

Investing in Schools – Funding the Future

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2009–18

Contents

Executive Summary 4

Investing In Schools – Funding The Future 12

Investing in schools for the sake of learning 12

School facilities and impact on student performance – international evidence 16

Indicative long term economic gains from better learning outcomes 20

Indicative economic impact of capital investment in schools 24

Capital investment as economic stimulus is only way forward 26

Investing In Australian Schools – How Much, Where And For Who? 30

Total capital investment in Australian schools 30

Enormous disparity in capital investment between public and private schools 31

National per student investment between sectors 33

Ratio of Inequity (ROI) 35

The Capital Investment Gap 37

State/territory comparisons in capital spending for public schools 42

Investment In Australian Public Schools – Recent Announcements, Policy Directions and Recommendations **46**

Background	46
NSW	46
Victoria	46
Queensland	47
South Australia	47
Western Australia	47
Tasmania	47
Northern Territory	48
ACT	48
Recommendations for justice and equity of investment	49

Attachment A – State And Territory Profiles **50**

NSW	50
Victoria	54
Queensland	58
South Australia	63
Western Australia	66
Tasmania	70
Australian Capital Territory	74
Northern Territory	78

References **82**

Data Source and analysis

The report is based on the analysis of financial and non-financial data provided by the Australian Curriculum Assessment and Reporting Authority (ACARA) to the AEU. The data was disaggregated to the individual school level. The analysis utilised the variables (i) state, (ii) school sector, (iii) school type, (iv) FTE enrolments and (v) total capital expenditure. Per student sector averages for each year were derived utilising FTE and expenditure data obtained from ACARA source. These are state averages for each year, and not the average of average school level data.

Executive Summary

Investing in Schools – Funding the Future

Public schools in Australia enrol the majority of all students and an even greater majority of students from low socio-economic backgrounds (SES). A proper needs based funding model would deliver greater investment to public schools (than for private schools) to help them do the heavier lifting for the learning they are expected to deliver (to higher proportion of students with greater needs). In fact, this study reveals the exact opposite to be true.

Investing in schools for the sake of learning – what international research tells us

There is extensive international research identifying the positive impact on school participation and learning outcomes through investment in school facilities. The study refers to significant research in the UK, USA and Europe which identify and estimate these impacts. Evidence from the UK shows that capital investment in schools can deliver improvements in student performance and that is most likely to be achieved where investments are directly related to the teaching of the curriculum. Schools in poorer communities are likely to have more use of facilities, and more generally there is less chance of displacement, or inequity with such investments.

More than \$5 Billion in annual economic benefits from capital investment in schools

Drawing on OECD research, this study finds capital investment in the poorest Australian public schools (accompanied by targeted increases in recurrent spending for students-at risk of not attaining minimum learning

outcomes) could help generate approximately \$5.2 billion every year over more than 80 years. The indicative size of the additional annual investment is \$3.8 billion per annum. This means, more than \$100 billion in economic benefits could be generated within 20 years. This would be achieved solely through the improved learning of those currently not attaining minimum learning outcomes in the poorest quintile SES schools.

Capital investment as economic stimulus is only way forward

Many economists have been calling on all governments in Australia to accelerate their capital investment programs as a way of stimulating the economy and to lay the foundations for future economic growth. The Deloitte consulting agency is just one example of mainstream and conservative economic analysts proposing government engage an aggressive capital spend program to deliver growth and promote future economic development. Drawing on analysis from ABS data, a school capital investment program of approximately \$3.8 billion recommended by this report, will likely sustain more than 37,000 additional jobs every year in the construction industry.

Mind the \$21.5 billion gap

Investment in Australian schools has favoured private schools to an astonishing degree. Private schools have received investment in school facilities that is at least twice as much received by public schools per student in any given year (outside of the BER program years) and even as high as nearly four times in one year. This means for every dollar invested per child in a private school, a public school child would get somewhere between 27 cents and 50 cents. The Ratio of Inequity (ROI) in spending between sectors is so high, it is more a ratio of shame than inequity. Based on this calculation of inequity, public schools were collectively deprived of \$21.5 billion in school investment for the first six years the coalition was in power [2013–18].

All states and the NT are short changing public schools in capital investment

The cumulative capital investment gap over the 10 year period (2009–18) exceeds \$8,000 per student for all jurisdictions except the ACT. The states of NSW, Victoria and QLD account for approximately 80% of the capital investment gap (CIG) over 10 years.

Recommendations for justice and equity of investment

Recommendation 1.

Minimum per student investment should match private schools. State and territory governments commit a minimum capital investment per student in public schools that matches the average per student investment of all private schools. An additional annual national investment of \$3.8 billion will deliver for public school students across Australia the same per student investment in their schools as enjoyed by students in private schools. This will deliver a minimum equity funding position for public schools so that students within public care are not disadvantaged relative to private school institutions.

Recommendation 2.

Cease capital support for private schools. State and territory governments cease to make any contributions to capital investment within the private school sector. Divert to the public sector any existing capital grants, interest subsidy programs and any other forms of capital investment assistance currently provided to the private school sector. This will be the first instalment to help deliver Recommendation 1 (above).

Recommendation 3.

School communities (teachers, students, parents and community members using schools) coordinate to identify critical gaps such as examples of schools with large number of demountables, schools in hot areas with no air con etc. and other glaring capacity of maintenance needs. These infrastructure gaps within each state/territory jurisdiction would highlight the extent of the longstanding problem with deficient capital investment in school facilities.

Recommendation 4.

Modern monitoring and reporting systems engaged all in schools. State and territory departments of education should put in place digital solutions that can be accessed via mobile apps. These can quickly engage the school users and draw quick attention to problems. The effective management and monitoring of public school capital investments can only reliably happen with the engagement of its primary users – students, teachers, parents and the other community users.

Recommendation 5.

Establish School Facilities Board at regional and state levels. The decades long neglect of Australian public schools has been facilitated by the effective absence of accountability towards the community members that need and use these facilities. Bureaucratic systems prevent this neglect from being communicated and thereby block demands for effective and efficient investment in schools. The democratic participation of teachers, parents and students in the oversight of school facilities can give voice to reasonable demands for justice and equity across all school systems.

Key Findings

Investing in schools for the sake of learning

There is extensive international research identifying the positive impact on school participation and learning outcomes through investment in school facilities. The study refers to significant research in the UK, USA and Europe which identify and estimate these impacts.

Key Finding 1.

Evidence from the UK shows that capital investment in schools can deliver improvements in student performance and that is most likely to be achieved where investments are directly related to the teaching of the curriculum. Schools in poorer communities are likely to have more use of facilities, and more generally there is less chance of displacement, or inequity with such investments.

Key Finding 2.

Evidence from the USA suggests school facilities affect learning. It simply requires adequate funding and competent design, construction, and maintenance.

Key Finding 3.

There is significant international research showing that factors such as natural and artificial lighting, air quality and temperature, acoustics, and furniture as well as the quality of building and other factors have significant causal links to outcomes associated with student behaviour, learning and well-being.

Indicative economic impact of capital investment in schools

Drawing on OECD research, capital investment in the poorest Australian public schools (accompanied by targeted increases in recurrent spending for students-at risk of not attaining minimum learning outcomes) could help generate approximately \$5.2 billion every year over more than 80 years. The indicative size of the additional annual investment is \$3.8 billion per annum. This is the gap between current per student investment for private schools and an equivalent per student investment in public schools.

Key Finding 4.

More than \$100 billion in economic benefits could be generated within 20 years. This would be achieved solely through the improved learning of those not attaining minimum learning outcomes in the poorest quintile SES schools, if enrolment/completion of secondary school became universal and all students met the minimum learning benchmarks in mathematics. Additional gains, could also be attained with capital improvements in other schools, but these have not been estimated as part of this study.

Capital investment as economic stimulus is only way forward

Many economists have been calling on all governments in Australia to accelerate their capital investment programs as a way of stimulating the economy and to lay the foundations for future economic growth. The Deloitte consulting agency is just one example of mainstream and conservative economic analysts proposing government engage an aggressive capital spend program to deliver growth and promote future economic development. Schools are ready made sites for investment and as shown in this report, deliver very high long-run returns that cannot be delivered by the private market.

Key Finding 5.

The capital investment program of approximately \$3.8 billion recommended by this report, will sustain more than 37,000 additional jobs every year in the construction industry. This is based ABS data for the construction industry average investment cost per job.

Key Finding 6.

Improving existing public assets that are distributed nationally with reach into urban, rural, remote and the poorest communities is a scalable and effective means for generating short term stimulus. Public schools are in urgent need of modernisation and can benefit from significant public investment while yield long-term economic benefits.

Investing in Australian schools – how much, where and for who?

Investment in Australian schools has favoured private schools to an astonishing degree. In absolute terms and in expenditure per student, public schools come a very distant last to the investment enjoyed by the private sector. All years before and after BER program, have shown a ratio of inequity stretching from a best case scenario of 2.1 to as high as 3.7. This means that private schools have received investment in school facilities that is at least twice as much received by public schools per student in any given year, and even as high as nearly four times in one year. The Ratio of Inequity (ROI) in spending between sectors is so high, it is more a ratio of shame than inequity. Based on this calculation of inequity, public schools were deprived of \$21.5 billion in school investment for the first five years the coalition was in power (2013–18).

Total capital investment

Key Finding 7.

Annual capital investment in Australian schools over the ten year period 2009–18 has varied from around \$4.1 billion to \$11.85 billion. Two features dominate the pattern of capital investment in Australian schooling;

- (i) Private schools have greater total capital investment 7 years out of 10 even though they have approximately half the enrolments, and
- (ii) The three years where public schools had more funds invested in capital than private schools was during the Building Education Revolution (BER) period when the Commonwealth government invested in schools as part of its fiscal stimulus program to deal with the Global Financial Crisis (GFC).

Enormous disparity in capital investment between public and private schools

Key Finding 8.

The pre-BER period is the year 2009. Pre-BER, private schools were investing an aggregate 10% more than public schools in capital (\$3.2 billion vs \$2.9 billion).

Key Finding 9.

The BER period is unique because it provides public schools with greater capital investment than private schools. During the BER-period (2010–12), public schools (\$15.1 billion) outstripped private schools (\$10.8 billion) in total capital investment.

Key Finding 10.

The Post-BER period (2013–18) sees a return to the old ways leaving public schools far poorer in investment (\$11.4 billion) compared to private schools (\$17.4 billion).

National per student figures reveal the true gap between sectors

Key Finding 11.

On a per student basis, private schools enjoy greater investment every single year over the 10 years examined by this study.

Key Finding 12.

The difference in capital funding varies from approximately \$1,700 per student in 2017 to \$394 in 2011.

Key Finding 13.

The smallest gap in per student funding between private and public schools is found during the BER period when it was less than \$500 per student in 2011 and 2012.

Key Finding 14.

From the end of BER funding, the gap in capital funding per student has increased beyond \$1,000 for every year.

Ratio of Inequity (ROI)

The Ratio of Inequity (ROI) presents private school capital investment per student as a multiple of public school capital investment per student. It gauges the extent of the imbalance in capital investment between school sectors. For example, a value of 2 means that private schools have invested double the amount per student of public schools.

Key Finding 15.

Nationally, the ROI has been above '2' for every year except for the three BER years of investment in public schools. All years before and after BER program, have shown a ratio of inequity stretching from a best case scenario of 2.1 to as high as 3.7. Every year studied, per student capital investment in private schools is at least double that in public schools and even up to 4 times greater. The ROI of capital investment between private and public schools is so extreme it is more a ratio of shame than inequity. It frames the signal failure of public policy to provide any semblance of balance in the provision of facilities across school sectors.

Key Finding 16.

The significance of the capital imbalance captured by the ROI is heightened because-

- (i) a majority of all students are in public schools, and
- (ii) students from poorer backgrounds are far more likely to be found in public schools. These students have less chance for resource deficiencies at the school level to be offset by household access to resources and support.

The Annual Capital Investment Gap

Key Finding 17.

The average annual Capital Investment Gap per student has remained fairly consistent between the Pre-BER period [\$1409] and the Post-BER period [\$1466]. The BER period improved the situation, but even during this period public schools were under-invested by more than \$750 a student every year.

Key Finding 18.

The per student cumulative impact of the Capital Gap across years is substantial. Over 10 years, the capital gap in funding between private schools and public schools is more than \$12,450 per student. In the post-BER period (2013–18), public schools received in total nearly \$8,800 less per student for capital investment than private schools.

Key Finding 19.

The average annual Capital Investment Gap has been greatest in the post-BER years [\$3.8 billion]. This exceeds the \$3.1 billion pre-BER (2009) and more than double the CIG during BER period when there was a gap of \$1.7 billion.

Key Finding 20.

During the 10 year period 2009–18 the cumulative Capital Investment Gap between private and public sectors was \$29.6 billion. This is the value of investment that was deprived from public schools if they had received the equivalent per student investment in their schools as for private schools.

The Cumulative Capital Investment Gap

Public schools were deprived of \$21.5 billion in capital works in the first six years the coalition was in power. This is the additional investment they would have received for school facilities, equipment and in buildings if funded at the same rate as private schools.

Key Finding 21.

During the post-BER period (2013–18) the cumulative Capital Investment Gap between private and public sectors was \$21.5 billion. This is the value of investment that was deprived from public schools if they had received the equivalent per student investment in their schools as for private schools.

Key Finding 22.

During the BER period (2010–12) public schools fared better, however the cumulative Capital Investment Gap between private and public sectors still exceeded \$5 billion. This is the value of investment that was deprived from public schools if they had received the equivalent per student investment in their schools as for private schools.

State/territory comparisons in capital spending for public schools

The cumulative capital investment gap over the 10 year period (2009–18) exceeds \$8,000 per student for all jurisdictions except the ACT.

Key Finding 23.

Capital investment per student over 10 years across public systems varies from an annual average of just over \$1,000 in Tasmania to as high as \$2,141 in the ACT. The average annual expenditure in the post-BER period (2013–18) collapses across all jurisdictions with Tasmania, South Australia and NSW having the lowest levels (\$500, \$572, \$610).

Key Finding 24.

Public schools in all states and territories have under-investment compared to their private school counterparts. NSW, Victoria and QLD have the largest share of the capital investment gap (CIG) over all 10 years and for the post-BER period (approximately 80% for both).

Key Finding 25.

The cumulative capital investment gap over the 10 year period (2009–18) exceeds \$8,000 per student for all jurisdictions except the ACT.

Key Finding 26.

The imbalance in capital investment between private and public sectors is at critical levels across most years for all jurisdictions except ACT and WA. The majority of years where the Ratio of Inequity (ROI) was at less than critical levels, was during the BER period (2010–12).

Investing in Schools – Funding the Future

Before turning to an examination of school investment in Australia, this study looks at evidence for the impact of capital investment in schools. The first part looks at international evidence of the potential positive impact of capital investment on schooling outcomes. The second part looks at the potential economic impact of capital investment. The broader economic impact is seen through (i) improvements in learning that deliver long term economic benefit, and (ii) immediate fiscal stimulus during a time of economic crisis with high unemployment.

Investing in schools for the sake of learning

Extensive research has been undertaken to examine the impact of capital investment on the quality of schooling. The summary of findings from reports during the past 20 years is presented below.

In the UK, a report entitled Building Performance was published in 2000 by the DfES Research Report series. This presented the findings from a major study commissioned by the DfES, and undertaken by PricewaterhouseCoopers (PwC) during 1999.

The study provided qualitative evidence and some quantitative evidence to support the view that a positive and significant association existed between schools capital investment

and student performance. The final database contained information on more than 900 schools. Some of the key findings of the study are presented below.

The key quantitative findings of the report Building Performance are:

- additional evidence showing a positive and statistically significant association between capital investment and student performance.
- The most significant evidence, from a statistical point of view, is in relation to community primary schools.
- the strongest positive findings are in relation to measures of investment which can be related directly to the teaching of the curriculum (e.g. ICT-related capital spending, science blocks etc, referred to by the United Kingdom's Department for Children, Schools and Families [DfES] as 'suitability' investment).

The key qualitative findings from the Building Performance research report are:

- Schools which were located in areas of high economic and social deprivation tended, on average, to be used more by the wider community. This was partly related to the fact that many of these areas were relatively under-provisioned, in terms of alternative resources, and so the school effectively acted as a key public resource within the community. Related to this, schools tend to be 'local', which benefited those from poorer backgrounds, many of whom would be reliant on paying for public transport to attend alternative locations;
- The main demand for school facilities was in terms of specialist facilities (e.g. ICT suites, early years facilities), auditoria (e.g. for use by drama groups and other local clubs / societies etc) and sports facilities (e.g. outdoor and indoor pitches, swimming pool etc);
- Good examples of schools entering into mutually beneficial partnership arrangements with other stakeholders (e.g. the school being used as a local 'outreach centre' by Further Education colleges or local health authorities).

The evidence suggests that the broader community benefits of the use of school facilities are enhanced, when they are underpinned by effective inter-agency partnership arrangements;

- In relation to the broader benefits, schools capital investment is likely to be characterised by relatively low levels of deadweight, displacement, substitution and inequity. The qualitative evidence suggests that this is particularly the case in relatively deprived areas, and likely to be less so in more prosperous areas.
- Improvements in the physical fabric of school buildings can help to enhance student performance, e.g. 'suitability' related projects such as science laboratories, ICT suites, improving teaching and learning in technology-related subjects, and 'condition'-related projects such as improvements to roofs and windows improving teacher and student morale; and
- Capital investment on its own is not necessarily enough and rather, student performance is impacted on by a wide range of contextual factors relating to students' overall 'learning environment'.

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KEY FINDING 1

Evidence from the UK shows that capital investment in schools can deliver improvements in student performance and that is most likely to be achieved where investments are directly related to the teaching of the curriculum. School in poorer communities are likely to have more use of facilities, and more generally there is less chance of displacement, or inequity with such investments. [more than \$6,000] and in QLD [more than \$2,000 per student].

In the USA, the most extensive research conducted by the Education Commission of the States has found that:

...there is a clear and growing evidence of the need to fundamentally rethink the planning, design and use of school facilities in a way that reflects changing educational demands and needs; takes greater advantage of new technologies and new insights into the nature of teaching and learning; and, perhaps most important, forges stronger bonds between schools and the communities they serve. [www.ecs.org/clearinghouse/68/78/6878.pdf]

Also from the USA, Schneider (2002) has reviewed the international body of research on the subject. His findings include the following:

- Building age is an amorphous concept and should not itself be used as an indicator of a facility's impact on student performance. Many schools built as civic monuments in the 1920s and 1930s still provide, with some modernization, excellent learning environments; many newer schools built in the cost-conscious 1960s and 1970s do not.

- Decisions about school facilities, once translated into brick-and-mortar, affect the daily performance of the generations of teachers and students who use them. These decisions are based on tradition, available technology, experience with "what works," and the changing needs of the times. Good facilities research allows us to productively sort through this mix and can help produce long-term, positive effects on academic outcomes.

His study concludes that:

- School facilities affect learning. Spatial configurations, noise, heat, cold, light, and air quality obviously bear on students' and teachers' ability to perform. Empirical studies will continue, focusing on fine-tuning the acceptable ranges of these variables for optimal academic outcomes. But we already know what is needed: clean air, good light, and a quiet, comfortable, and safe learning environment. This can be and generally has been achieved within the limits of existing knowledge, technology, and materials. It simply requires adequate funding and competent design, construction, and maintenance.

Elsewhere, Schneider (2003) has studied the effect of school facilities on teachers. He finds many teachers reporting that:

...conditions in their schools affected their career decisions. Among teachers who graded their facilities with a C or below, more than 40 percent said that poor conditions have led them to consider changing schools and 30 percent are thinking about leaving teaching. The numbers are even higher for teachers who have experienced health effects related to poor facilities: about 50 percent of Chicago teachers and 65 percent of Washington teachers are considering changing schools, and about 40 percent of Chicago and Washington teachers are thinking about leaving the profession entirely.

Educational facilities expert Jeff Lackney summarizes current and emerging thinking on issues ranging from site and building organization to lighting, acoustics, ventilation, furniture and technology.

Lackney says schools must be both learner-centered and community-centered. That means making more versatile, creative and productive use of school facilities – in close collaboration with parents, neighborhood residents and community partners, and with the needs and interests of not just students, but learners of all ages, in mind. This requires rethinking schools

from the inside out – beginning with the use of instructional space. He categorises the self-contained classroom as obsolete. This should be replaced by “instructional clusters” that facilitate both shared and personalized learning, and that take advantage of, rather than marginalize, new technologies. Each cluster would consist of individual “learning alcoves” surrounding a central core of resources and support – informal meeting areas, seminar and conference rooms, storage space, a computer hub and teacher offices. Lackney also suggests:

- Decentralizing administrative space, and providing every teacher with a private or semi-private office
- Creating diverse settings and spaces for transitions between spaces for learning and interaction – from enclosed “backyards” that can be used for gardening, reading and play, to “privacy niches” that can be used for counselling sessions and impromptu meetings, to “activity pockets” for small-group learning activities
- Providing space for community activities, programs and services ranging from public meetings to childcare to job training and adult education and enrichment.

Evidence from the USA suggests school facilities affect learning. Improvements for better learning require adequate funding and competent design, construction, and maintenance.

School facilities and impact on student performance – international evidence

Ken Fisher has summarised findings from a wide range of research that examines causal links between student achievement and behaviour on the one hand, and the overall condition of school buildings on the other. [<https://files.eric.ed.gov/fulltext/ED455672.pdf>].

...in a study of all of the primary schools in Georgia in the United States, fourth grade students in non-modernised buildings recorded poorer results in basic skills assessment than those in modernised or new buildings.’ Similarly eighth grade students scored consistently higher (7-8% higher scores) in mathematics, ‘composite’ and vocabulary assessment if accommodated in new or modernised buildings.’

This was repeated in a study of 30 elementary schools where teacher attitudes to school buildings were significantly improved in new and modernised buildings. A further study demonstrated an improvement in student achievement scores in newer facilities especially in sixth grade mathematics.’⁴ Seven studies demonstrated that building age is a significant contributor to student achievement and behaviour.’

