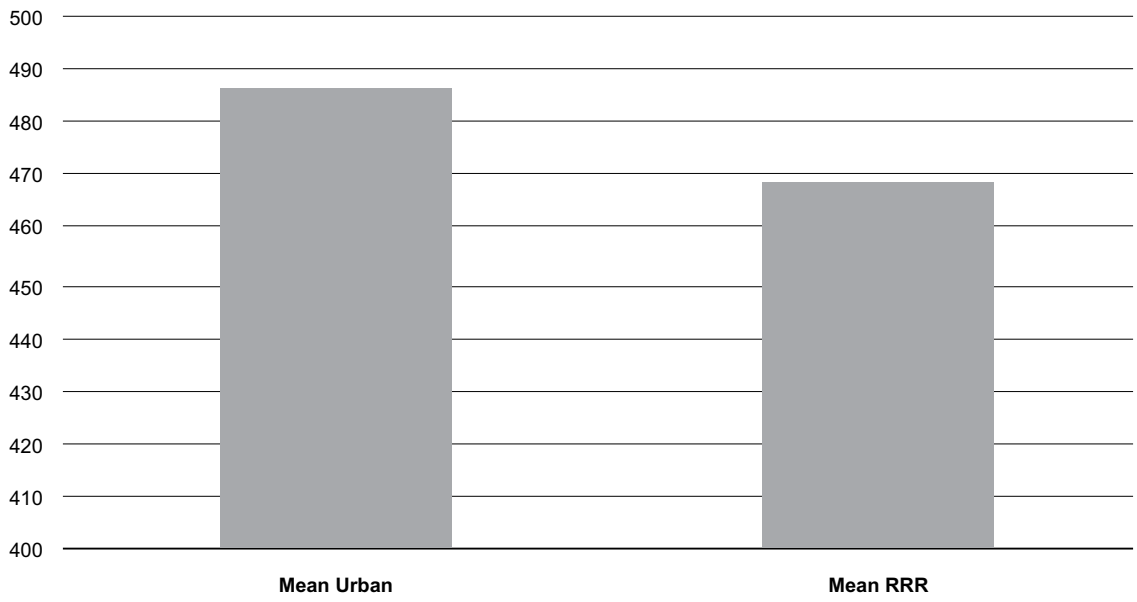
Applying our unit-free measure to the comparison group this implies that the implied earnings gap between rural, remote and regional Australia compared with urban Australia **due to differences in human capital formation** is 18.3%.

We can then map this into economic outcomes by observing how much of economic output is earnt by labour, as opposed to other factors of production. In Australia this is currently 57.0% according to ABS figures.[109] Applying the share of the population living in rural and regional areas in Australia[110] gives us **the economic gap attributable to differences in human capital of 3.3% of GDP.**

This implies that closing one-third of the gap between rural-remote-regional and urban human capital attainment would increase Australian GDP by 1.1% or $18.5 billion. Fully closing the gap represents a $55.5 billion GDP improvement.

There are, of course, a number of natural objections one could raise to this approach. The first is the common criticism of tests such as NAPLAN—although there have been strong views put both in favour of and against these tests.[111]

Average NAPLAN Scores Years 3-9, 2017



It is not our intention here to relitigate that debate, but it is important to note that many of the criticisms are not relevant for the exercise we have conducted here. For instance, whether the current NAPLAN writing test is "good" or even comparable to previous years[112] is irrelevant for our mapping into GDP since we use 2017 data and our results are robust to completely dropping the writing test results.

We are also agnostic about whether children doing NAPLAN tests at all, and the reporting of results in "league tables", is a good thing. Critics point to the stress that children are put under, the diversion of educational resources to "teaching to the test", other impacts on pedagogy,[113] and even possible gaming of the tests. For the purposes of this report we simply use the scores as a—potentially noisy—measure of a certain kind of educational attainment.