In an examination of 280 fourth and sixth grade students in two separate facilities (old and new), those in the newer buildings performed much better than the students in the older buildings, achieving scores over 7% higher. The students in the modern buildings also had a better record in the areas of health, attendance and discipline. The study concluded that approximately 3% of the variance in achievement scores can be explained by the age of the facility after taking into account socio-economic differences in the student populations.’ However, there is not total agreement on all of these findings. For example, in one study a strong inverse relationship was found between student behaviour and building age, that is, the older the buildings were, the better the behaviour of the students.’ It has been speculated that this conflicting finding may be the result of negative student reaction to greater supervision and disciplinary measures in the newer facilities. It is important to note that, as buildings age, the individual building elements, such as lighting, air-conditioning and floor-coverings, vary in life expectancy and levels of maintenance. Thus different elements will impact on learning and behaviour differentially.

Four recent replicated studies have identified a relationship between cosmetic factors (related to age, maintenance and condition) and student performance and behaviour, with student achievement scores improving by as much as 5% in schools of higher condition ratings.’ Schools were rated by teachers as sub-standard, standard or above standard.

Fisher also looks at individual building elements and their relationship to student outcomes and behaviour. Some of his findings are presented below:

Natural and Artificial Lighting

It is generally accepted that good lighting, both natural and artificial, can contribute to the aesthetic and psychological character of a learning space. Studies confirm that, for fifth and sixth grade students, appropriately designed and well-maintained lighting improves students' achievement scores. Medical studies have shown that natural light is critical to the regulation of the circadian rhythm of the body in adjusting to night and day conditions and therefore of vital importance where students are inside classrooms for much of the day. There is, however, no evidence in the educational literature that this effect has been measured in terms of academic or behavioural outcomes. One educational facilities research organisation recommends that 20% of wall space be allocated to windows located so students can see out from a seated position.

Air Quality and Temperature

The overwhelming weight of evidence supports a relation between the thermal environment and academic achievement and student behaviours. Temperatures in excess of 25°C have detrimental physiological effects which, in turn, decrease mental efficiency, work outputs and performance. Above this temperature, and with poor humidification, respiration rates are increased, physical efforts become more demanding,

attention spans decrease and students report more discomfort. There is also increased absenteeism and conditions favourable to disease and infection spread amongst students. Student achievement is further reduced by poor ventilation, lack of air movement and poor humidity control. Much of the research on this was done before standardised testing was available as a measuring tool.

However, students in appropriately controlled environments were observed to make significantly fewer errors on tasks and required less time on tasks than students in uncontrolled environments. In Australia, environmentally sustainable design (ESD) approaches are increasingly being used for thermal control by the Royal Australian Institute of Architects which publishes guidelines for building planners and designers.

Acoustics

The impact of excessive noise in learning settings on learning outcomes has been extensively researched over many decades. Noise emanates from other classrooms, road traffic, trains, aircraft and building mechanical systems. It is clear that inordinate noise levels influence stress, verbal interaction, reading comprehension, blood pressure, cognitive task success, feelings of helplessness, inability to concentrate and lack of extended application to learning tasks. Whilst it was evident that the open-plan classrooms of the 1970s in Australia suffered from noise, more recent designs of large teaching/ studio spaces use baffling devices to minimise noise

transmission. Studies of noise attenuation, particularly the use of carpet with its inherent sound absorbent qualities, have indicated improved student achievement levels although quantitative measurement is not evident in the studies. Design implications include the increasing use of carpet on floors, acoustic ceiling tiles, softer wall finishes (including artworks), softer upholstery, better sound isolation in and above adjoining walls between classrooms and sound baffles in larger spaces such as lecture and drama auditoria. None of the research studies measured the impact of acoustics on student assessment scores although medical and occupational health, safety and welfare studies have clearly established criteria for acceptable levels of noise in the workplace.

Furniture

UNESCO's Educational Building and Furniture Programme has been engaged for many years in extensive empirical project based work in developing countries. UNESCO reports that uncomfortable and unsuitable furniture causes problems including backache, poor concentration spans and writing difficulties, thus reducing learning opportunities. There is a general body of work on ergonomics that support these conclusions. These fundamental principles are clearly also applicable to the developed world, although it appears that no specific research studies have attempted to measure the impact.

Other Factors

A range of other building design factors and elements are currently under investigation to determine possible relationships between these factors and student behaviour and academic outcomes. The factors include the amount of space allocated per student, the openness of space, the use of underground or windowless facilities, site size, building utilisation and room occupancy rates, the range of support facilities (including storage) and the availability of specialist instructional facilities. The replication, validity and reliability of the research methodologies and 'scientific' rigor in these studies is still evolving.

Studies on science laboratories indicate strong causal links between the quality and amount of science equipment and furniture design on the one hand and the quality of student behaviour and learning outcomes on the other. A difference of 7% in science scores occurred between schools rated low and high in overall science facility quality. Libraries have recently been undergoing extensive design remodelling and rethinking to accommodate the increasing use of Internet access, multimedia and other new technologies. Student behaviour appears to be particularly sensitive in libraries, as students work independently outside formal classrooms on individual project and problem-based curriculum requirements or on group projects.

European studies confirm that the aesthetic appearance of a school can convey subtle messages that act as perceptual constraining factors for both staff and students. School architecture can facilitate the transmission of cultural values, stimulate or subdue, aid in creativity, slow mental perception and cause fear and joy.” The emergence of new understandings of contextually and socially based cognition is shaping this research. A six-year study at the University of Goettingen determined that student perceptions of, and behaviour in, learning environments are influenced by the scale of the buildings and the variety and stimulating potential of structural shapes and colour schemes.^{3°} These patterns were measured qualitatively and statistical results are therefore not available. Studies of eye movements, as students viewed their learning environment, saw them compensating for angular designs resulting in a degree of discomfort and imbalance which, in turn, affected their concentration span and reduced their ‘time-on-task’. Other factors impacting on students include transitional spaces [indoor/outdoor], the anthropological and social aspects of design, sensory stimulation, context, schools-within-schools, harmony, the incidence of views and vistas, functional zones, circulation patterns and supervisable circulation spaces (such as hallways and corridors).

03 KEY FINDING 3

There is significant international research showing that factors such as natural and artificial lighting, air quality and temperature, acoustics, and furniture as well as the quality of building and other factors have significant causal links to outcomes associated with student behaviour, learning and well-being. These variables impact differently on learning, and based on one study, can explain up to 3% of variance in learning achievement.

Indicative long term economic gains from better learning outcomes

It is not possible within this study to generate precise estimates of the economic impact of better school facilities. From recent significant international research, it is possible to quantify the likely scale of the impact over the longer term. A major OECD study covering 76 countries [OECD 2015] projects the economic impact of achieving universal basic skills over a 15-year period ending in 2030. It shows how over time, the knowledge capital of the nation improves as better-educated youth enter the labour force. This report is of particular interest because it is most recent, but also in its consistent coverage of so many countries using similar methodology and the comparable PISA test performance database.

OECD Study Approach

The OECD study builds on earlier research [Hanushek and Woessmann, 2015] showing that growth is directly and significantly related to the skills of the population. Skills are measured by the aggregate test scores on international mathematics and science tests. The conclusion is that a population's knowledge capital, or collective cognitive skills, is by far the most important determinant of a country's economic growth. The OECD study illustrates the relationship between skills and long-run economic growth by plotting annual growth in real per capita GDP between 1960 and 2000 against average test scores (after allowing for differences in initial per capita GDP) and initial average years of schooling. The study finds that countries align closely along the regression line that depicts a positive association between cognitive skills and economic growth.

FIGURE 1.

Knowledge Capital And Economic Growth Rates Across Countries



Source: OECD 2015

The OECD study builds on the finding that improved knowledge capital increases economic growth and reasons that in order to engender inclusive and sustainable growth, any goal must relate directly to populations' skills. Therefore, relevant education and development goals should be phrased in terms of student achievement levels that are consistent with the skills required by the workforce in the future.

The study measures skills based on the achievement of youth on international assessments of learning outcomes. Using data from 76 countries, it focuses on the portion of the population that lacks the basic skills needed for full participation in today's global economy. The adopted definition of basic skills is the acquisition of at least Level 1 skills [420 points] on the OECD Programme for International Student Assessment [PISA].

This level of skills corresponds to what might today be called modern functional literacy.

Based on that framework, a clear and measurable development goal is that all youth acquire basic skills. This goal, which directly promotes inclusive development, incorporates two components:

- full enrolment of youth in secondary school, and
- sufficient achievement for economic and social participation.

By measuring progress on a consistent basis across countries, this goal can be used to direct attention and resources toward sustained economic development.

Global Findings of OECD Study

- Over time, the knowledge capital of the nation improves as better-educated youth enter the labour force.
- The more skilled workforce leads to increased economic growth and other positive social outcomes.
- The economic value of the policy change is calculated as the difference between the GDP expected with the current workforce and the GDP expected with the improved workforce, calculated over the expected lifetime of a child born today.
- On average, these countries would see a 3.5% higher discounted average GDP over the next 80 years.
- This is almost exactly the average percentage of GDP higher income countries devote to public primary and secondary school expenditure.
- The economic gains from solely eliminating extreme under performance in high-income OECD countries would be sufficient to pay for all schooling.
- A great strength of the universal basic skills goal is the contribution it would make to inclusive growth. Within each country, the variation in earnings currently observed would shrink, and many more individuals would be able to engage productively in the labour market.
- No substitute for improved skills has yet been identified that offers similar possibilities of facilitating the inclusive growth needed to address the full range of development goals.

OECD Findings – Specific to Australia

The specific findings from this OECD report for Australia are presented below. Values in US Dollars have been converted to Australian Dollars.

The OECD findings show extremely strong results accruing to the Australian economy from improvements in learning and skills. For example, if there was universal enrolment in secondary school and every student acquired the basic skills specified for 15 year olds (PISA Level 1, Mathematics) then the following results would be anticipated:

- An average additional \$26 billion in economic benefits each year until 2095 by investing so that every child acquires basic skills by the age of 15 years old.
- The aggregate future economic benefit (discounted for inflation) generated by improved skills until 2095 will be AUD 2.25 trillion. This total economic benefit is the value of 114% of the current GDP of the whole of Australia.

FIGURE 2.

Benefits Accruing from – Universal Enrolment in Secondary School and Every Student Acquiring Basic Skills

OECD ESTIMATES OF OVERALL ECONOMIC BENEFITS	VALUE (AUD CURRENT PRICES)
Annual Economic Benefit (start 12 years after first investment)	26 Billion AUD*
Economic Value Generated to 2095	2.25 Trillion AUD*
Value as a Proportion of Current of GDP (%)	114%

Source: OECD (2015) Chapter 5 pge 63. * 2015 prices and conversion from USD presented in OECD report based on (i) foreign exchange rate AUD = 0.72USD, and ii) 2020 prices adjusted at cumulative 7.8% CPI adjustment for period 2015-2020,

Indicative economic impact of capital investment in schools

Drawing on the OECD research, it is possible to generate indicative estimates of the impact of capital investing in schools (buildings, facilities and equipment). The OECD estimates of benefits from improved schooling are based on improving the participation and learning outcomes that do not meet minimum learning outcomes. In Australia, those students are most heavily concentrated in disadvantaged public schools. This is the effect of many factors including price exclusion from private schools, spatial location (for rural and remote communities) and the acceptance of public schools of all local students. Investment in public schools (and in particular those in disadvantaged communities) will be the most efficient in reaching students that currently fall below minimum learning benchmarks.

FIGURE 3.

Indicative Estimate of Benefits from Capital Improvement

STUDY ESTIMATE OF ECONOMIC BENEFITS FROM CAPITAL INVESTMENT	VALUE (AUD 2020 CURRENT PRICES)
Annual Economic Benefit from Capital Investment	5.2 Billion AUD**
Economic Value Generated 2015-2095	0.42 Trillion AUD**
Value as a Proportion of Current of GDP (%)	23%**

**** Values based on (i) foreign exchange rate AUD = 0.72USD, (ii) 2020 prices at cumulative 7.8% CPI adjustment for period 2015-2020, (iii) 20% contribution of capital improvements in schools (buildings, facilities, equipment) to the attainment of universal secondary enrolment/retention and every student acquiring basic skills**

What is the contribution of capital investment to improved learning outcomes? A cautious and conservative approach would be to suggest that in the case of lowest performing students, the impact might account for 20% of the improvement. This is on the basis that the schools serving the most deprived communities (lowest SES quintile) are also the ones that typically have access to some of the poorest buildings, facilities and equipment. They are far more likely to benefit from capital investment than the private system where wealthy schools already have buildings and facilities that are far more elaborate and well resourced.

If the total annual economic benefit of raising learning outcomes for the weakest performing students so that they met minimum learning outcomes is approximately \$26 billion, then capital investment in the poorest public schools could generate approximately \$5.2 billion every year over more than 80 years. This would be solely through the improved learning of these weaker students.

Additional benefits from capital investment could also be derived from investment in other schools that are not based in the most economically deprived areas. These could also be substantial with the OECD estimating in the case of Australia, that were PISA marks to be increased by more than 25 points in Mathematics, that could generate annual economic benefits in excess of \$70 billion (2020 current value). This contribution of capital investment to these annual economic benefits of \$70 billion is much harder to determine. This study does not attempt to estimate their value as there are too many variables at play to be able to locate the efficient and effective contribution of capital investment to these improved learning outcomes across all schools and systems. Drawing on OECD research, capital investment in the poorest (lowest SES quintile) Australian public schools (accompanied by targeted increases in recurrent spending for students-at risk of not attaining minimum learning outcomes) could help generate approximately \$5.2 billion every year over more than 80 years. More than \$100 billion in economic benefits could be generated within 20 years. This would be achieved solely through the improved learning of these low performing students if enrolment/completion of secondary school became universal and all students met the minimum learning benchmarks in mathematics. Further and higher gains, could also be attained with capital improvements in other schools, but these have not been estimated as part of this study. The indicative size of the additional annual investment is \$3.8 billion per annum. This is the gap between current per student spending for private schools and an equivalent per student investment in public schools .

Capital investment as economic stimulus is only way forward

Monetary policy through the manipulation of interest rates is now at a dead end. Its use and abuse over more than 20 years has left interest rates at nearly 0% levels. There is simply nowhere else to go with monetary policy as a lever for economic stimulation. This economic reality [captured in the graph below] is now accepted by all governments.

FIGURE 4.

Cash rate target



Source: <https://www.rba.gov.au/statistics/cash-rate/>

Many economists have been calling on all governments in Australia to accelerate their capital investment programs as a way of stimulating the economy and to lay the foundations for future economic growth. The Deloitte consulting agency is just one example of mainstream and conservative economic analysts proposing government engage an aggressive capital spend program to deliver growth and promote future economic development. The text box on the following page summarises the argument of Deloitte on why capital spending on existing public assets [such as schools] can deliver a quicker and more effective and fair positive contribution towards the short and long terms benefit for society and economy.

The positive impact on employment and training was demonstrated by the Building the

Education Revolution (BER) during the period 2009-12. Under the BER guidelines, the states, territories and block grant authorities were to ensure that projects covered by the BER funding used their best endeavours to give priority in contracting and tendering arrangements to businesses that agree to aim to secure at least 10 percent of the total contract labour hours to be undertaken by apprentices and trainees and those seeking to up-skill, where this does not result in unreasonable costs to business. The BER Implementation Taskforce found that nationally this objective was achieved with apprentices making up 12.7 per cent of total direct employment on BER P21 projects. Tasmania was a particular standout with all three sectors recording more than 20 per cent of the workforce being apprentices. (BERIT, 2011, Appendix 12).

Estimate of jobs created through \$3.8 billion capital investment in schools

A broad estimate of the likely number of jobs to be created by a \$3.8 billion capital program for schools can be calculated from high level ABS data. By combining data for the average annual investment in the construction industry with total number of jobs that are provided by that industry, a high level estimate is generated of the average investment cost per construction industry job.

The table below presents the calculations for 2020, based on the most recent data (with an attributed average investment cost for the December quarter 2020, as this was not available at time of report writing). There were approximately 1.1 million jobs provided by the construction industry (nearly a million of these are full-time) with an average annual value of investment at \$119 billion. The average investment cost per job is just \$100,000.

FIGURE 5.

Construction industry – Average Investment Cost per Job, 2020

YEAR 2020, BY QUARTER	TOTAL CONSTRUCTION JOBS	INVESTMENT \$ (BILLION)	INVESTMENT COST PER CONSTRUCTION JOB
March	1,182,900	30.5	\$25,784.09
June	1,177,500	29.7	\$25,222.93
September	1,151,400	28.8	\$25,013.03
December	1,173,500	29.6	\$25,223.69
Annual	1,171,325	\$119	\$101,252.85

Source: Investment \$ Billion, ABS Building Activity Investment, and Total Construction Jobs, ABS Table 05: Employed persons by industry division

05

KEY FINDING 5

The capital investment program of approximately \$3.8 billion recommended by this report, will sustain more than 37,000 additional jobs every year in the construction industry. This is based ABS data for the construction industry average investment cost per job.

06

KEY FINDING 6

Improving existing public assets that are distributed nationally with reach into urban, rural, remote and the poorest communities is a scalable and effective means for generating short term stimulus. Public schools are in urgent need of modernisation and can benefit from significant public investment that will yield long-term economic benefits.

Accelerated capital spend as an economic stimulus – instead of mega infrastructure

- By 30 March, 2020 the cash rate reached an historic all-time low of 0.25%; 25 basis points from zero and little room to move lower. Furthermore, we have seen the start of quantitative easing from central banks and in fact, the Reserve Bank of Australia has indicated it will implement quantitative easing in Australia for the first time in the country's history. Policy may also be further impacted by a diminishing appetite for private sector to invest in capital markets.
- Fiscal policy is already stepping in now, particularly at the state level, through massive recurrent budget costs. This recurrent cost will likely have to be funded from borrowing, as tax receipts fall and social welfare payments increase. The key point is that in such an environment, Governments will have to make a conscious decision to

protect public sector investment – i.e. as recurrent deficits spiral and debt balloons, there will be a temptation to cut government investment – but this would be short-sighted because of the way that public sector investment has three important stimulus effects. Firstly, it improves the productive capacity of the nation – for example, goods can move more easily, labour is more productive, energy cheaper and more reliable, etc. This is incredibly important to ensure the country recovers as quickly as possible (noting that the country is still recovering from bushfires and floods) and can pay off the debt being built up. Secondly, it provides a significant unemployment buffer in the short term through direct employment and increased demand for the other inputs into infrastructure development. Thirdly, social outcomes are better planned for and achieved by infrastructure spend than monetary policy.

- Whilst the mega projects bring out the benefits outlined above, unless they are live or in the tender phase they are likely to be slower to show positive economic impact. Perhaps it is time to shift the focus into investing in the existing asset base, improving efficiency, improving resilience and improving broader cross-sector economic impacts through precincts.

Deloitte propose that Australian governments propose instead of large multi-billion dollar infrastructure programs (e.g. roads) that have long planning and development times, governments focus on increasing the spend on asset management and maintenance. Their argument is:

- Governments have billions of dollars of assets in both hard assets and built form. Historically there has been a backlog of maintenance on assets as competing budgetary pressures have favoured new build.

- These are better placed to

- (i) stimulate the economy through improved efficiency of the existing asset base,
- (ii) lead to a reduction in operating and repair costs through strategically planned investment,
- (iii) utilise a mix of highly skilled and unskilled labour,
- (iv) have procurement processes and requirements met quickly and inexpensively for bidders,
- (v) support investment to be scaled quickly to meet resource availability, (vi) be targeted at high needs or vulnerable communities e.g. rural areas also impacted by bushfires, and
- (vii) provide a boost to second and third tier contractors who can't compete on mega projects.

Source: <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/infrastructure-capital-projects/deloitte-au-icp-infrastructure-accelerated-capital-spend-V5.0.pdf>

The wholesale under-investment in public schooling over more than a decade (and even two decades for most jurisdictions – see next section of this report), means that public schools are excellent target sites for the kind of investment being proposed by Deloitte.

Investing in Australian Schools – how much, where and for who?

Total capital investment in Australian schools

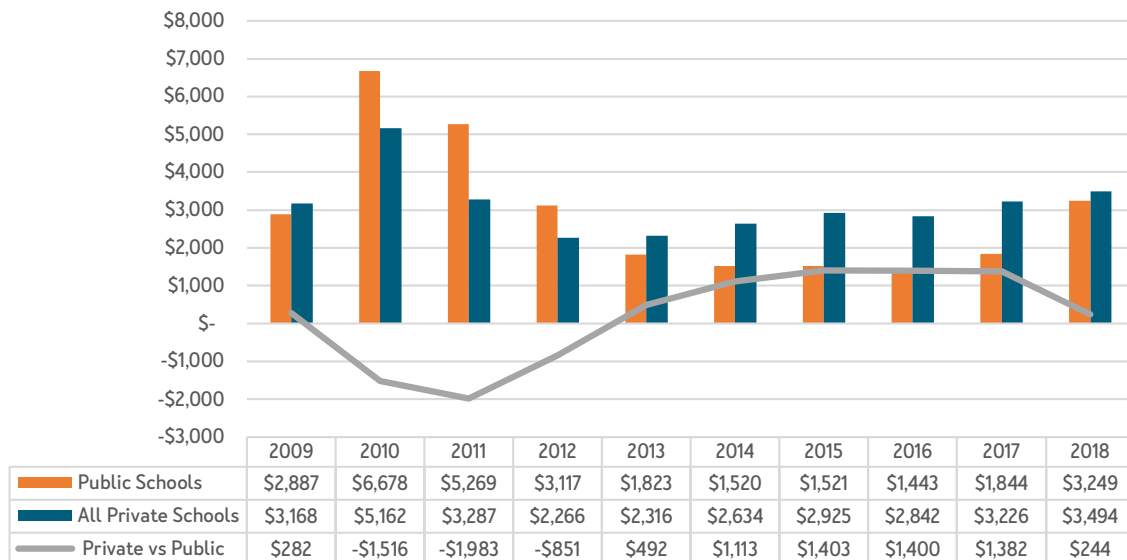
07 KEY FINDING 7

Annual capital investment in Australian schools over the ten year period 2009-18 has varied from around \$4.1 billion to \$11.85 billion. Two features dominate the pattern of capital investment in Australian schooling; (i) Private schools have greater total capital investment 7 years out 10 even though they have approximately half the enrolments, and (ii) The three years where public schools had more funds invested in capital than private schools was during the Building Education Revolution (BER) period when the Commonwealth government invested in schools as part of its fiscal stimulus program to deal with the Global Financial Crisis (GFC).

FIGURE 6.

National Annual Capital Investment in Schools,

\$ MILLIONS



Enormous disparity in capital investment between public and private schools

The capital investment in Australian schools during the past 10 years is best viewed in three periods – Pre-BER, BER period, and Post-BER. This allows us to understand the impact of capital funding policy across systems.

08

KEY FINDING 8

The pre-BER period is the year 2009. Pre-BER, private schools were investing an aggregate 10% more than public schools in capital [\$3.2 billion vs \$2.9 billion].

09

KEY FINDING 9

The BER period is unique because it provides public schools with greater capital investment than private schools. During the BER-period (2010-12), public schools (\$15.1 billion) outstripped private schools (\$10.8 billion) in total capital investment.

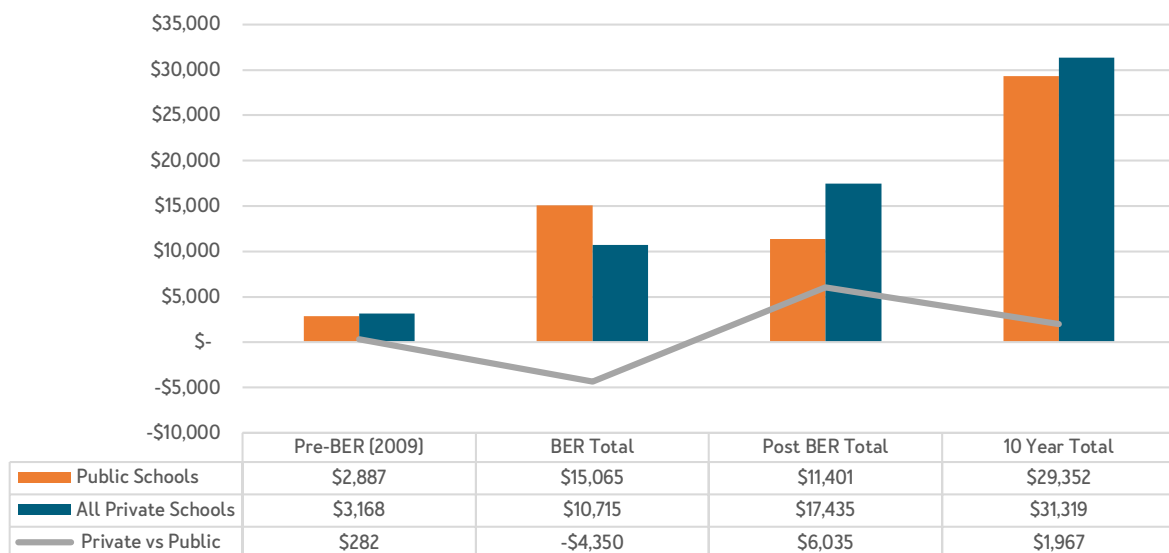
10

KEY FINDING 10

The Post-BER period (2013-18) sees a return to the old ways leaving public schools far poorer in investment (\$11.4 billion) compared to private schools (\$17.4 billion).

FIGURE 7.

National Annual Capital Investment in Schools \$ millions

BY INVESTMENT PERIOD

National per student figures reveal the true gap between sectors

A more accurate way to understand the weight and distribution of capital investment across school sectors is to standardise the investment on a per student basis. This enables us to better understand the priority and commitment that our government to children in public and private schools.

11

KEY FINDING 11

Per student calculations provide the best comparison of investment in public and private schools. On a per student basis, private schools enjoy greater investment every single year over the 10 years examined by this study.

12

KEY FINDING 12

The difference in capital funding varies from approximately \$1,700 per student in 2017 to \$394 in 2011.

13

KEY FINDING 13

The smallest gap in per student funding between private and public schools is found during the BER period when it was less than \$500 per student in 2011 and 2012.

14

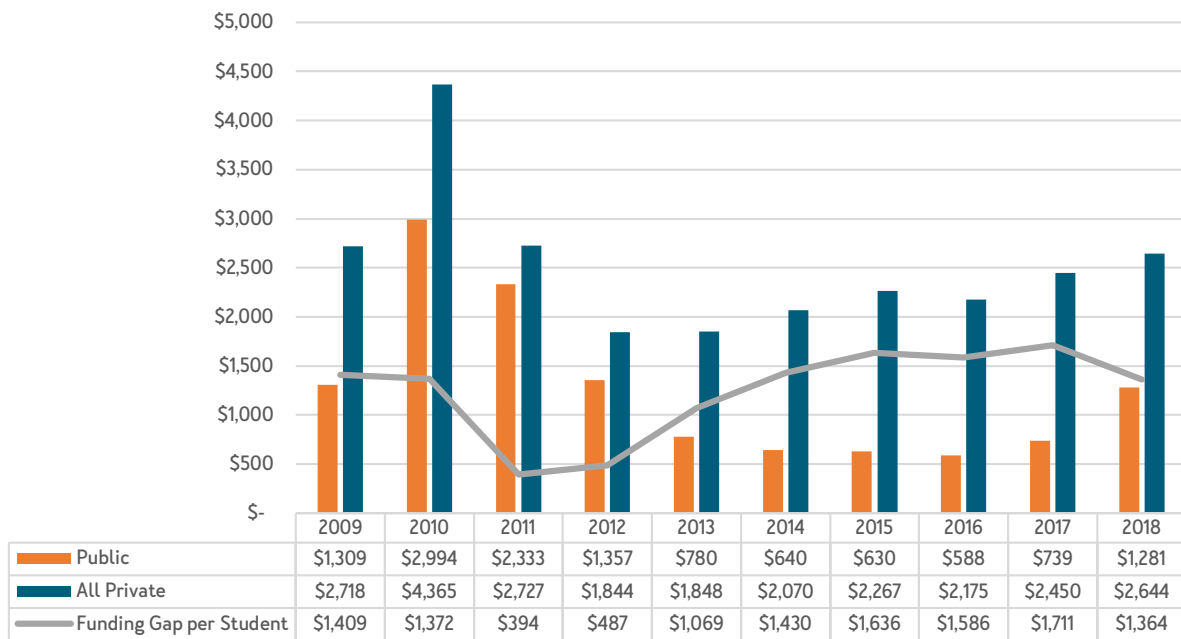
KEY FINDING 14

From the end of BER funding, the gap in capital funding per student has increased beyond \$1,000 for every year.

FIGURE 8.

National Annual Capital Investment in Schools

\$ PER STUDENT



Ratio of Inequity (ROI)

Explanation

The Ratio of Inequity (ROI) presents private school capital investment per student as a multiple of public school capital investment per student. It gauges the extent of the imbalance in capital investment between school sectors. A value of '1' means a balance in per student funding. A value of plus or minus from '1' denotes an imbalance. For example, a value of 2 means that private schools have invested double the amount per student of public schools.

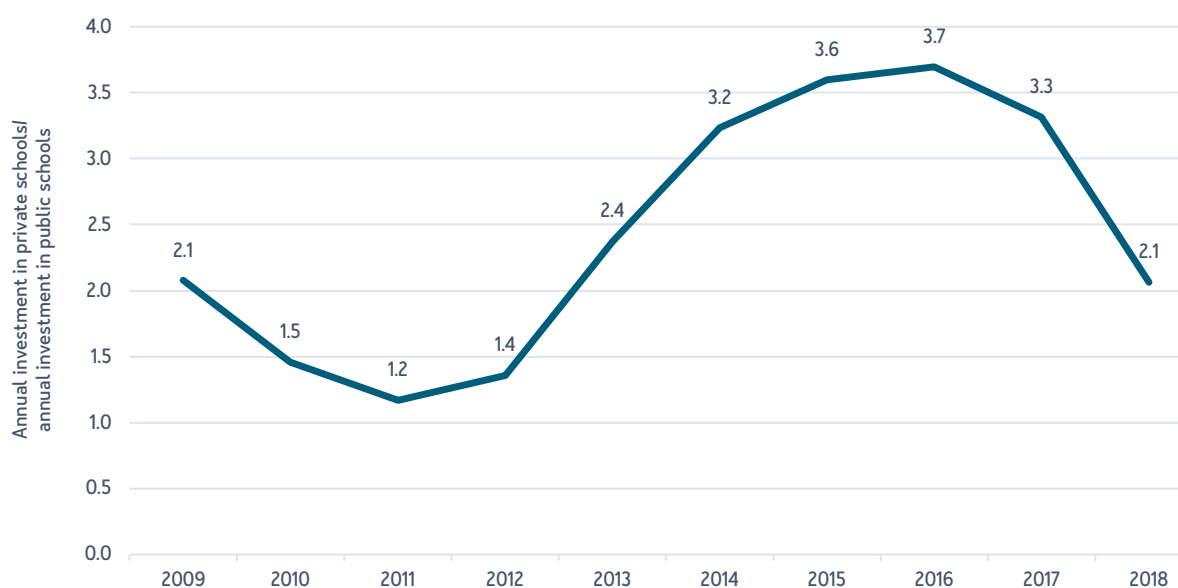
15

KEY FINDING 15

Nationally, the ROI has been above '2' for every year except for the three BER years of investment in public schools. All years before and after BER program, have shown a ratio of inequity stretching from a best case scenario of 2.1 to as high as 3.7. The ROI of capital investment between private and public schools is so extreme it is more a ratio of shame than inequity. It frames the signal failure of public policy to provide any semblance of balance in the provision of facilities across school sectors.

FIGURE 9.

National ROI (Ratio of Inequity) Private : Public School INVESTMENT PER STUDENT



16

KEY FINDING 16

The significance of the capital imbalance captured by the ROI is heightened because –

(i) a majority of all students are in public schools, and

(ii) students from poorer backgrounds are far more likely to be found in public schools. These students have less chance for resource deficiencies at the school level to be offset by household access to resources and support.

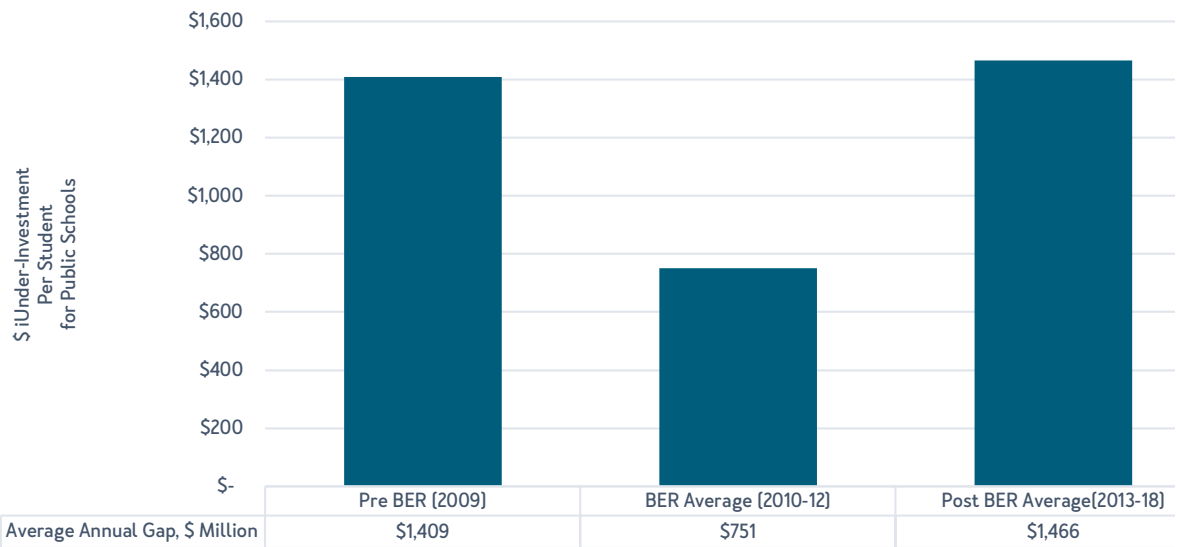
The Capital Investment Gap

The Capital Investment Gap (CIG) is the difference between capital investment in private schools per student and what public schools and capital investment.

17 KEY FINDING 17

The average annual Capital Investment Gap per student has remained fairly consistent between the Pre-BER period (\$1409) and the Post-BER period (\$1466). The BER period improved the situation, but even during this period public schools were under-invested by more than \$750 a student every year.

FIGURE 10.
Annual Capital Investment Gap for Public Schools
PER STUDENT BY PERIOD (\$ MILLION)



18

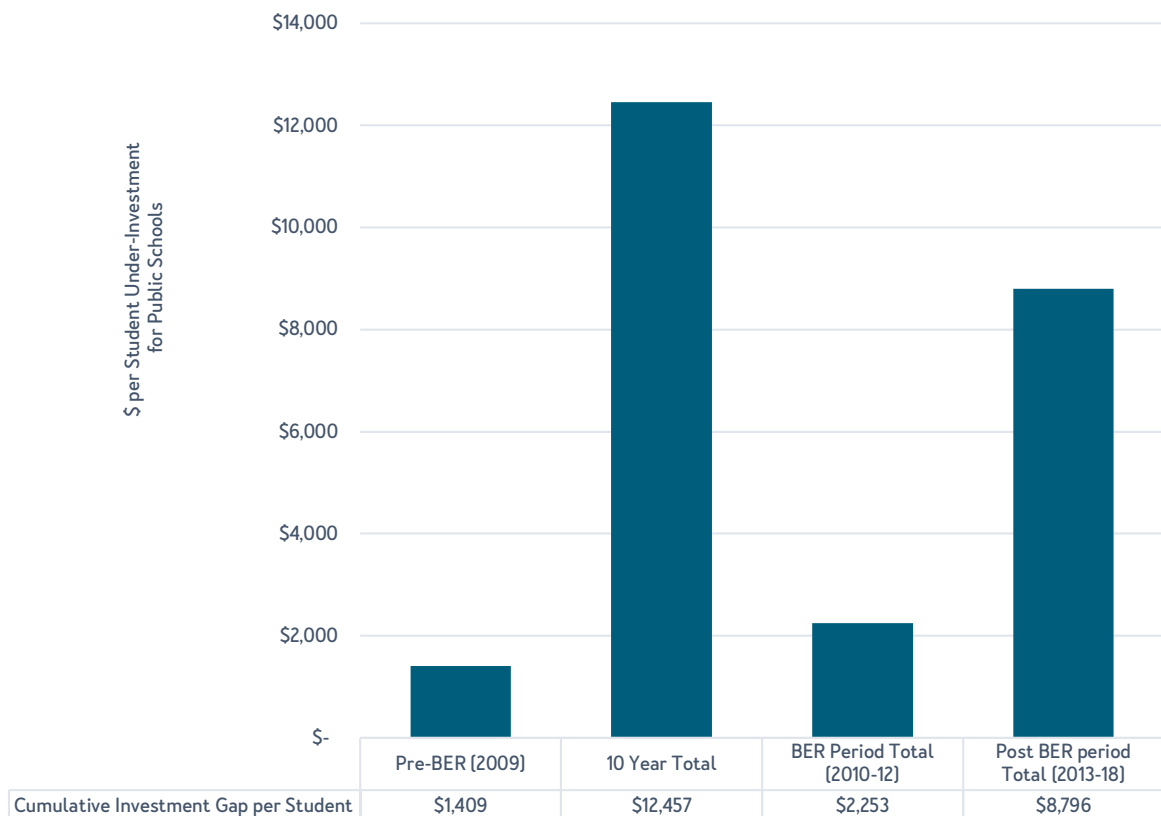
KEY FINDING 18

The per student cumulative impact of the Capital Gap across years is substantial. Over 10 years, the capital gap in funding between private schools and public schools is more than \$12,450 per student. In the post-BER period [2013-18], public schools received in total nearly \$8,800 less per student for capital investment than private schools.

FIGURE 11.

Cumulative Capital Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS



19

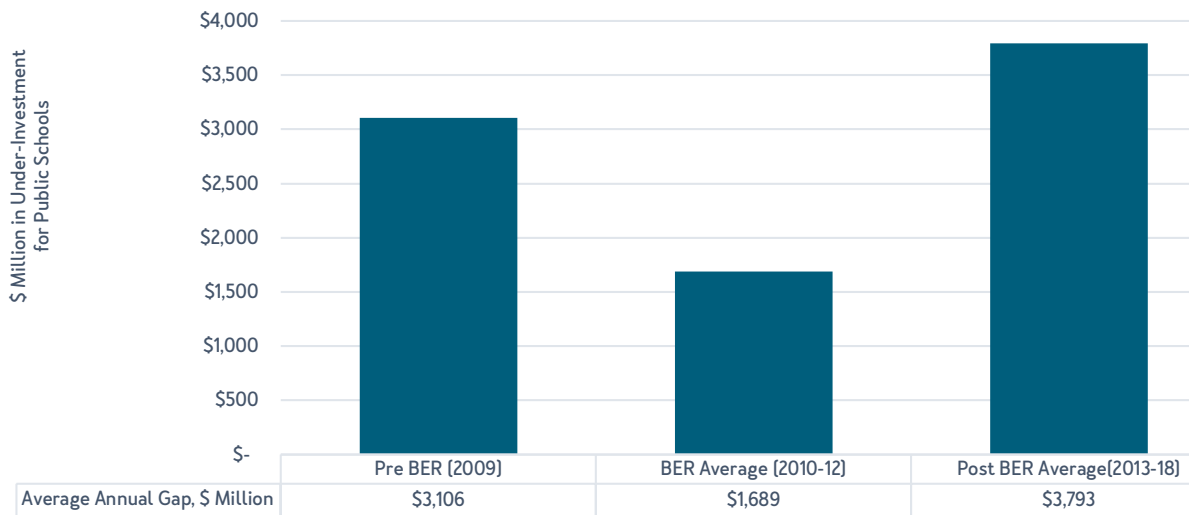
KEY FINDING 19

The average annual Capital Investment Gap has been greatest in the post-BER years (\$3.8 billion). This exceeds the \$3.1 billion pre-BER (2009) and more than double the CIG during BER period when there was a gap of \$1.7 billion.

FIGURE 12.

Annual National Capital Investment Gap for Public Schools

\$ MILLION



20

KEY FINDING 20

During the 10 year period 2009-18 the cumulative Capital Investment Gap between private and public sectors was \$29.6 billion. This is the value of investment that was deprived from public schools if they had received the equivalent per student investment in their schools as for private schools.

21

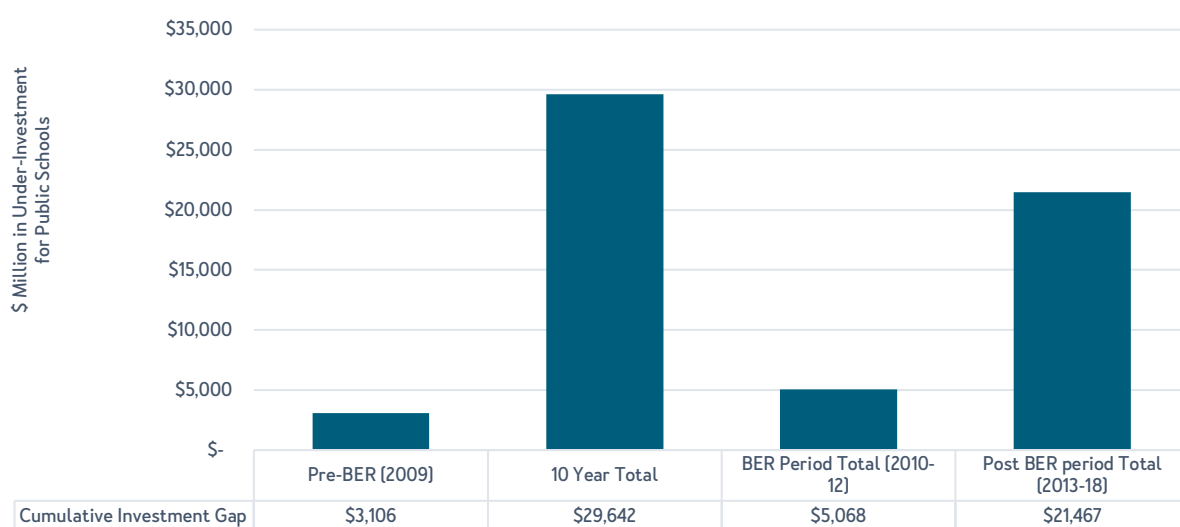
KEY FINDING 21

During the post-BER period (2013-18) the cumulative Capital Investment Gap between private and public sectors was \$21.5 billion. This is the value of investment that was deprived from public schools if they had received the equivalent per student investment in their schools as for private schools.

22

KEY FINDING 22

During the BER period (2010-12) public schools fared better, however the cumulative Capital Investment Gap between private and public sectors still exceeded \$5 billion. This is the value of investment that was deprived from public schools if they had received the equivalent per student investment in their schools as for private schools.