It is worth noting that our method applies equally well to any common measure of educational attainment, so that if other comprehensive measures are available for students across Australia and broken-down by geographic region and type of school these could easily be used. **Indeed, if better measures of student attainment can be developed they would help frame the economic impact of the human capital divide more precisely.**

A more compelling question is around the use of a comparison group from another country—particularly when that group involves a history of racial discrimination. To this we have a number of responses.
The first and most important is that the racial difference in labour market outcomes in the US seems to be driven by skills/human capital.[114] As Fryer (2016) puts it: "An important question then, is what obstacles preclude the acquisition of productive skills."

A second response is that the US and Australia share much in common in terms of the legal, institutional and economic environment, suggesting that the mapping from skills/human capital into economic outcomes is plausibly similar. A third response is that when the same quality of causal evidence from randomised controlled trials and natural experiments is available in Australia, such evidence should definitely be used. But until then it is still important to frame the magnitude of the problem and the potential economic gains.

Framing the magnitude of potential economics gains is one part of the story, but how to bridge the urban-non-urban divide and what that will cost are obviously vital questions. And it is to those questions that we now turn.

"Framing the magnitude of potential economics gains is one part of the story, but how to bridge the urban-non-urban divide and what that will cost are obviously vital questions. And it is to those questions that we now turn."


Likes to
Charlie

How to Improve

Overview

The key to understanding what works in education is to uncover the causal effect of a particular intervention. Indeed, this is true for any public policy intervention. Simply observing that there is a correlation between a policy and an outcome does not imply that the policy *caused the outcome*. In fact, it hardly ever does.

For instance, if we discovered that the children of women who eat a lot of fish when pregnant tend to have higher university attendance would we conclude that fish consumption has an *in utero* cognitive benefit? Perhaps. But we would also be worried that women who are wealthier tend to eat more fish than less wealthy women, and that it is the trappings of wealth (tutoring, schooling, other resources) that contribute to university attendance for the children of these women.

These sorts of problems plagued education researchers until the advent of the use of randomised controlled trials (RCTs). As Fryer (2016) puts it:

education researchers have spent decades trying to infer causal relationships from non-experimental data by examining large data sets and invoking various assumptions, many of which are not verifiable. Prior to the late 1970s, research on the relationship between class size and academic achievement was widely considered inconclusive (Porwell 1978; Glass and Smith 1978). In fact, some studies, including the famous Coleman Report, suggested there were greater gains in classrooms with more students (Nelson 1959; Coleman et al. 1966). These studies did not adequately account for the fact that school districts commonly bundled better students and teachers in classrooms with more students. A well-designed randomized experiment would enable researchers to avoid such confounding factors and help settle the debate among non-experimental estimates. Using the random assignment of students to small classes in Project STAR, Krueger (1999) showed that students assigned to small classrooms indeed do score higher than students in regular sized classrooms. The effect sizes for the K-3 students in Project STAR are in the range of 0.19-0.28 standard deviations and represent 64 to 82 percent of the white-black test score gap in the data.

“The key to understanding what works in education is to uncover the causal effect of a particular intervention. Indeed, this is true for any public policy intervention.”

Fryer (2016) surveys and summarized 196 such RCTs and usefully distinguishes three categories: (i) early childhood, (ii) school-based interventions, and (iii) home-based interventions.

Early childhood experiments look at the impact of things like preschool attendance, home-based initiatives that target pre-kindergarten children, and alternative models of preschool education. Broadly speaking, any intervention that considers or measures outcomes before children enter school is designated “early childhood”.

The second category, school-based interventions, focus on K-12 curricula, teachers and principals, the management practices with schools, and the like. Fryer includes in this category any experiment where the treatment is delivered in a school setting. This therefore includes things like school vouchers and after-school programs. It extends to interventions in which K-12 resources are given at home.

The final category, home-based experiments, focuses on things like household income, parenting practices, the neighbourhood environment, and access to educational resources at home. This typology of interventions is useful analytically, but also practically, since different levels of government and different funding sources may be involved in the various types of interventions. In what follows we present a number of interventions across the three categories that have been shown to be effective in other jurisdictions—typically the United States. In doing so we lean heavily on Fryer (2016), whose summary and analysis is extremely comprehensive.