FIGURE 13.**Cumulative Capital Investment Gap for Public Schools****\$ MILLION**

State/territory comparisons in capital spending for public schools

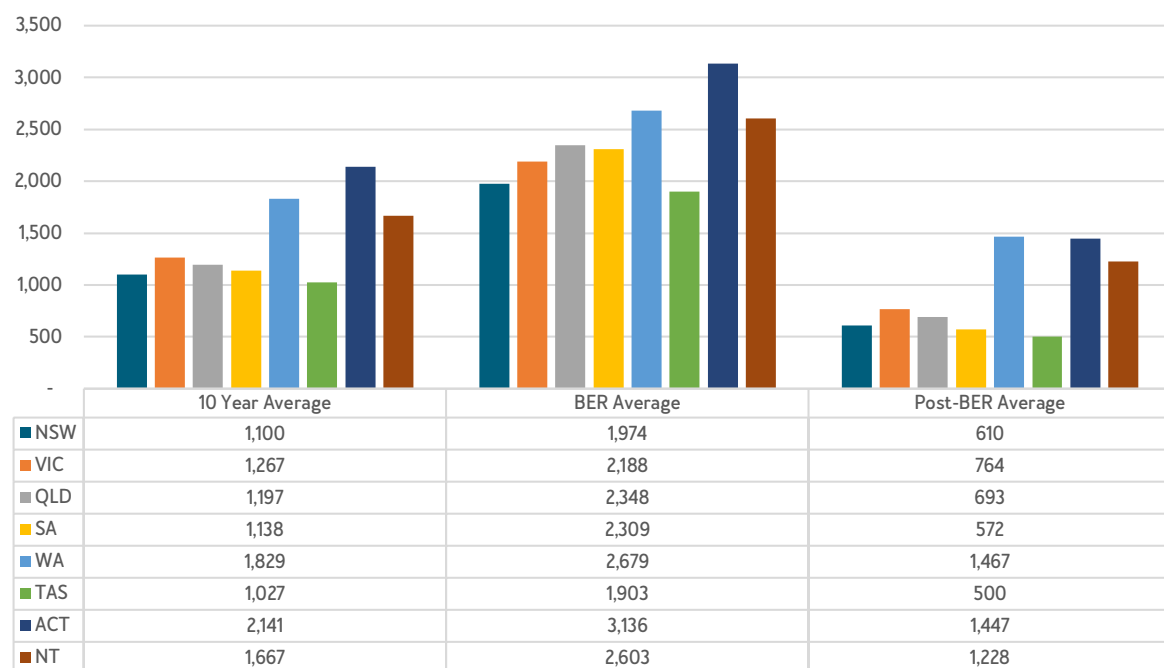
23 KEY FINDING 23

Capital investment per student over 10 years across public systems varies from an annual average of just over \$1,000 in Tasmania to as high as \$2,141 in the ACT. The average annual expenditure in the post-BER period (2013-18) collapses across all jurisdictions with Tasmania, South Australia and NSW having the lowest levels (\$500, \$572, \$610).

FIGURE 14.

Capital Investment by state / territory

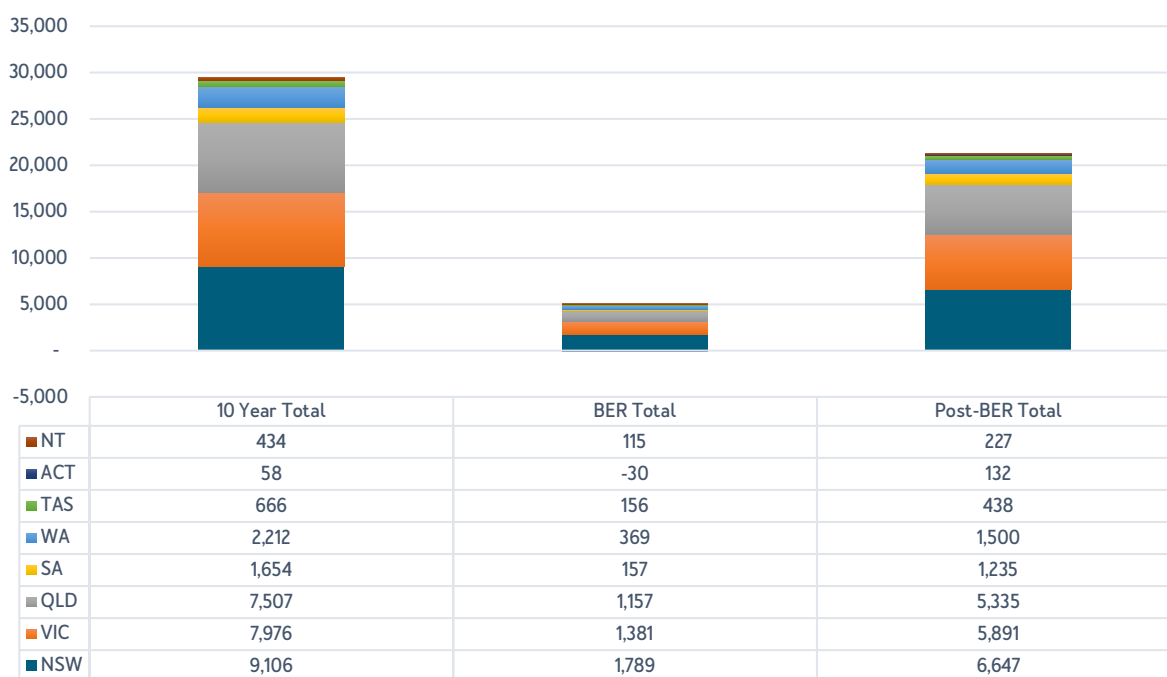
\$ PER PUBLIC STUDENT



24

KEY FINDING 24

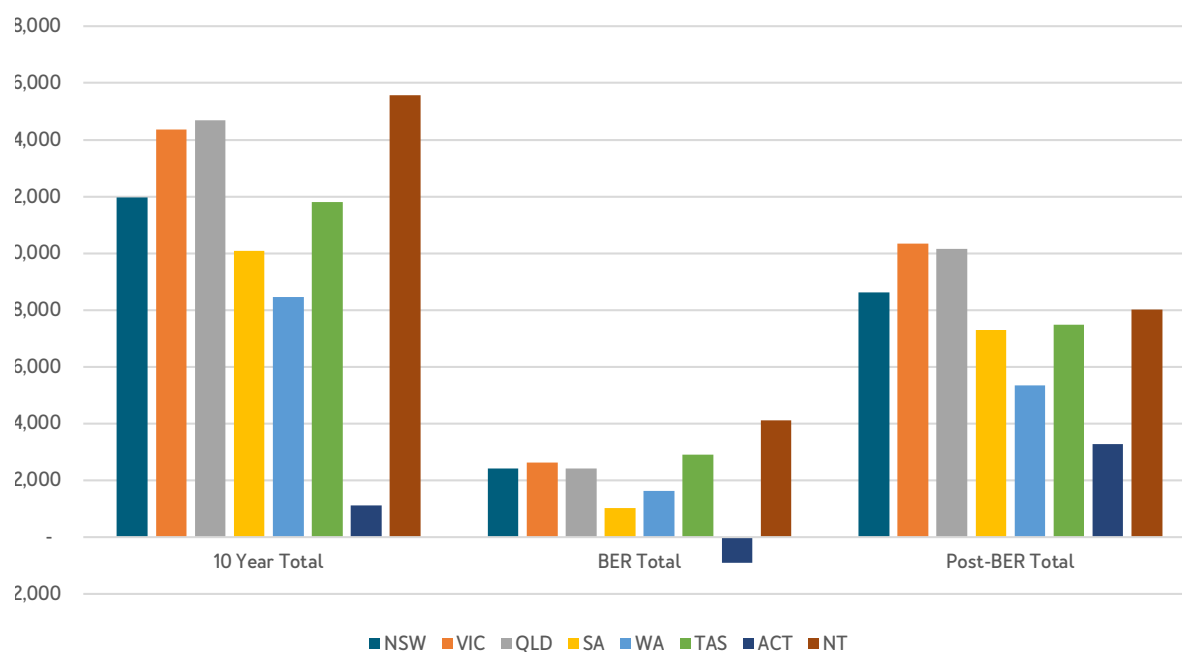
Public schools in all states and territories have under-investment compared to their private school counterparts. NSW, Victoria and QLD have the largest share of the capital investment gap (CIG) over all 10 years and for the post-BER period (approximately 80% for both).

FIGURE 15.**Capital Investment Gap, by state / territory****\$ MILLION**

25

KEY FINDING 25

The cumulative capital investment gap over the 10 year period [2009-18] exceeds \$8,000 per student for all jurisdictions except the ACT.

FIGURE 16.**Cumulative Capital Investment Gap
across states / territories****\$ PER STUDENT**

26

KEY FINDING 26

The imbalance in capital investment between private and public sectors is at critical levels across most years for all jurisdictions except ACT and WA. The majority of years where the Ratio of Inequity (ROI) was at less than critical levels, was during the BER period (2010-12).

FIGURE 17.

Ratio of Inequity (ROI) by state / territory

YEAR	NATIONAL	NSW	VIC	QLD	SA	WA	TAS	ACT	NT
2009	2.08	1.65	1.92	3.75	2.75	2.02	1.90	0.62	3.30
2010	1.46	1.08	1.28	2.71	1.14	4.12	1.11	0.89	1.26
2011	1.17	1.81	1.14	1.20	0.95	0.62	1.95	0.68	1.41
2012	1.36	2.26	2.80	0.69	1.83	0.90	9.22	1.48	3.08
2013	2.37	3.69	3.63	2.10	1.90	1.14	25.28	1.08	1.94
2014	3.23	5.21	4.42	3.93	2.01	1.35	4.08	1.27	5.53
2015	3.60	4.26	6.84	4.73	5.38	1.38	3.63	1.56	3.21
2016	3.70	3.47	5.02	4.48	10.05	2.18	2.70	1.68	1.35
2017	3.32	3.82	2.61	5.12	4.52	2.50	2.55	2.05	1.13
2018	2.06	2.17	1.76	2.44	2.30	1.88	2.86	1.26	2.19

Pink shade = critical condition [≥ 1.75], Yellow shade = poor condition (between 1.25 & 1.75), Green shade = relative balance (between 0.75 & 1.25), Blue shade = positive bias [0.75]

Investment in Australian Public Schools – recent announcements, policy directions and recommendations

Background

The previous section has examined the data from ACARA to look at the trends in capital investment in public and private schools. This section summarises the various capital funding announcements made by state and territory governments over during 2019 and 2020, which have yet to be included in the ACARA finance dataset¹.

NSW

The NSW government claims to have a four year pipeline of \$6.7 billion in school infrastructure projects. Planners, architects and builders are said to be working on more than 130 projects representing a total project value of \$1.2 billion by the end of 2020.

There is no clear indication of how this funding will be split across sectors. However, the 2019-20 NSW budget does include \$341 million across the forward estimates for “grants to non-government schools for essential infrastructure.”

Victoria

The Victorian Government plans to invest \$7.2 billion to build 100 new schools and deliver more than 1460 school upgrades by 2026. They estimate that this will support more than 7,500 construction jobs. 48 new schools have opened as of March 2021

There is a newly announced education building program of more than \$1.18 billion in addition to the \$6.1 billion already invested by the Victorian Government on school upgrades since 2014.

It is worth noting that in response, the Catholic Education Commission of Victoria is calling for the \$400 million capital works package allocated to non-government schools over four years at the 2018 election to be brought forward. In 2019, \$73 million was allocated to private schools from this fund.

1. Information collected by Jonathon Guy. Some of the included announcements (QLD, NT and ACT) are election promises and not yet allocated funding.

Queensland

Labor's 2020 election promise *Great Schools, Great Future* was announced in October 2020 includes \$1 billion would be spent on 26 new halls and performing arts centres, new classrooms at 46 schools and new playground and fencing.

Almost half the funding will come from \$4 billion borrowed over the forward estimates. The rest will come from a \$51.8 billion state-wide infrastructure program that has already been announced.

The government has said that this new promised investment builds on \$5.2 billion in school infrastructure spending that has been delivered since 2015. It is worth noting however that the ABS records \$2.4 billion of capital spending in QLD schools since 2014–15 and ACARA data shows \$1.3 billion in public school capital funding from 2015 to 2018².

South Australia

In August 2020 the SA government said that education projects worth more than \$740 million were under construction. Of a total \$1.3 billion allocated over the forward estimates it is expected that \$1.1 billion of the total program's investment is expected to be spent before the end of the 2021–22 financial year

Overall, more than 100 school upgrades will be delivered in the coming years. However, a significant proportion of this spending results from the plan to accommodate the move of year 7s from primary to high school in 2022, rather than any objective improvement in school infrastructure overall.

Western Australia

In 2019-20, the WA government allocated \$200 million to address high priority maintenance at all 789 public schools across the State,

The October 2020 State Budget includes a total investment of \$456 million in school facilities in 2020-21.

Tasmania

In May 2020 the government announced a total of \$184.2 million is being invested across the state over the forward estimates in capital works which includes new schools, school upgrades, new Child and Family Learning Centres, new and upgraded kindergartens and school farm redevelopments.

In response to COVID-19 the Tasmanian Government's announced an initial \$10 million School Revitalisation Maintenance Package split across 338 school and college maintenance projects (approx. \$30,000 per project) completed by the middle of next year. This is a very minor part of the state's total \$3.1 billion construction stimulus plan.

2. Previous QLD government spending announcements include (i) *Building Future Schools Fund Project Report*, November 2018 https://www.statedevelopment.qld.gov.au/_data/assets/pdf_file/0023/33494/building-future-schools-fund-project-report.pdf, and (ii) *Building Future Schools Program, a decade long "master-plan" for state school infrastructure in the years 2016-2026*. <https://qed.qld.gov.au/programs-initiatives/department/building-education/major-projects-and-initiatives/building-future-schools-program>

Northern Territory

In the lead-up to the 2016 election, Labor promised the *Building Better Schools* program to give all NT government, Catholic and independent schools \$300,000 each to spend on the infrastructure project of their choice.

To February 2020, 121 of the Territory's government schools have either had their projects completed or have them underway. In the non-government school sector, 18 have had their projects completed, and a further 10 are underway.

Three of the four rounds of the program have been delivered so far and the government states that by 2021, 148 government schools, and 35 non-government schools will have either completed their projects, have them underway or be in the planning stage. The original timeline was for all rounds to be completed by mid-2021. 34 schools are due to see the funds delivered over the next three years, delayed from planned finalisation in mid-2021.

ACT

Prior to the October 2020 election Labor made the following promise:

- Every student in ACT public high schools and colleges will get a free Chromebook
- 275 households will have access to free internet
- A new dedicated eSafety expert will be appointed
- New, zero emissions schools in the Molonglo Valley, West Belconnen and two new schools in Gungahlin
- Expanded college capacity in Canberra's North
- A major renewal of Narrabundah College
- A \$99 million investment in existing schools across Canberra
- A low interest loan scheme for non-government schools to invest in solar panels and battery storage systems
- A new \$85 million high school in Taylor and a new \$35 million primary school to meet forecast growth in public school enrolments in North Gungahlin. Construction on the high school in Taylor will commence in the 2022–23 financial year.

Recommendations for justice and equity of investment

Recommendation 1.

Minimum per student investment matches private schools. State and territory governments commit a minimum capital investment per student in public schools that matches the average per student investment of all private schools. An additional annual national investment of \$3.8 billion will deliver for public school students across Australia the same per student investment in their schools as enjoyed by students in private schools. This will deliver a minimum equity funding position for public schools so that students within public care are not disadvantaged relative to private school institutions.

Recommendation 2.

Cease capital support for private schools. State and territory governments cease to make any contributions to capital investment within the private school sector. Divert to the public sector any existing capital grants, interest subsidy programs and any other forms of capital investment assistance currently provided to the private school sector. This will be the first instalment to help deliver Recommendation 1 (above).

Recommendation 3.

School communities (teachers, students, parents and community members using schools) coordinate to identify critical gaps such as examples of schools with large number of demountables, schools in hot areas with no air con etc. and other glaring capacity of maintenance needs. These infrastructure gaps within each state/territory jurisdiction would highlight the extent of the longstanding problem with deficient capital investment in school facilities.

Recommendation 4.

Modern monitoring and reporting systems engaged all in schools. State and territory departments of education should put in place digital solutions that can be accessed via mobile apps. These can quickly engage the school users and draw quick attention to problems. The effective management and monitoring of public school capital investments can only reliably happen with the engagement of its primary users – students, teachers, parents and the other community users.

Recommendation 5.

Establish School Facilities Board at regional and state levels. The decades long neglect of Australian public schools has been facilitated by the effective absence of accountability towards the community members that need and use these facilities. Bureaucratic systems prevent this neglect from being communicated and thereby block demands for effective and efficient investment in schools. The democratic participation of teachers, parents and students in the oversight of school facilities can give voice to reasonable demands for justice and equity across all school systems.

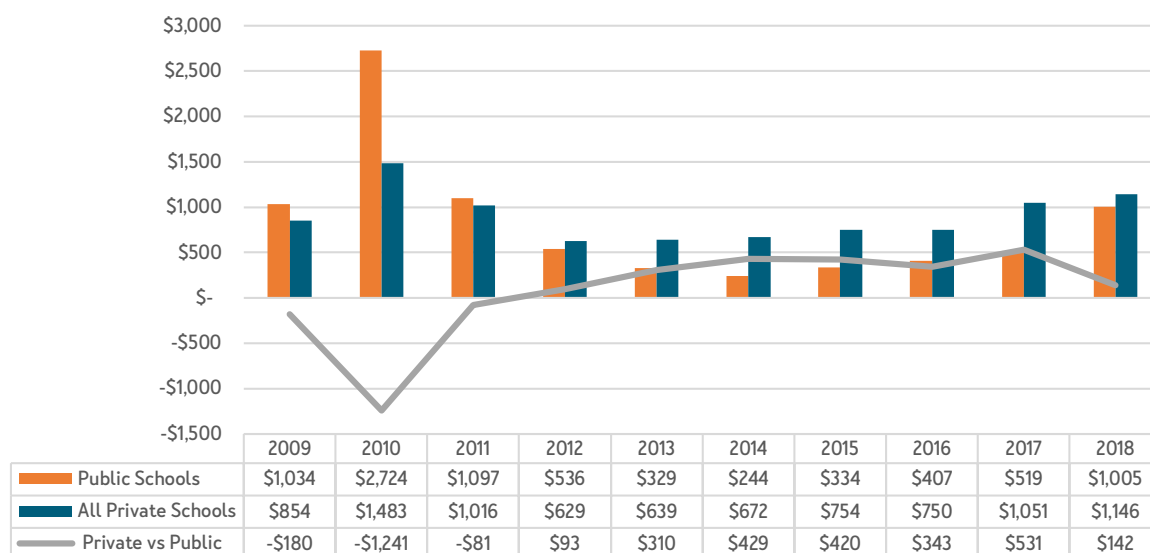
Attachment A State and territory profiles

NSW

Annual Capital Investment

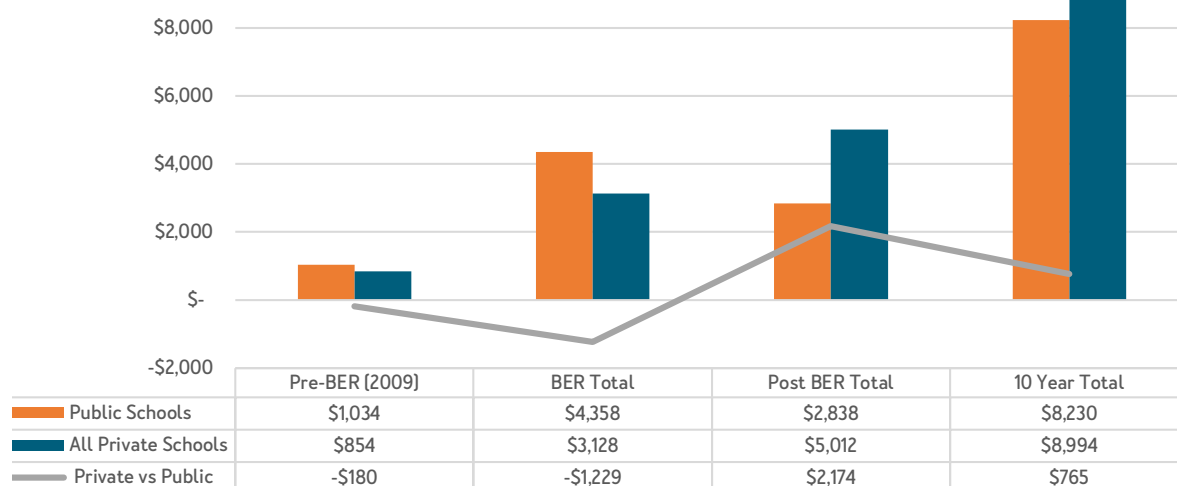
NSW Annual Capital Investment in Schools

\$ MILLIONS



NSW Annual Capital Investment in Schools \$ millions

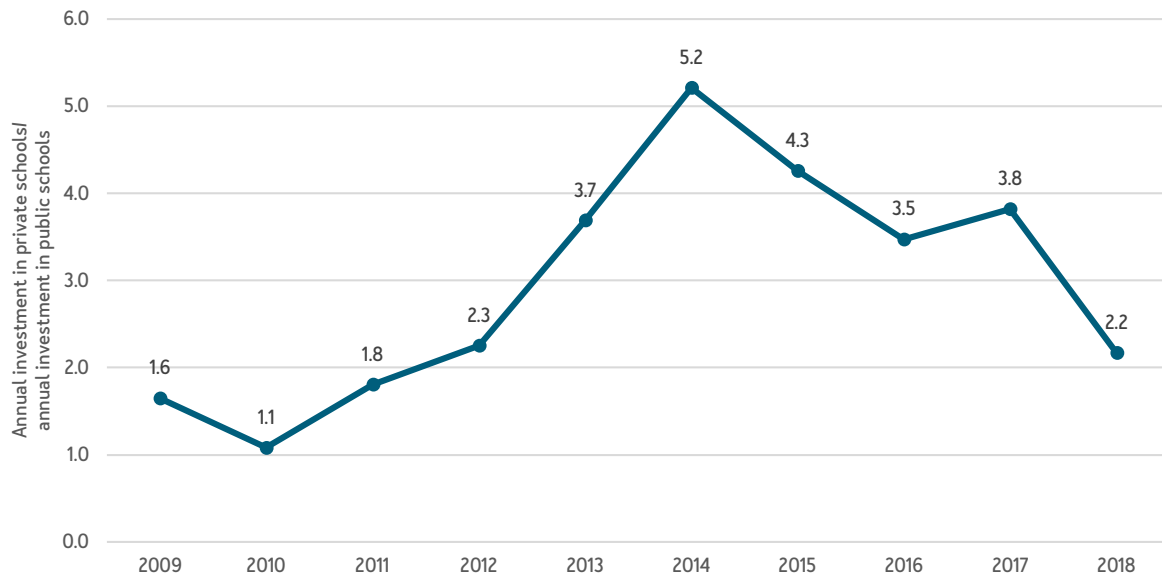
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

NSW Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



NSW Annual Capital Investment in Schools

\$ PER STUDENT



Capital Investment Gap

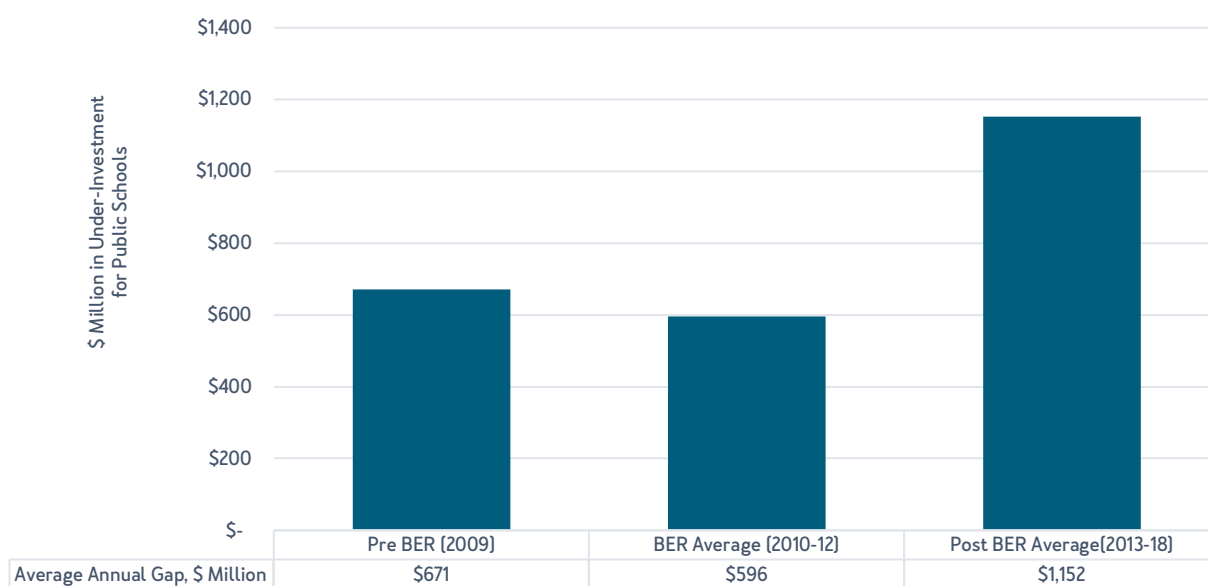
NSW Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



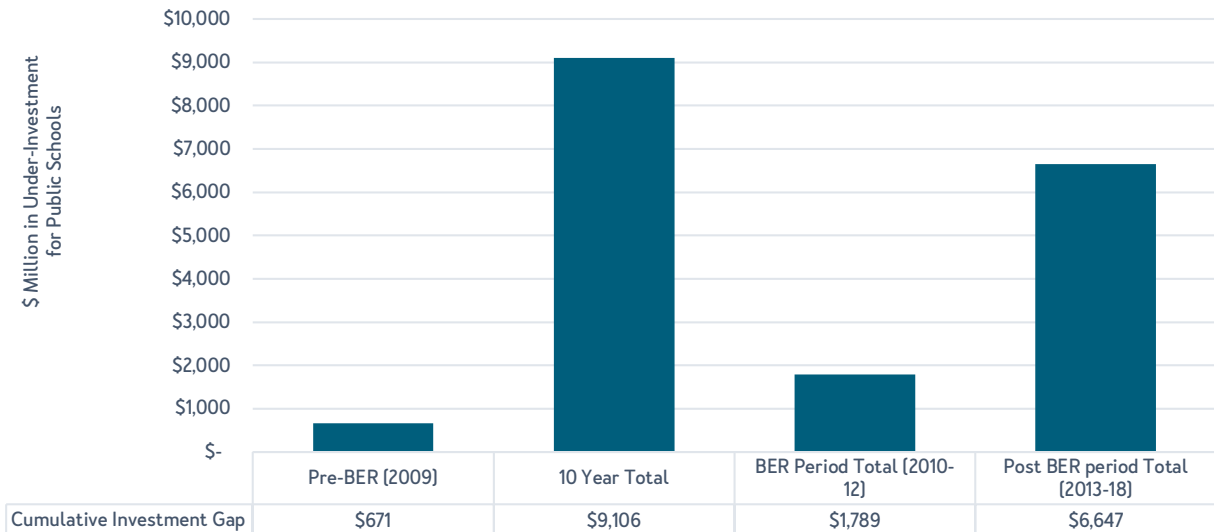
NSW Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



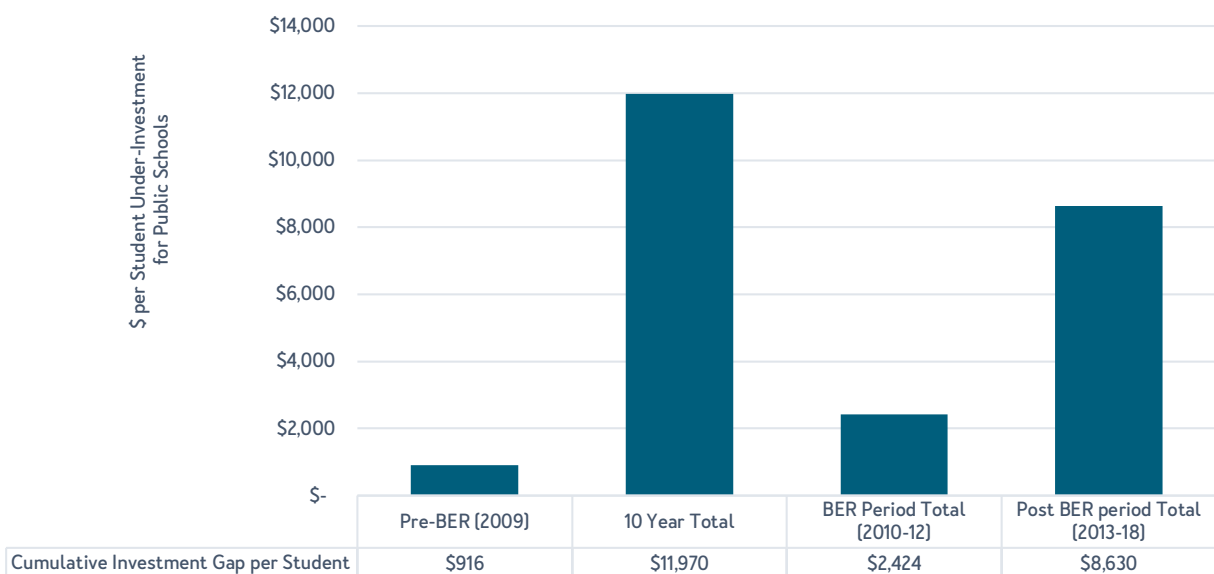
NSW Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



NSW Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS

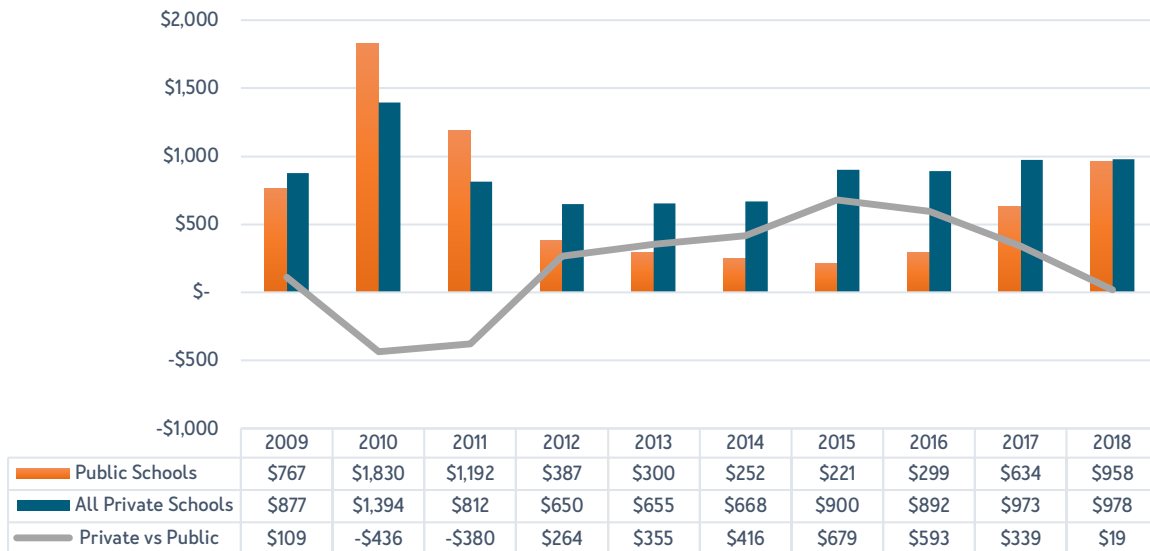


Victoria

Annual Capital Investment

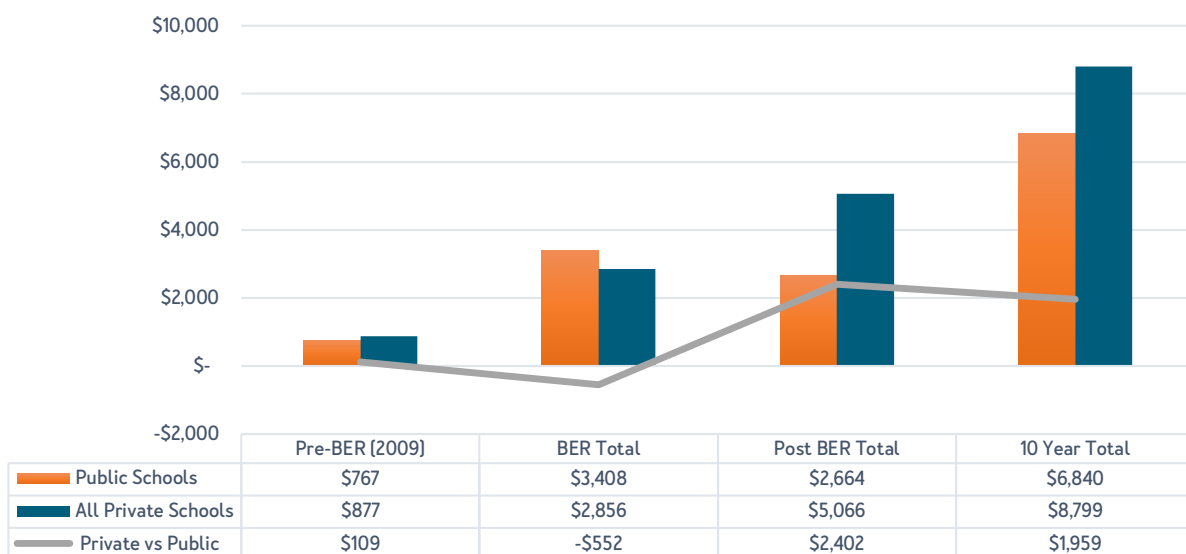
VIC Annual Capital Investment in Schools

\$ MILLIONS



VIC Annual Capital Investment in Schools \$ millions

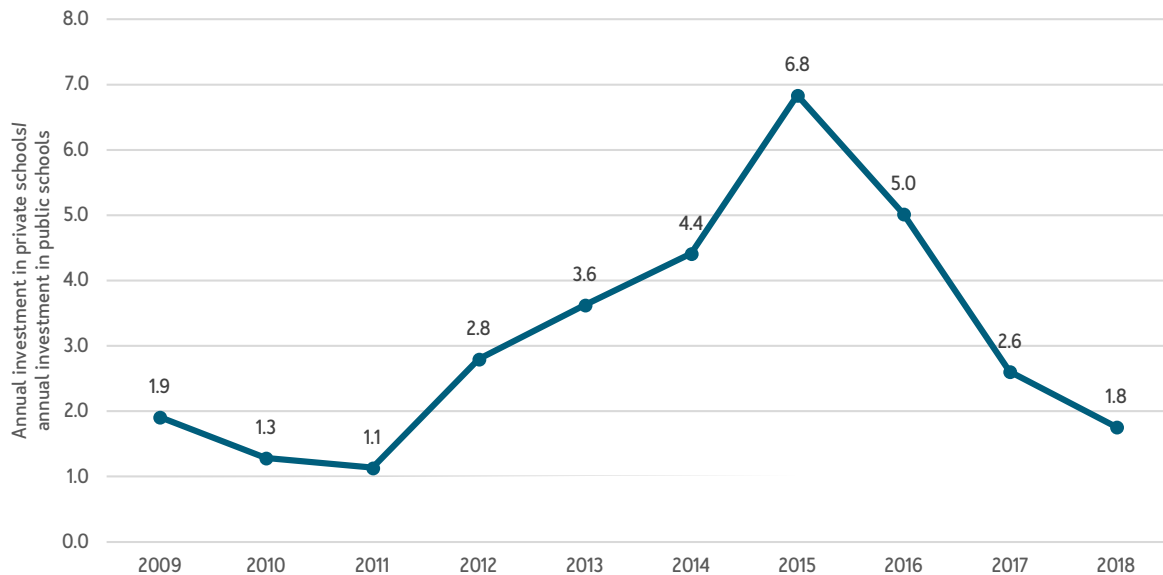
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

VIC Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



VIC Annual Capital Investment in Schools

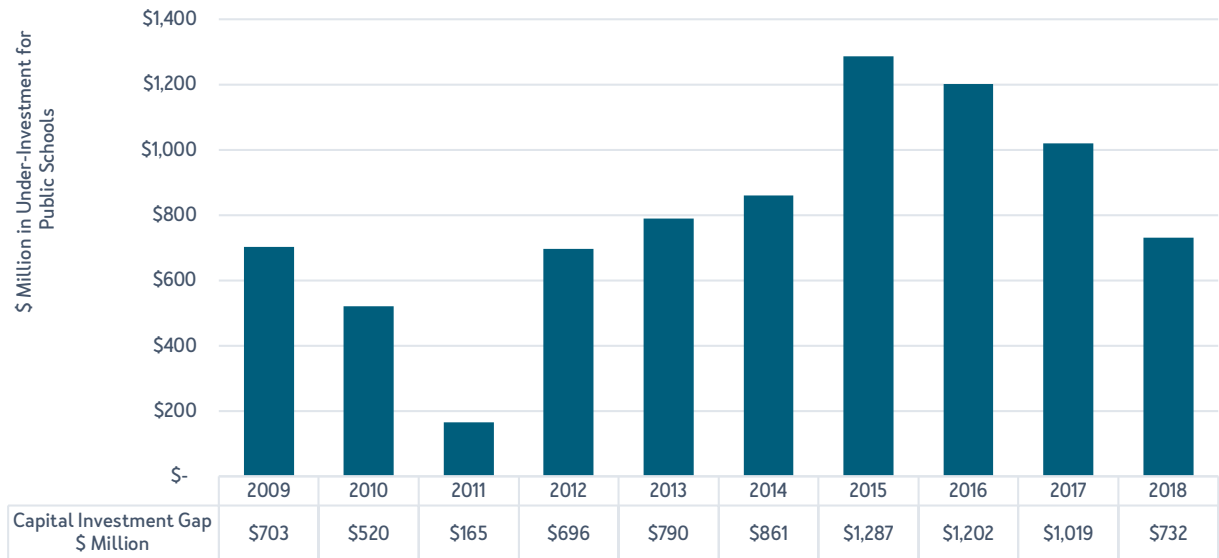
\$ PER STUDENT



Capital Investment Gap

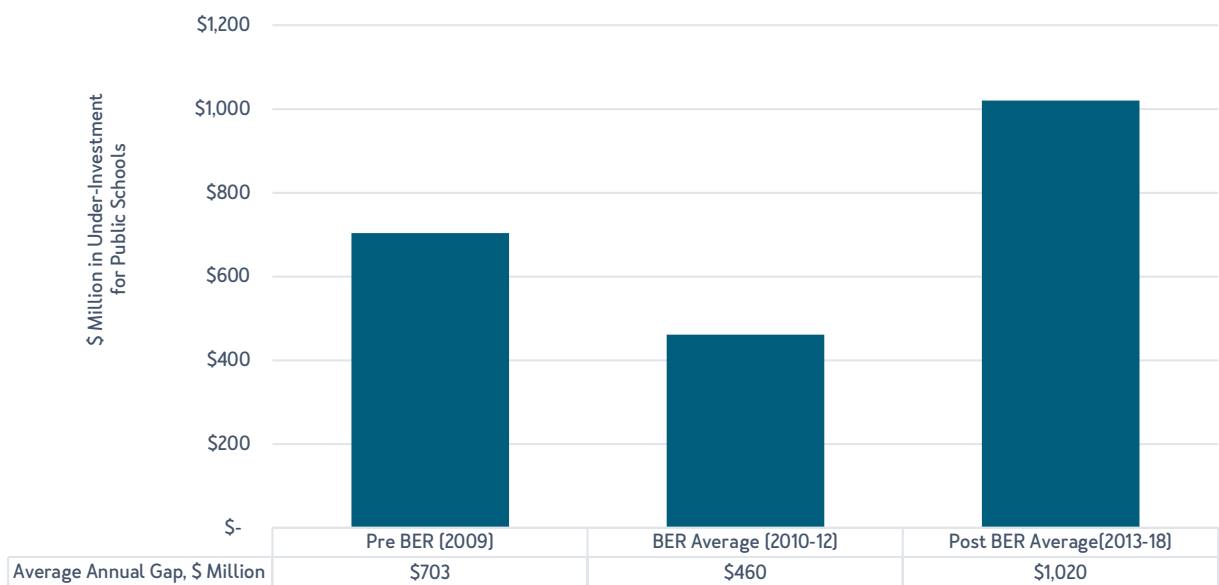
VIC Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



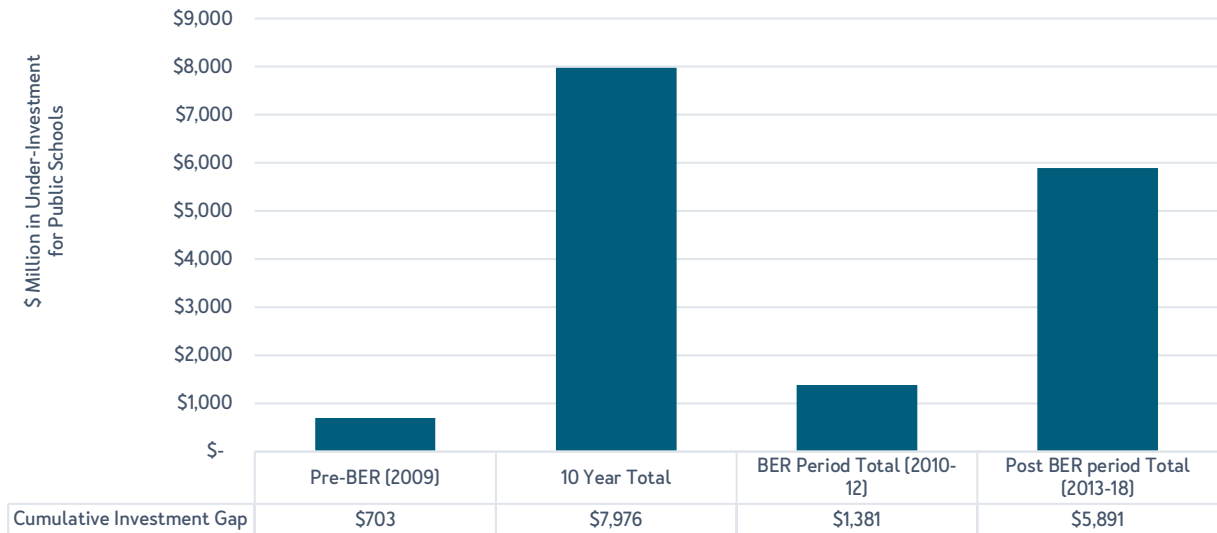
VIC Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



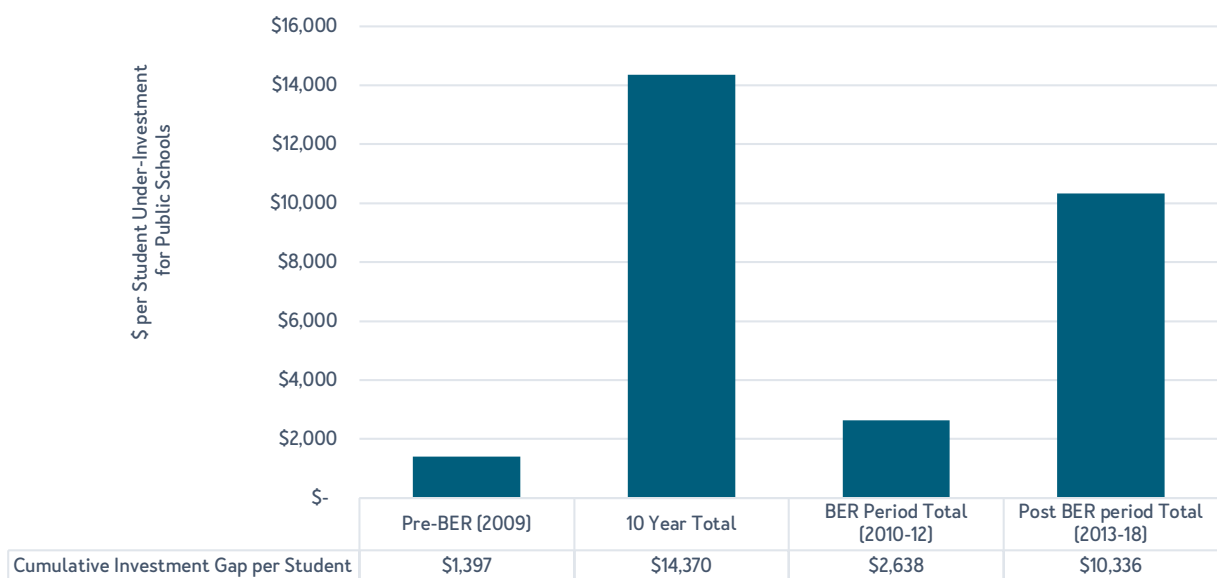
VIC Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