The most useful way to think about the benefits of various interventions is by reference to the standard deviation of impact on commonly-understood measurable outcomes—typically scores on mathematics and reading standardised tests. This approach has three virtues. First, it provides a kind-of common currency for comparing different interventions. Second, it also allows for a simple way of understanding the cost-effectiveness or rate of return on investment of different interventions. Finally, it speaks to what combination of interventions (and the cost of them) would be required to bridge the urban-non-urban divide in Australia.

One final point is that the age of students at the time of an educational intervention can be very important. A robust finding is that interventions targeting reading are much more effective when they happen earlier in life. Fryer reports that for children under the age of 5, the average effect is 0.177 standard deviations, while the average effect of reading interventions targeting students over 14 years old is 0.039 standard deviations.[115]

We now summarise some of the interventions that have been successful in other jurisdictions, before moving on to some of those that have not.

Things that Work Well

High-dose Tutoring

A natural way to improve learning outcomes is through tutoring. Most people have had the experience of one-on-one educational assistance and, done well, it can be very beneficial. The key question is what the benefits of structured programs are. It is useful to distinguish between different intensity levels or "dosages" of tutoring programs. Following Fryer (2016) we define high-dosage tutoring as a student being tutored in groups of 6 or fewer for more than three days per week, or alternatively (and equivalently) as being tutored at a rate that would equate to 50 hours or more over a 36-week period.

A typical high-dosage tutoring intervention is typified by the study of Blachman et al. (2004), who focused on 723 second and third grade reading students from eleven schools. After identifying struggling students by using typical tests, screening and balancing for gender, 89 students were randomly assigned to treatment (48 students) and control (41 students). Students in the treatment group received one-on-one tutoring for 50 minutes per day, five days per week—for a total of 105 hours over 125 session on average. This replaced the remedial instruction that the schools already offered and that the students who formed the control group continued to receive. On average, control students received 77 hours of additional instruction over 104 sessions. Tests were used to access the impact of the tutoring treatment, including the Woodcock Reading Mastery Tests—Revised, Gray Oral Reading Tests, Wide Range Achievement Test 3—Spelling, and the Calculation and Applied Problems subtests from the Woodcock-Johnson Psycho-Educational Battery. There were economically large and statistically significant impacts on all reading measures.

As Fryer (2016) reports, taking all the RCTs on high-dose tutoring, the overall impact (the meta-coefficient) was 0.309 standard deviations for mathematics outputs and 0.229 standard for reading outputs. 54.3% of studies demonstrate statistically significant positive treatment effects; none yield statistically significant negative effects. These studies reflect a larger proportion of positive estimates than those for early childhood interventions.

Balanced Incentives

Fryer, Devi and Holden (2016) consider two types of incentives—balanced or "horizontal" incentives and targeted or "vertical" incentives. The former type of incentives was implemented in experiments in Washington DC and the latter in Houston, TX.

As the authors summarise:

In the District of Columbia, we provided incentives for sixth, seventh, and eighth grade students on a series of five metrics that included attendance, behavior, short-cycle assessments, and two inputs to the production function chosen by each school individually. In total, we distributed $1,928,464 to 3,528 students in the first year of treatment and $2,127,018 to 3588 students in the second year of treatment across seventeen treatment schools…In DC, treatment students were 1% more likely to attend school, commit 28% fewer behavioral offenses, and are 13.5% more likely to report completing most or all of their homework relative to control students. In Houston, students in treatment schools mastered 1.09 (0.032) standard deviations… more math objectives than control students. On average, treatment parents attended almost twice as many parent-teacher conferences as control group parents. An index measure of direct outcomes that combines the relevant variables in each city is positive and significant in both cities. Relative to the previous literature, aligning incentives horizontally or vertically leads to significant behavioral change.