VIC Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS COMPARISONS BY PERIOD

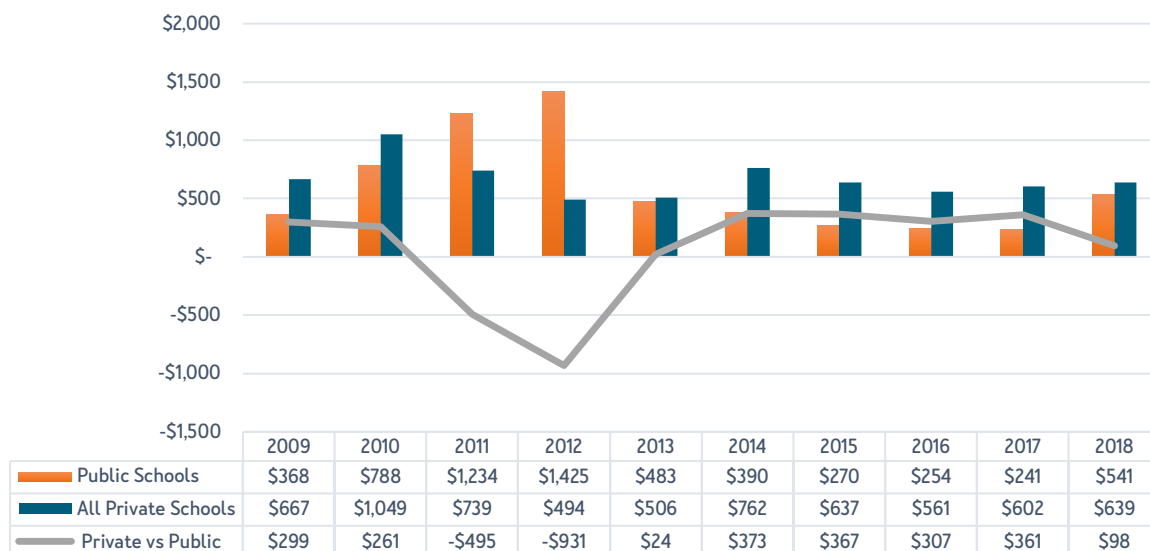


Queensland

Annual Capital Investment

QLD Annual Capital Investment in Schools

\$ MILLIONS



QLD Annual Capital Investment in Schools \$ millions

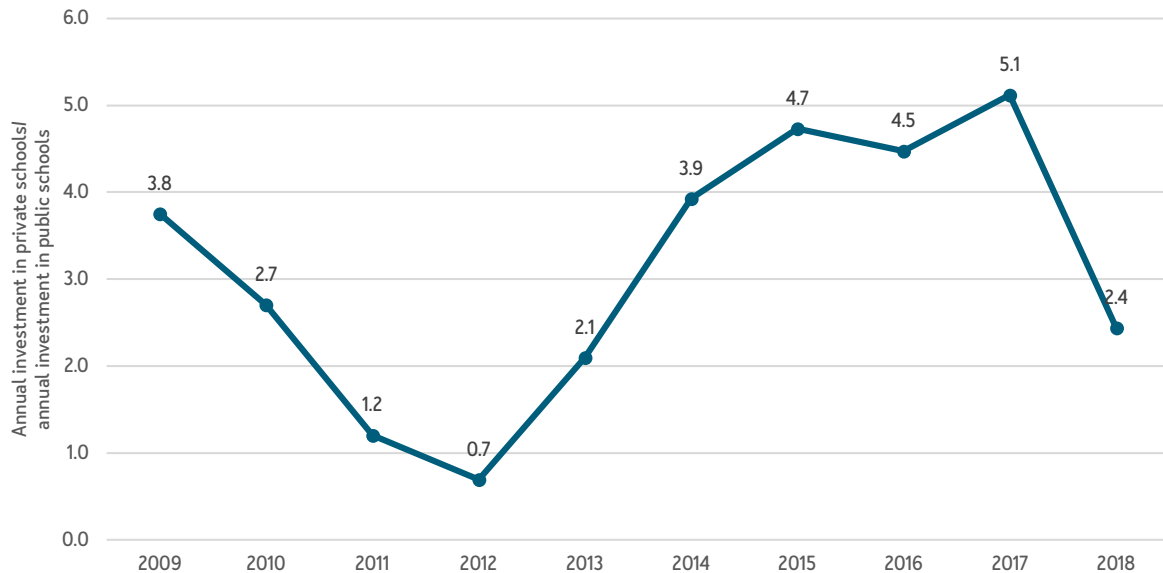
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

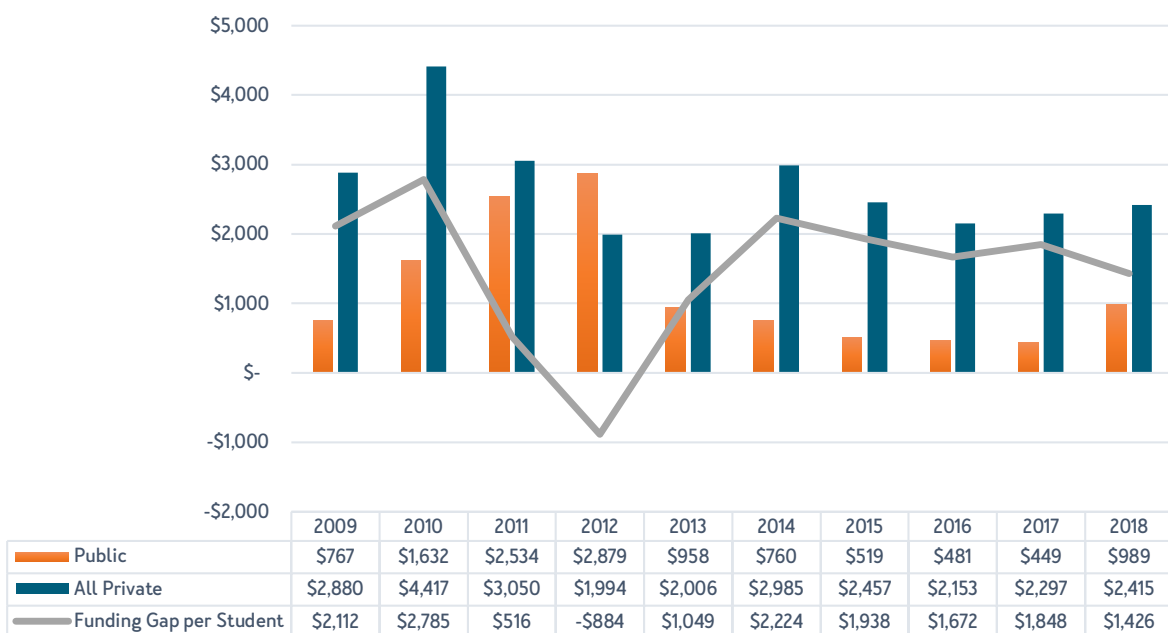
QLD Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



QLD Annual Capital Investment in Schools

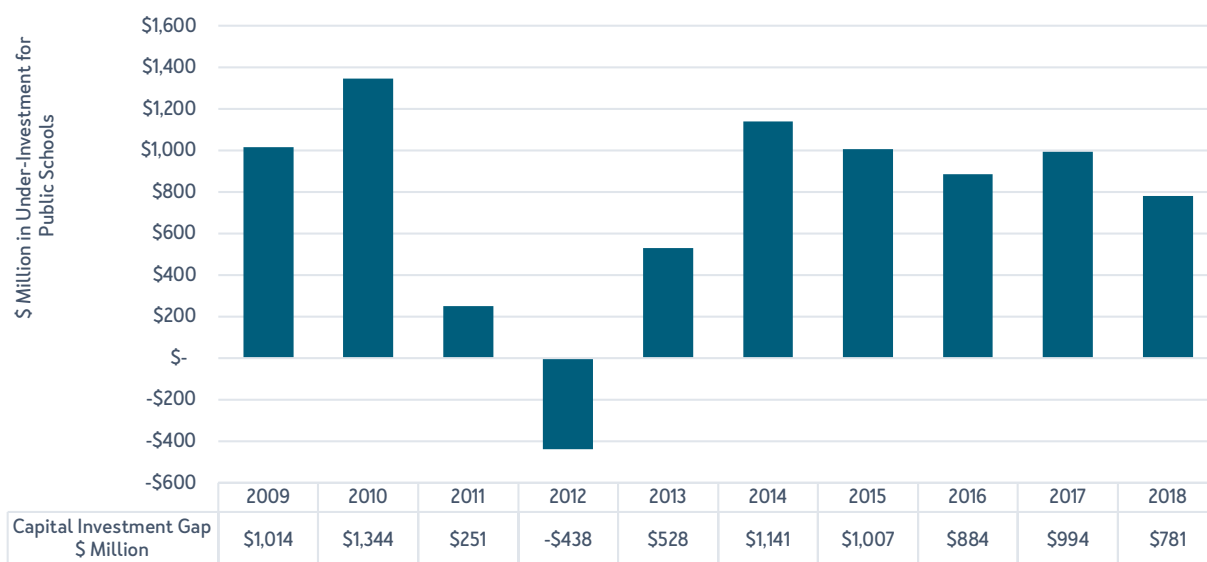
\$ PER STUDENT



Capital Investment Gap

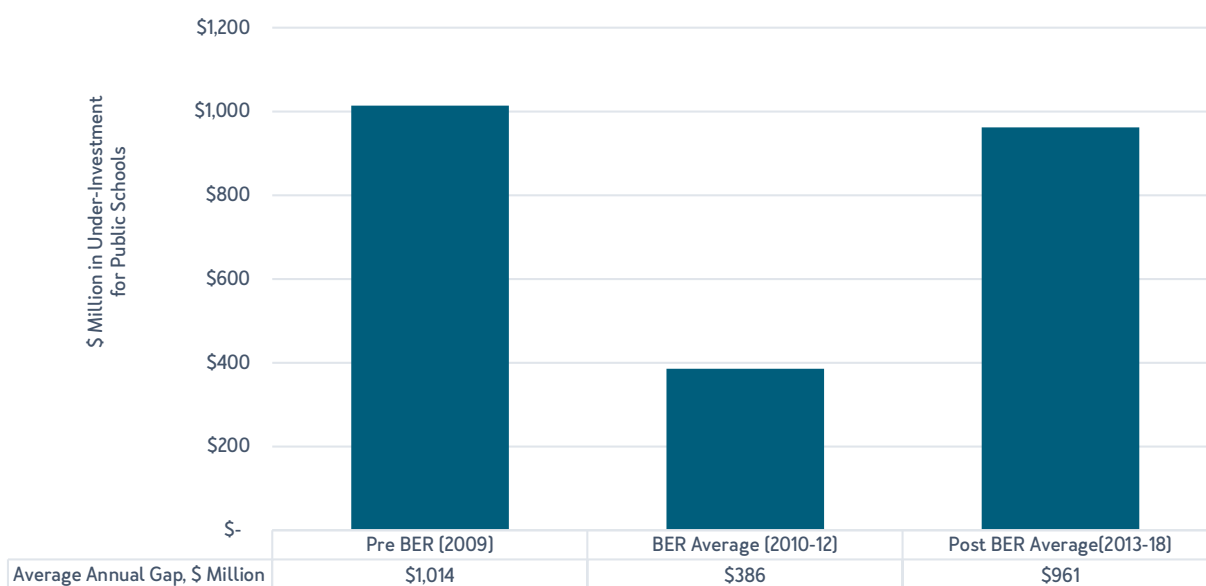
QLD Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



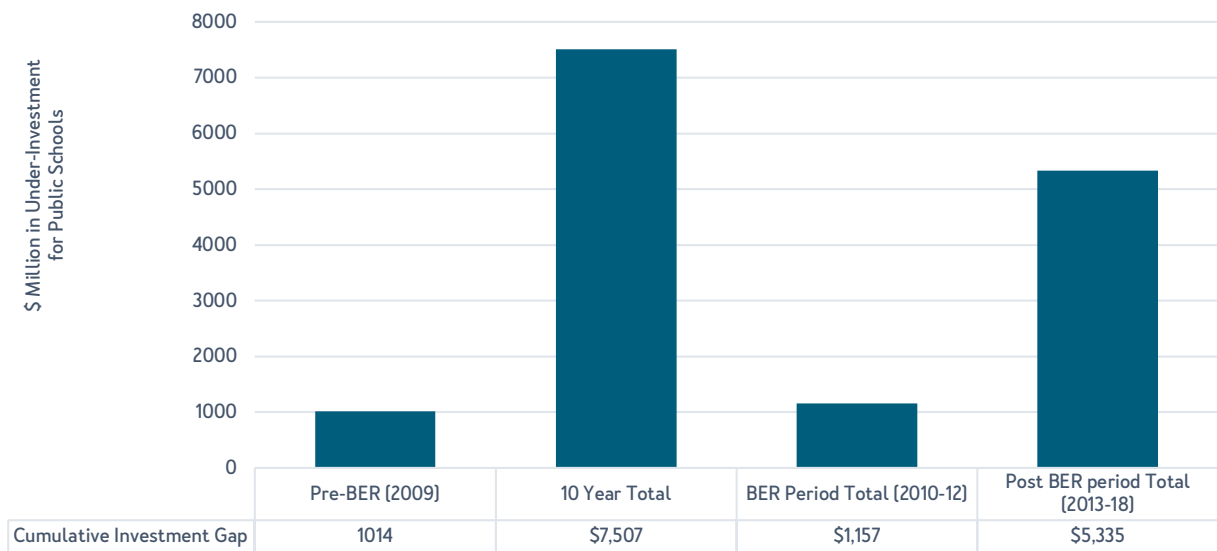
QLD Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



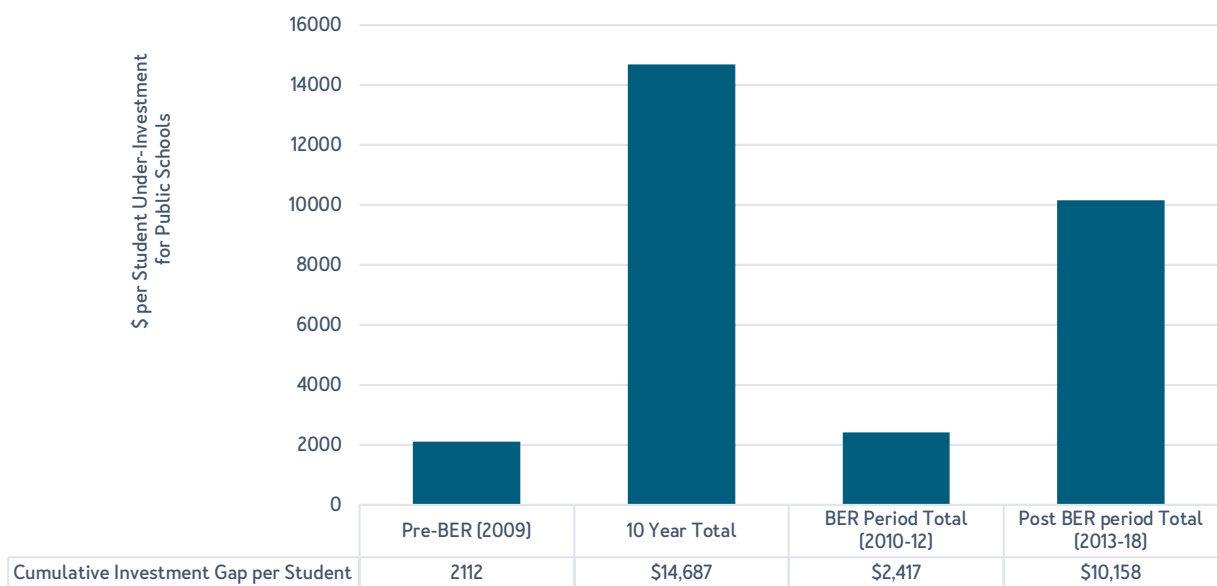
QLD Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



QLD Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS

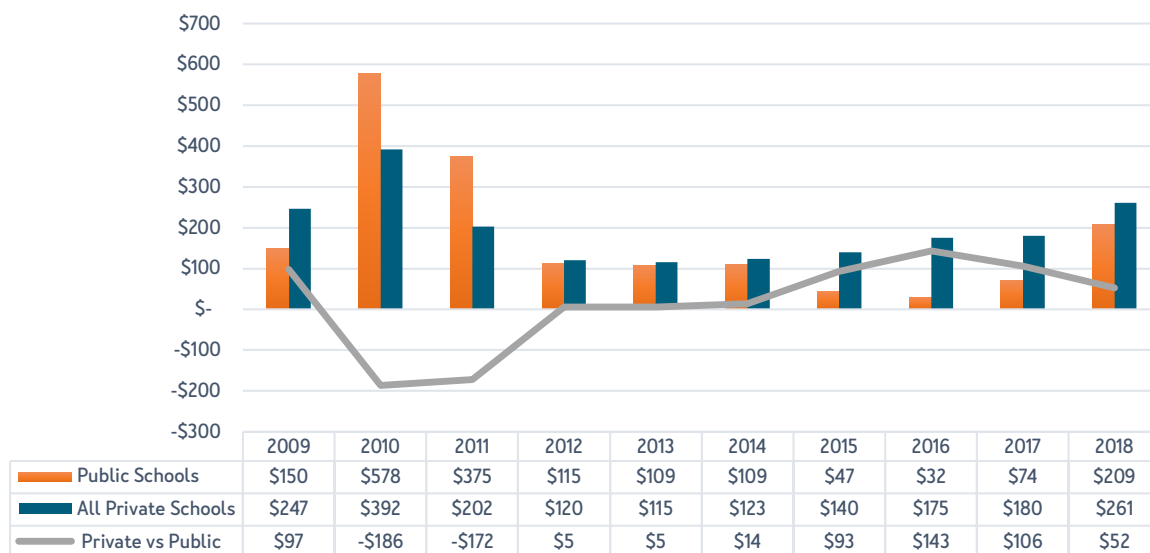


South Australia

Annual Capital Investment

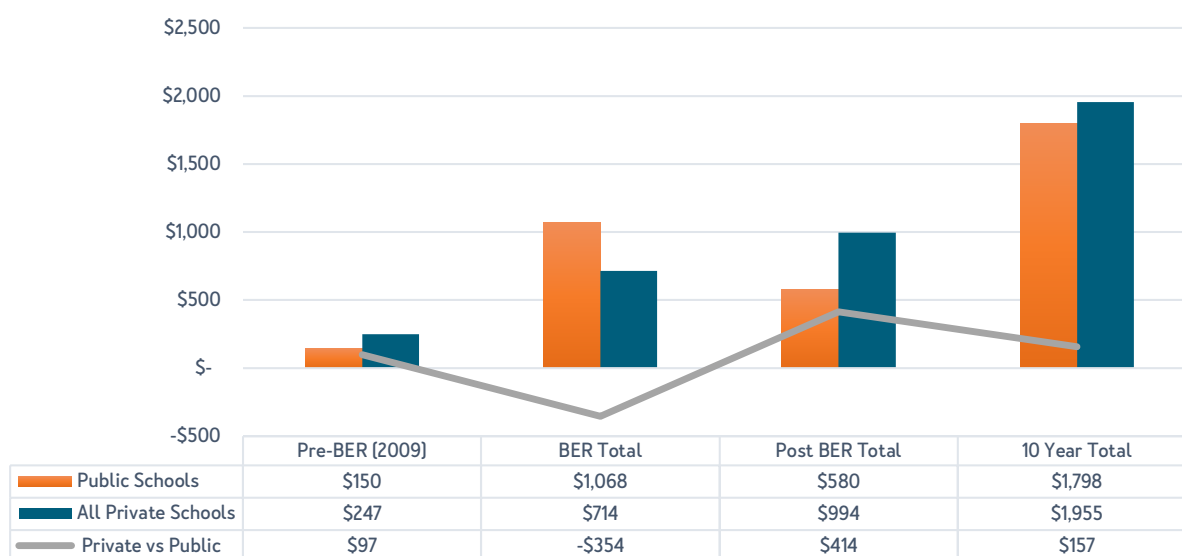
SA Annual Capital Investment in Schools

\$ MILLIONS



SA Annual Capital Investment in Schools \$ millions

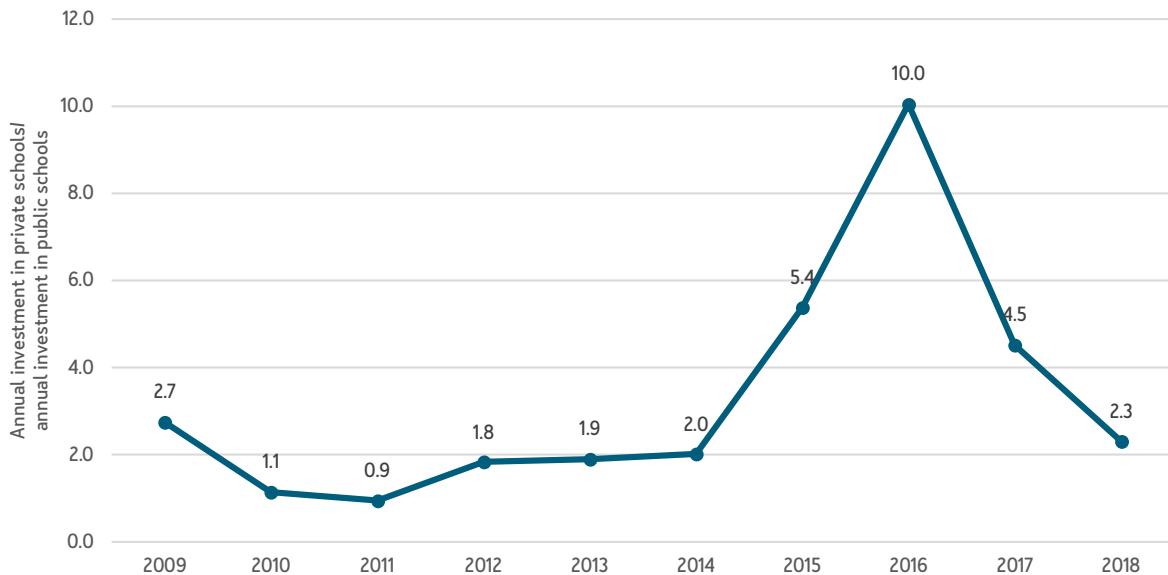
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