Perhaps most important, the treatments also had significant impacts on student test scores. In DC, financial incentives increased reading test scores 0.15 [standard deviation] (0.020) and math scores 0.14 [standard deviation] (0.020) per year of treatment. This led to a 17% increase in students scoring at or above proficiency for their grade in math and a 15% increase in reading per year.

Managed Professional Development

Professional development programs for teachers aim to improve the human capital of the teachers, thereby making them more effective and thus improving student outcomes. Fryer (2016) reports the results of a number of experiments involving teacher professional development.

Strikingly, he shows that only "managed" professional development appears to be successful in improving educational outcomes. No "unmanaged" professional development intervention has statistically significant impacts. On the other hand, when professional development activities are more prescriptive (i.e. "managed") the results are quite encouraging. The "Success for All" program is an instructive example, which Fryer summarises as follows:

Success for All is a school-level elementary school intervention that focuses on improving literacy outcomes for all students in order to improve overall student achievement and is currently used in 1,200 schools across the country (Borman et al. 2007). The program is designed to identify and address deficiencies in reading skills at a young age using a variety of specific instruction strategies, ranging from cooperative learning to data-driven instruction. Success for All is purchased as a comprehensive package, which includes materials, training, ongoing PD, and a well-specified "blueprint" for delivering and sustaining the model. Schools that elect to adopt Success for All implement a program that organizes resources to attempt to ensure that every child will reach the third grade on time with adequate basic skills and will continue to build on those skills throughout the later elementary grades.

The effects from all of the managed professional development interventions Fryer documents, for both reading and mathematics, are statistically significant. For reading the magnitude of the effect is large. The meta-coefficient is 0.052 standard deviations for mathematics and 0.403 standard deviations for reading.

Things that Don't Work

Targeted Incentives

One obvious path that economists pursued when thinking about how to improve educational outcomes was to provide incentives—to students, teachers or parents. Perhaps the natural inclination—particularly when considering cost effectiveness—is to target these incentives. If we want to improve mathematics outcomes then target mathematics. If we want kids to get better at reading then pay them to read. And so on.

A number of experiments have sought to understand the impact of targeted incentives, such as paying children to do mathematics homework problems or paying children to read books. The general lesson from these experiments is that you get what you pay for—almost literally. That is, if you pay kids to do mathematics homework problems then they will. Some will learn from that, other students won't. But all incentivised students will divert time away from other activities, such as reading homework.

Fryer, Devi and Holden (2016) show just this effect for 5th grade students in Houston by paying them for doing mathematics homework problems. Incentivised students did substantially more mathematics homework. On average those students did better on standardised mathematics tests (by around 0.2 of a standard deviation), but almost identically worse on standardised reading tests.

This is exactly what economic theory predicts. The so-called "multi-task principal-agent problem" that was part of what the Nobel committee cited in Bengt Holmstrom's 2016 award emphasises the "effort substitution problem"—provided incentives for particular activities crowd out incentives for other activities. This is a fairly typical and generalisable feature of targeted incentives in education. As Fryer (2016) summarises:

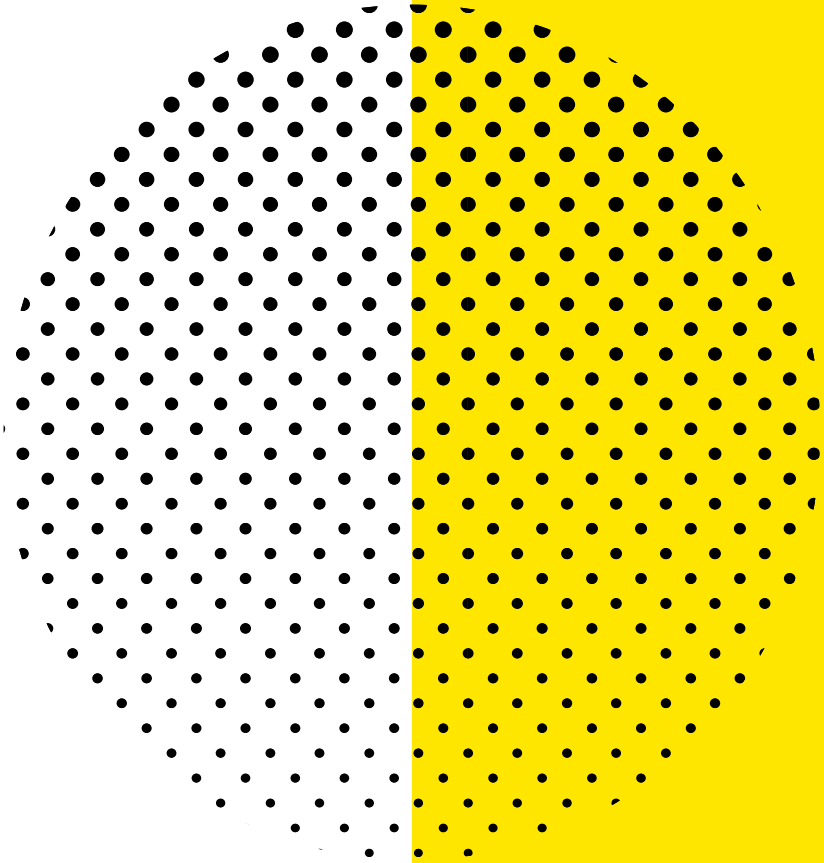
Taken together, the randomized field experiments involving financial incentives for students have generated a rich set of facts. Paying second grade students to read books significantly increases reading achievement for students who take the English tests or those who are not English Language Learners, and is detrimental to non-English speakers. Paying fifth graders for completing math homework significantly increases their math achievement and significantly decreases their reading achievement. All other incentive schemes had, at best, small to modest effects – none of which were statistically significant.

Other Cautionary Tales

Targeted incentives are perhaps the most notable cautionary tale that comes from this literature in that there is a clear and demonstrable downside to the intervention. For a number of the other interventions that have been implemented the evidence is often just statistically weak, even though the magnitude of the effect is sometimes quite material. This means one cannot reliably conclude that the intervention is beneficial—and certainly not beneficial on a cost/risk adjusted basis.

We refer the interested reader to Fryer (2016) for a detailed description of all of the 196 educational experiments he documents. It is worth noting, however, that various school choice programs such as vouchers typically lack statistical significance and are also small in magnitude.

This does not mean that such ideas are not worth trying in Australia where the context and implementation may be different. But it does suggest that they are probably lower priority in terms of evaluation compared to other approaches.



The Costs of Improvement

Overview

We have gone into some detail about the potential benefits of various educational interventions that have been adopted elsewhere. This is clearly only half the picture in any decision a government (or other body) might make to adopt such interventions in Australia.

Fortunately, the cost side is substantially more straightforward than the benefit side. Once one has obtained a causal estimate of the benefits of an intervention in a unit-free measure of attainment, it is relatively straightforward to determine the value of the investment since the total cost typically involves simply adding up easily verifiable individual costs.

For instance, reducing class size involves additional teacher time, the cost of which is well known.

Social Return Accounting

In a report for the UNSW Grand Challenge on Inequality called "Social Return Accounting" Holden, Rosenberg and Dixon (2018) outline an analytic approach for calculating the social internal rate of return (SIRR) of government expenditures and investment projects.

As those authors note: "any private-sector enterprise considering an investment opportunity estimates the future cash flows over time and compares them to the cost of the investment. So-called 'discounted cashflow' (DCF) analysis provides a percentage return that can be compared to the cost of capital—or 'hurdle rate'—to determine whether the investment should be made."

"Once one has obtained a causal estimate of the benefits of an intervention in a unit-free measure of attainment, it is relatively straightforward to determine the value of the investment since the total cost typically involves simply adding up easily verifiable individual costs."