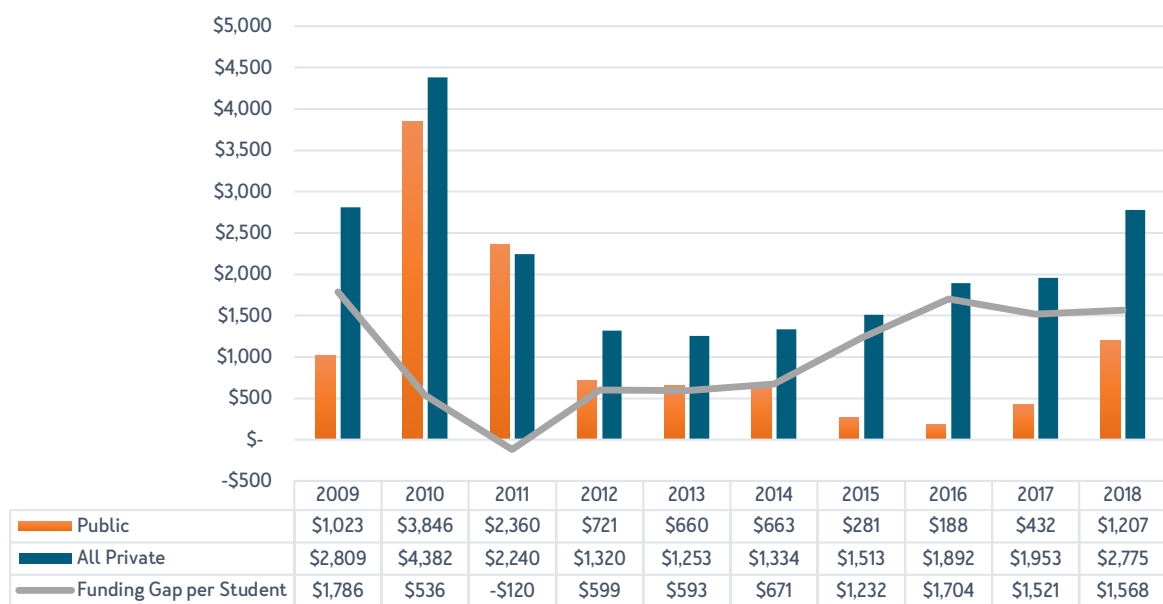
SA Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



SA Annual Capital Investment in Schools

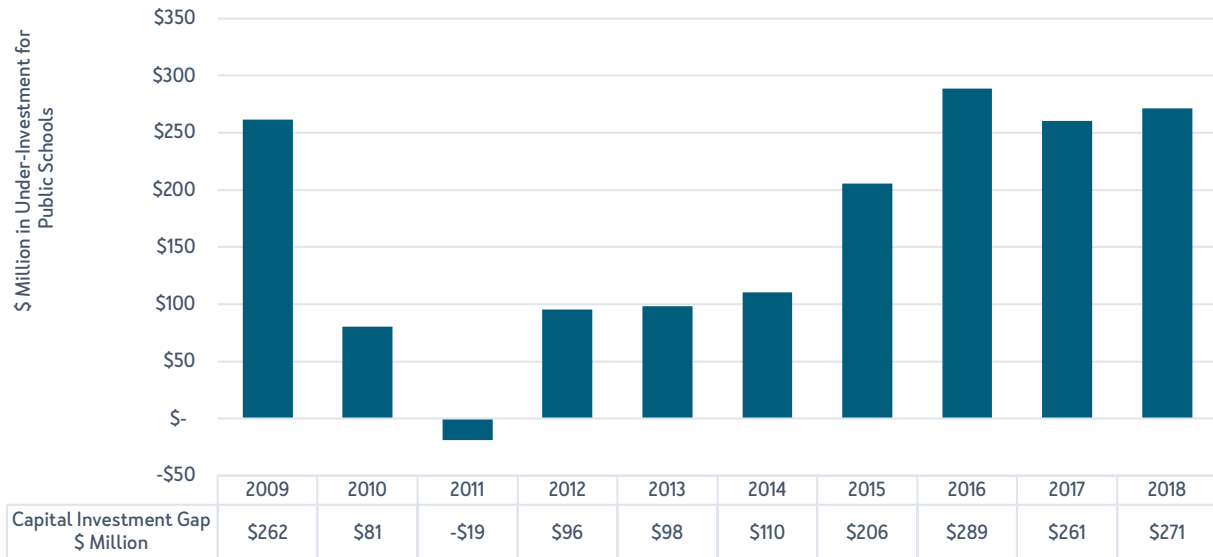
\$ PER STUDENT



Capital Investment Gap

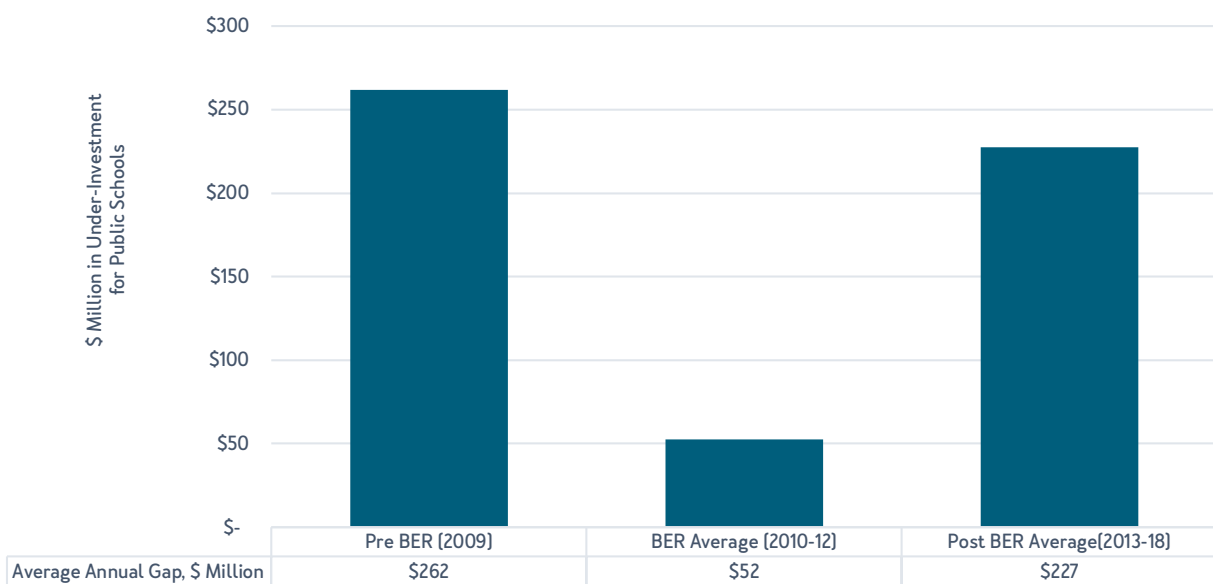
SA Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



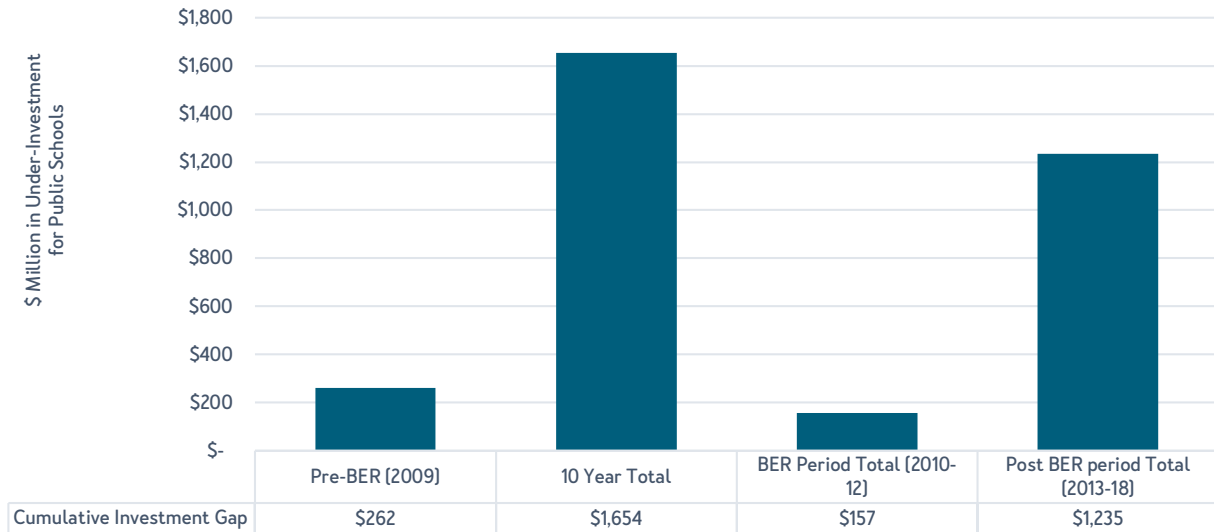
SA Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



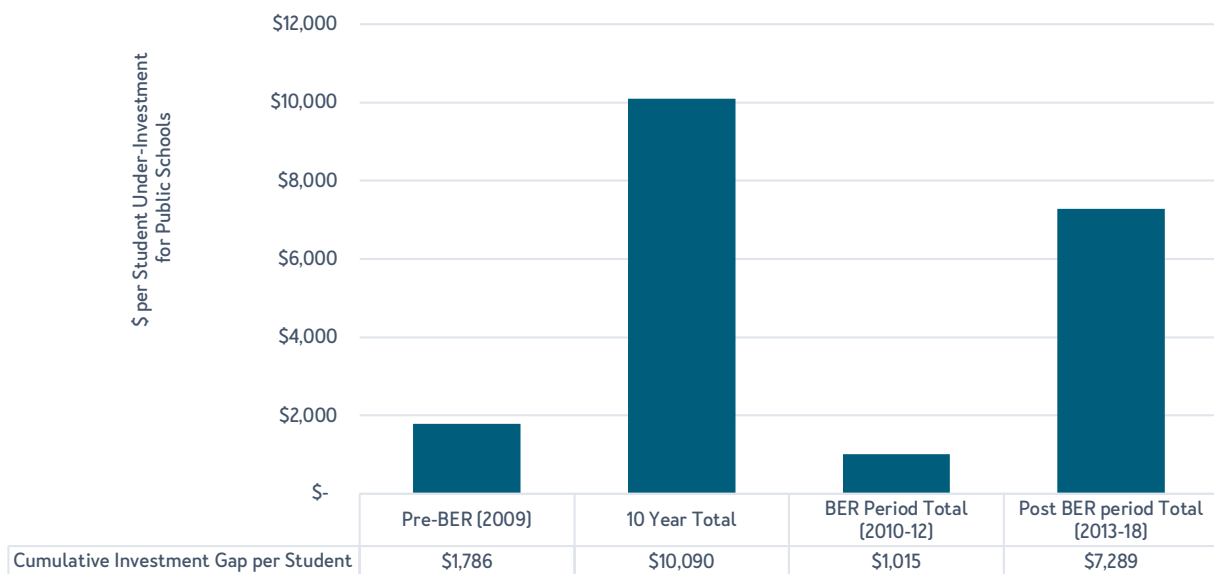
SA Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



SA Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS

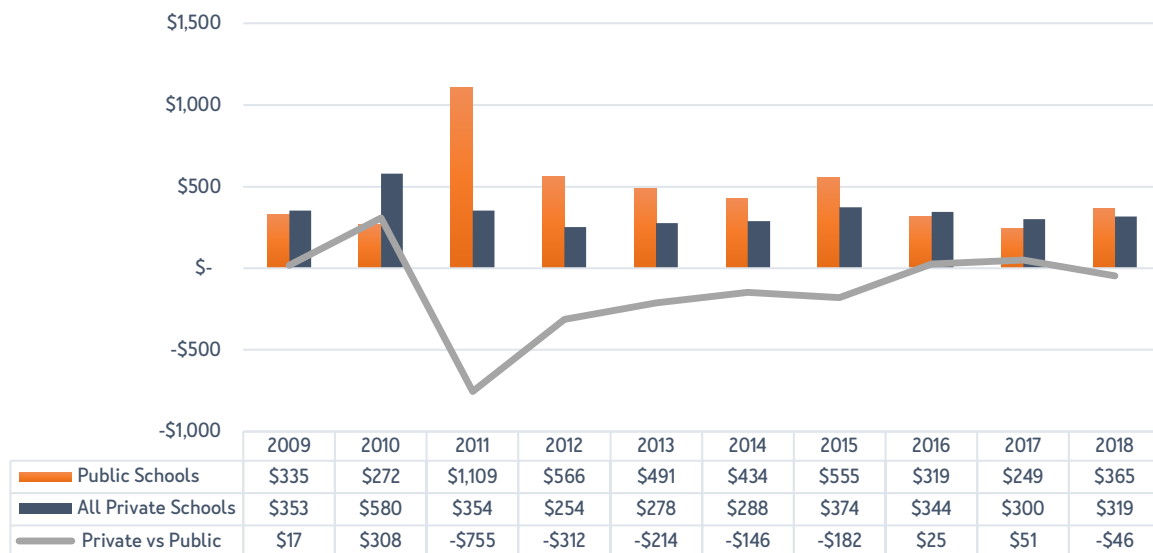


Western Australia

Annual Capital Investment

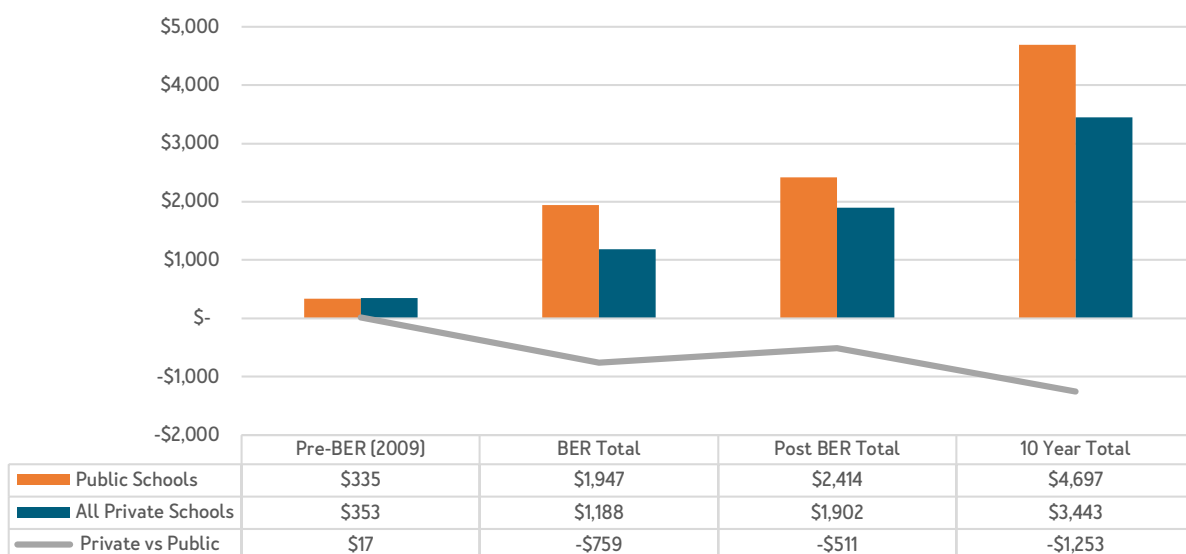
WA Annual Capital Investment in Schools

\$ MILLIONS



WA Annual Capital Investment in Schools \$ millions

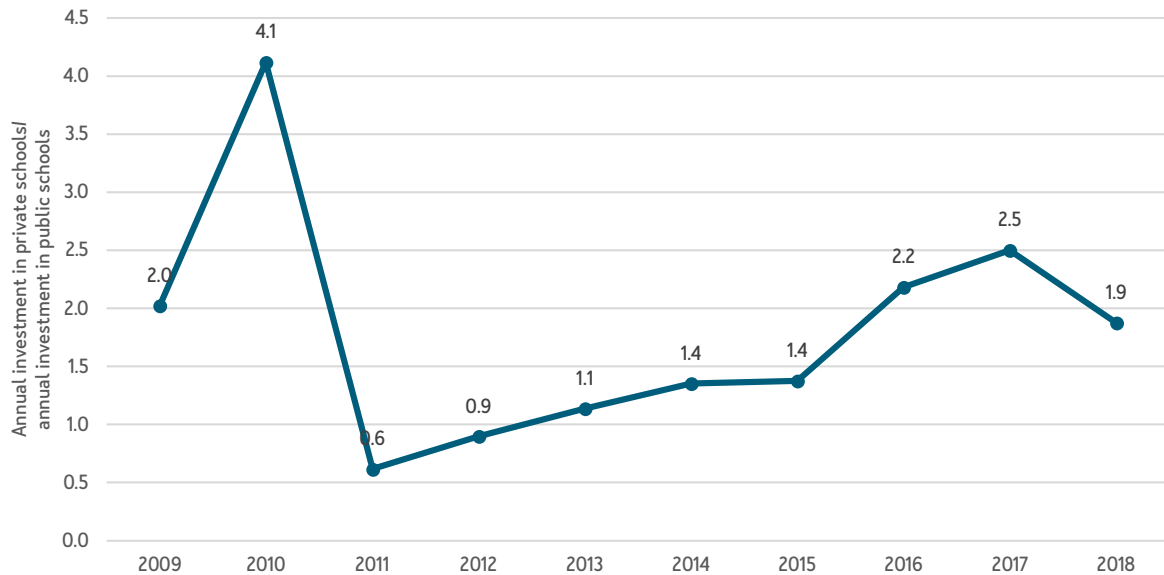
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

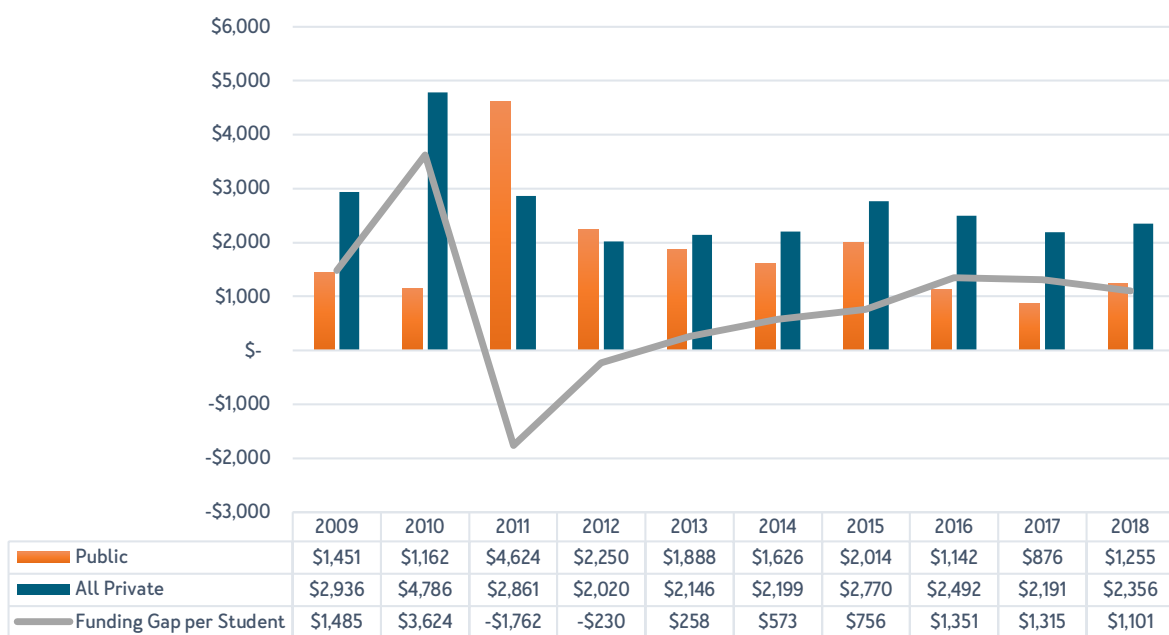
WA Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



WA Annual Capital Investment in Schools

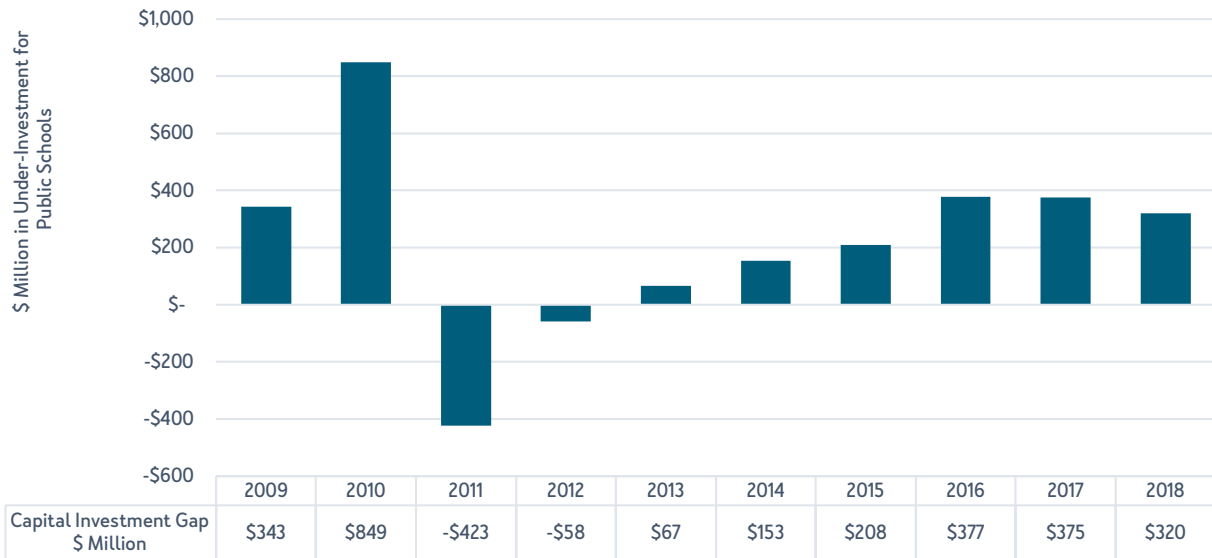
\$ PER STUDENT



Capital Investment Gap

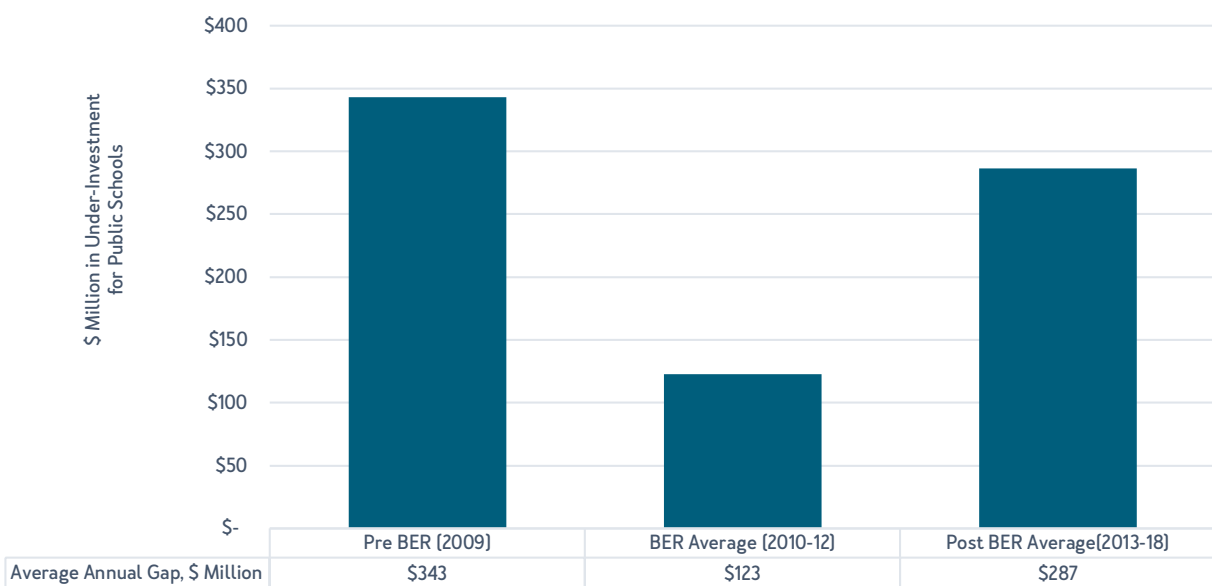
WA Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