Costs and SIRRs

To correctly evaluate the (S)IRR of different educational interventions requires detailed cost data, in addition to the improvements in outcomes (as measured by standard deviations of improvement). Building on Fryer (2016), Fryer, Devi and Holden (2016) report the IRR for 16 RCTs with the available data.[116]

They note that the effect of lowering class sizes from 24 to 16 students per teacher is approximately 0.133 standard deviations per year in reading and 0.107 standard deviations per year in math based on the work of Krueger (1999), mentioned earlier. The estimated (marginal) cost of lowering class size in this intervention was $4,608 per student, yielding an IRR of 8.6%.

The impact of the Harlem Children's Zone Promise Academy Middle School is 0.047 standard deviations per year in reading and 0.229 standard deviations per year in math. For this intervention the cost is $6,829 per year, yielding an IRR of 11.9%. Teach for America has a 0.03 standard deviation impact per year in reading and a 0.15 standard deviation impact in math. With a cost of $3,359 the IRR is 10.9%.

The balanced or "horizontal incentives" that Fryer-Devi-Holden (2016) report from their experiment in Washington DC, by contrast, deliver an impact of 0.146 standard deviations per year in reading and 0.123 standard deviations in math. The marginal cost is relatively low compared with other interventions—just $971 per annum. This yields an IRR of 32%.

As we mentioned above, on both the benefit and the cost side, detailed RCTs need to be conducted in Australia to provide the causal evidence required to evaluate the social return (SIRR) on different educational interventions in different parts of the country.

Conclusion

This report has documented the various differences between urban and non-urban education in Australia and provided an estimate of the economic benefits that could be attained by closing the gap between the two. The potential increase in economic output is substantial. Closing the gap fully represents an improvement in Gross Domestic Product of 3.3%, or more than $56 billion. Even a partial step towards closing this gap has the potential to change lives and communities in a material way. Moreover, this only represents the direct impact obtained through improved productivity and wages. The indirect impact or spillovers would likely be substantial. These include physical and mental health, and regional community development.

Compared to some proposals for regional development, the education gap is particularly large and offers a high return on investment. For example, proposals such as the recent "inland rail project" may not even cover their costs.[117]

Identifying the magnitude of the urban-non-urban gap is, of course, the easy part. The hard part is finding the interventions that will lead to improvement, and the implementation and funding of those interventions. In the United States, quite a lot is now known about what the best and most cost-effective educational interventions are. Much of this has come through the use of randomised controlled trials. As Fryer (2016) points out, in 2000, 14 percent of reviewed education publications on the "What Works Clearinghouse" were designated to up to the highest standards. By 2010, that number was 46%. By 2009 there were 49 published, peer reviewed randomised controlled trials in education. Most of these, however, were in the United States.

In Australia there is the need for similar work. Part of the good news is that this does not involve starting from scratch. Although there are important differences between the US and Australia, the evidence from the US serves as an excellent starting point. One approach is simply to replicate some of the most effective interventions from the US but do so in a fully randomised way so that the applicability to Australia can be determined. This takes financial and intellectual resources, and the willingness of school systems to experiment. But the benefits can be very significant, as this report has highlighted.

UNSW Grand Challenge on Inequality

The UNSW Grand Challenges program seeks to bring together researchers across the university to raise awareness of, and contribute concrete solutions to, some of the most pressing challenges of our time. The Grand Challenge on Inequality is the third of these, following on from the Grand Challenge on Climate Change and the Grand Challenge on Refuges & Migrants. Professor Rosalind Dixon and Professor Richard Holden are the academic co-leads of the Grand Challenge on Inequality.

Gonski Institute

The core mission of the Gonski Institute is to address growing inequality in Australian education as well as improving access for students to high-quality education wherever they may go to school. We do this by delivering practical, interdisciplinary research as well as focused professional development. We conduct research, test potential solutions and contribute to policy, working closely with governments, educators, community groups and parent associations. As well as rural and regional students, we strive to improve opportunities for disadvantaged students and students with disabilities, as well as providing the opportunities required by gifted and talented students. Our aim is for UNSW to be the national centre for excellence in school leadership, system and political leadership, and a global hub for scholars, policy-makers and thought leaders interested in research and practice in educational excellence, access and equity.

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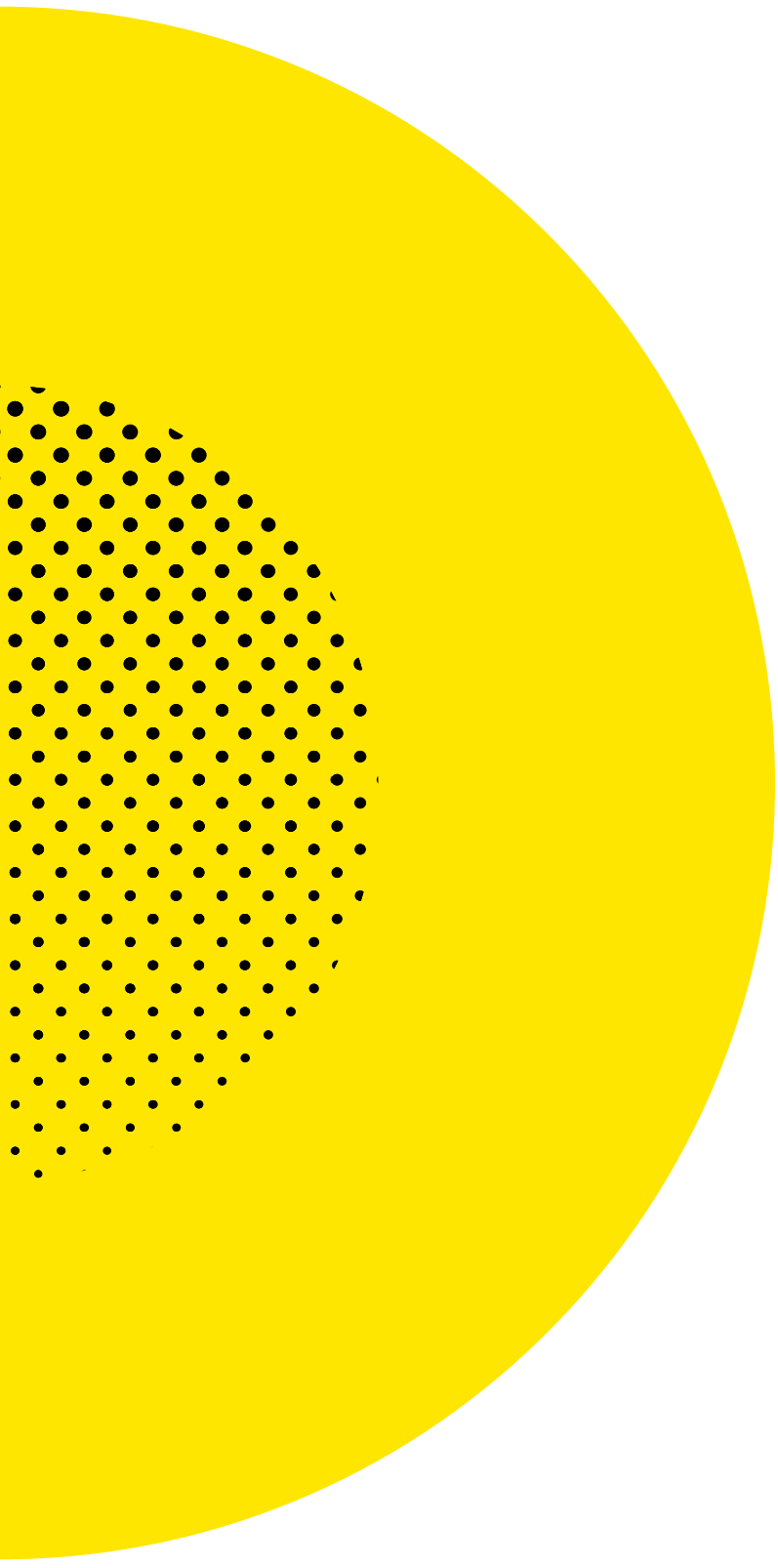

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