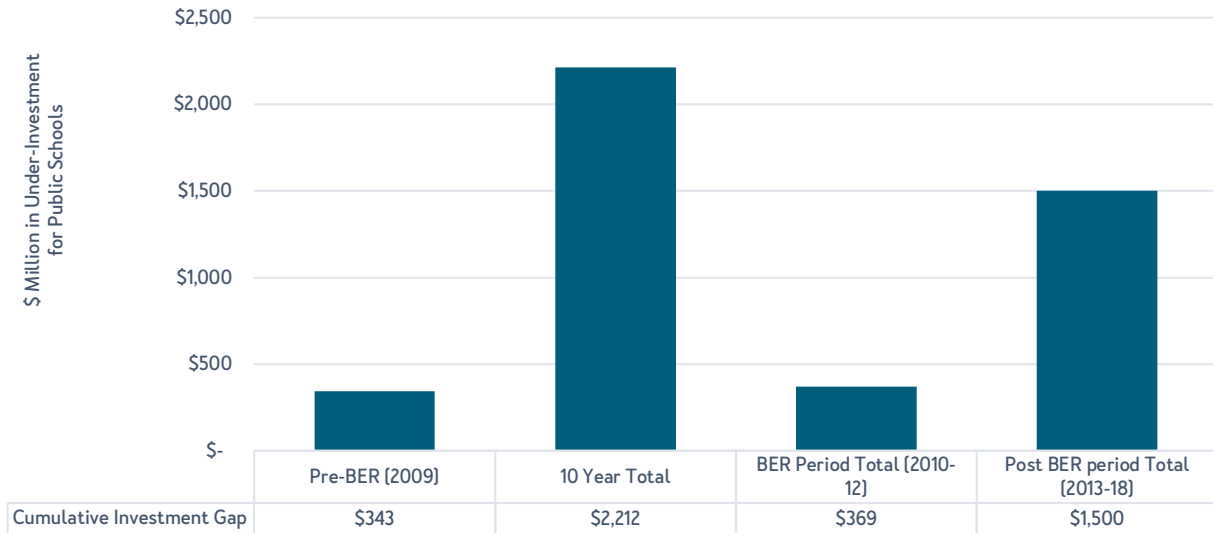
WA Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



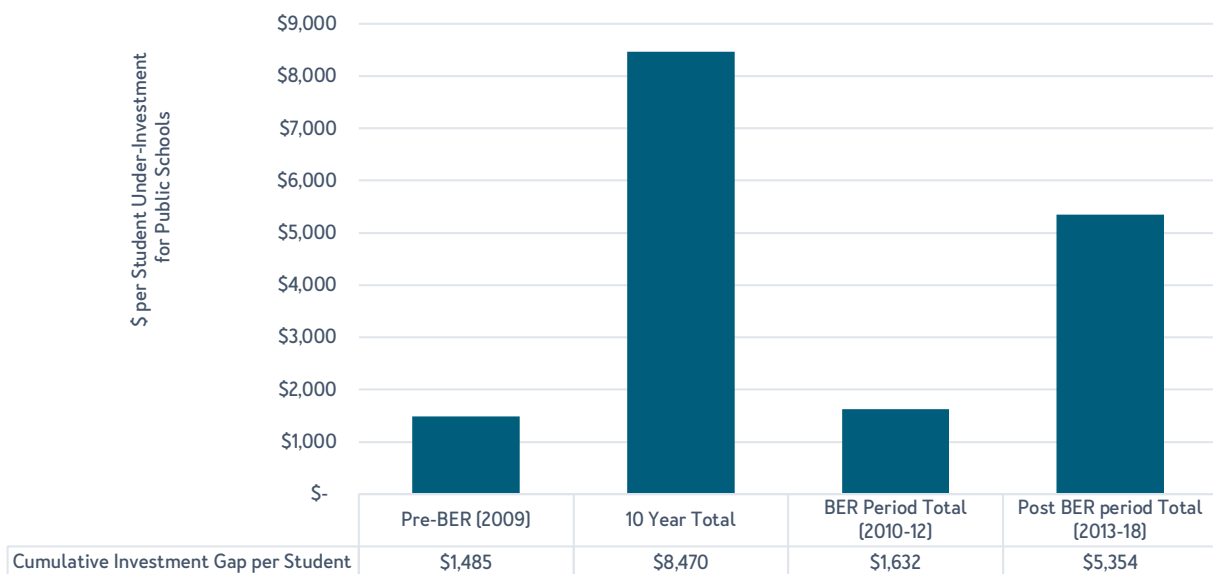
WA Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



WA Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS

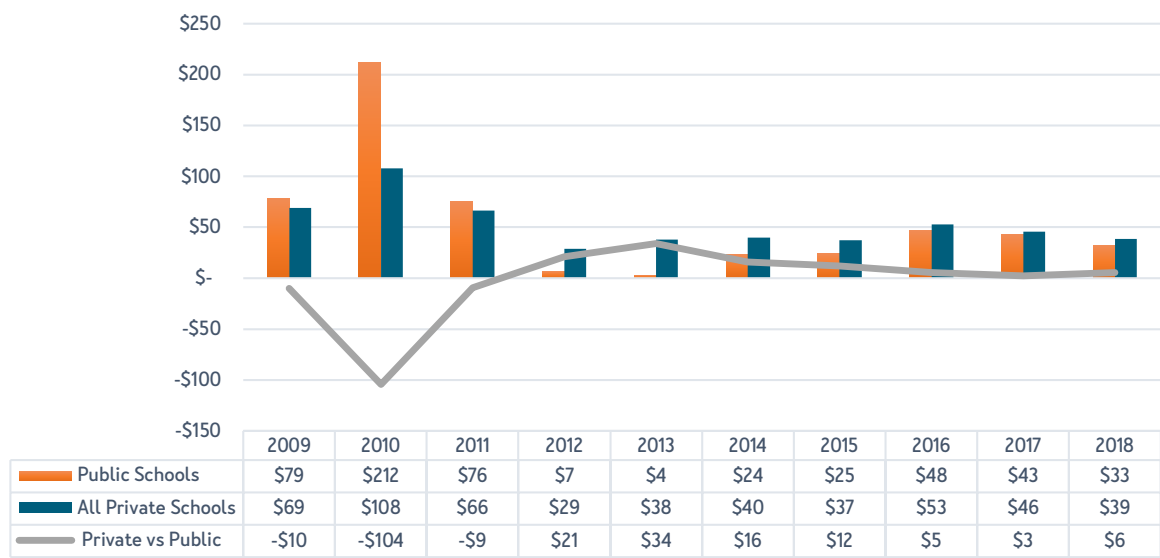


Tasmania

Annual Capital Investment

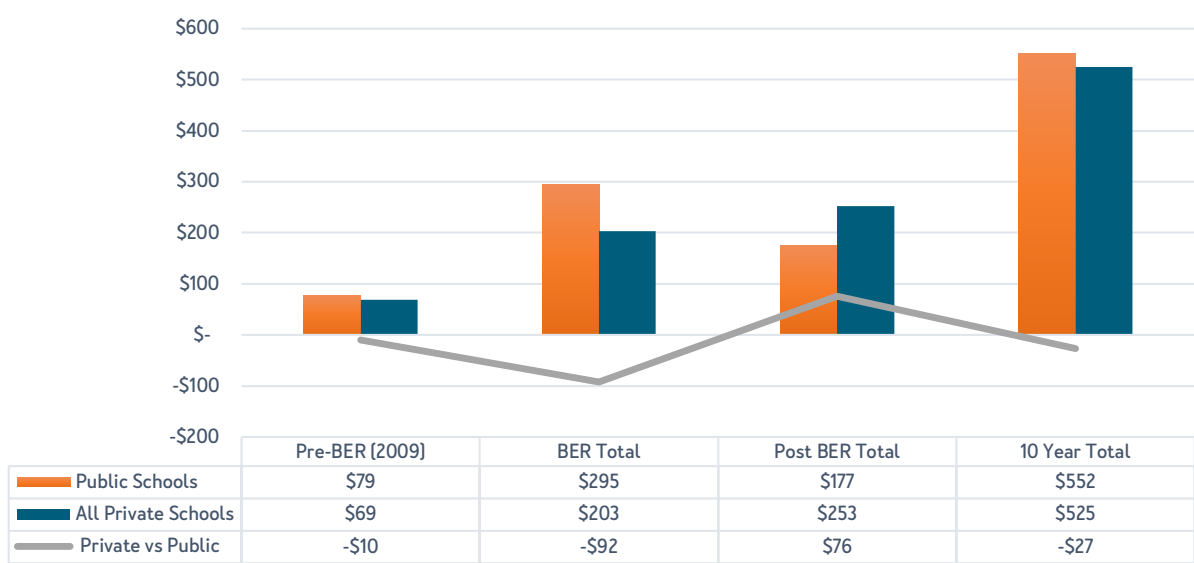
TAS Annual Capital Investment in Schools

\$ MILLIONS



TAS Annual Capital Investment in Schools \$ millions

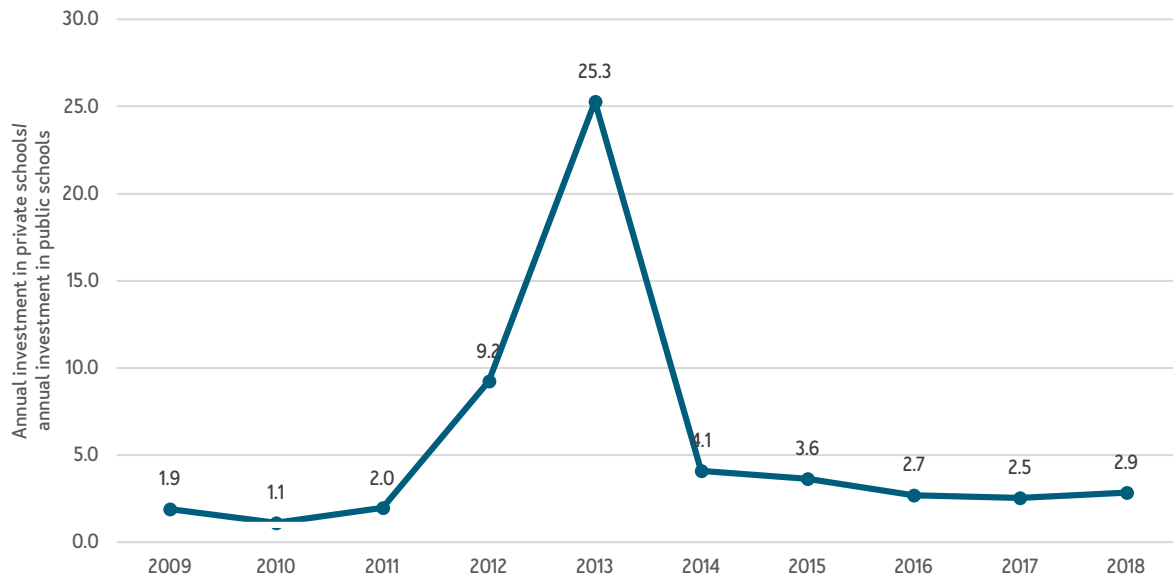
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

TAS Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



TAS Annual Capital Investment in Schools

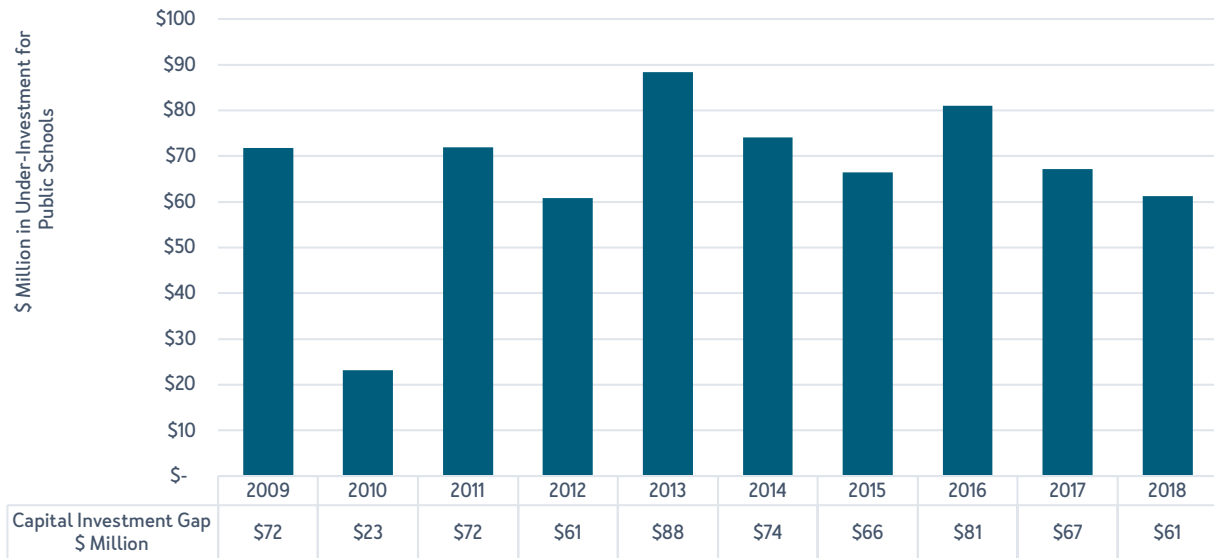
\$ PER STUDENT



Capital Investment Gap

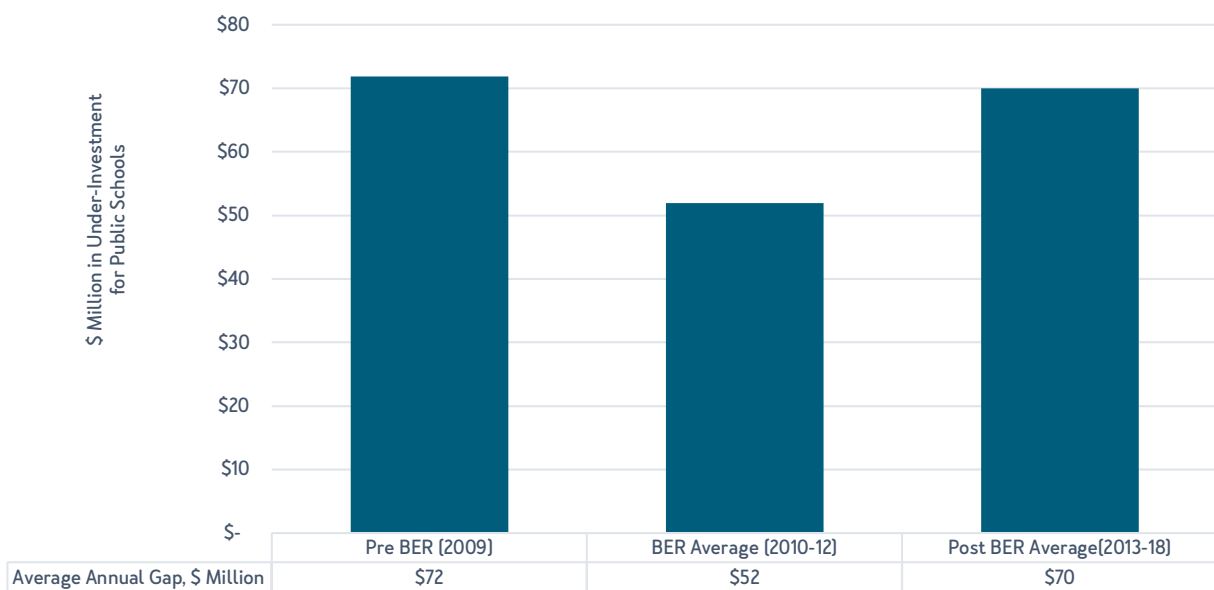
TAS Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



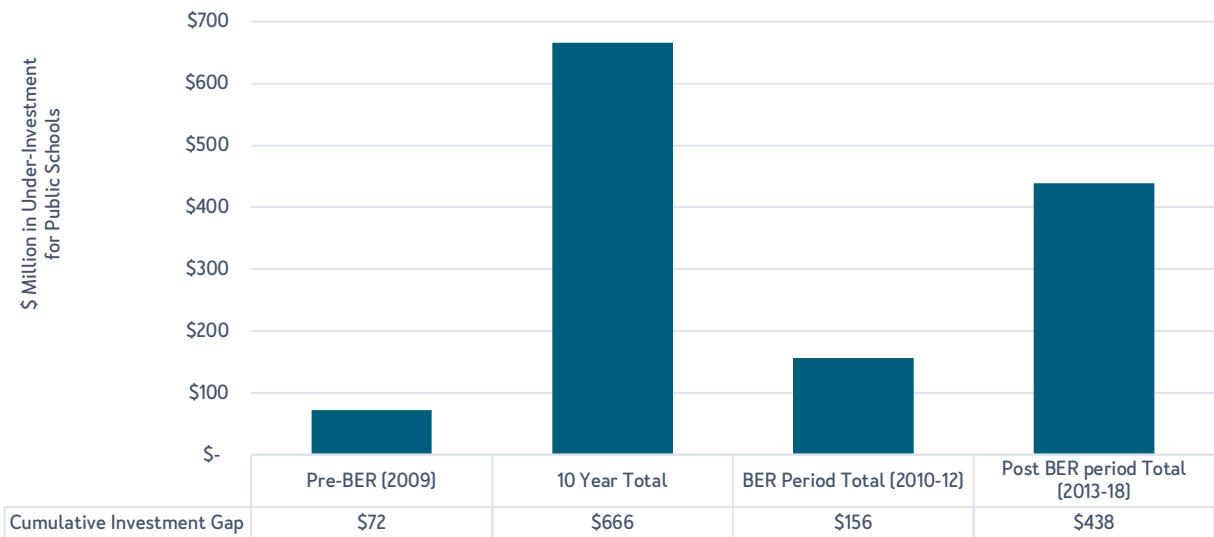
TAS Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



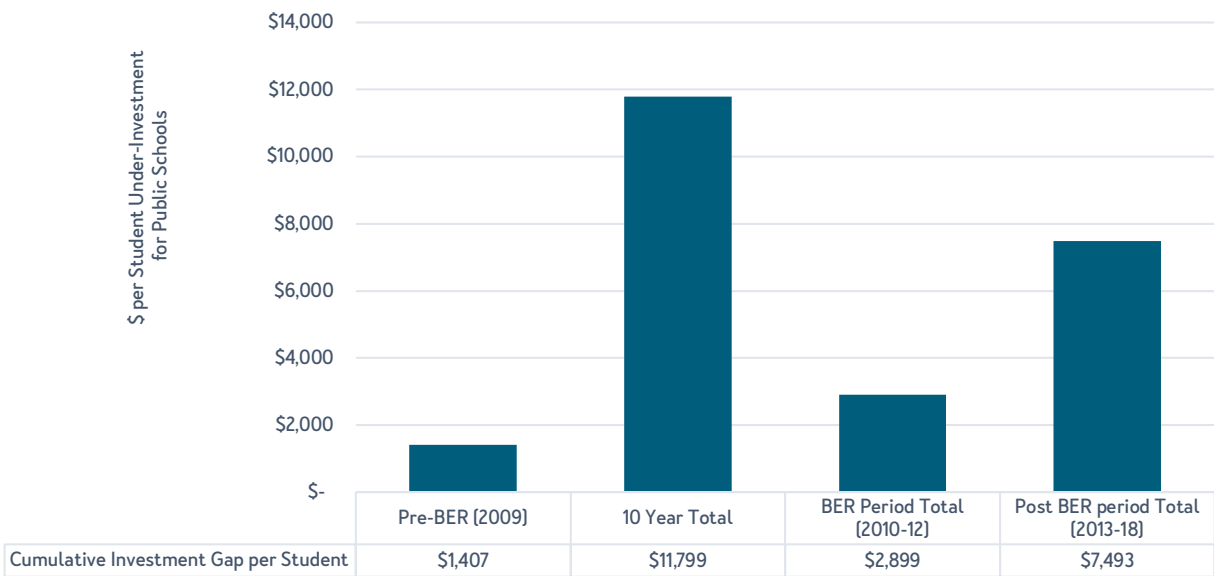
TAS Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



TAS Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS

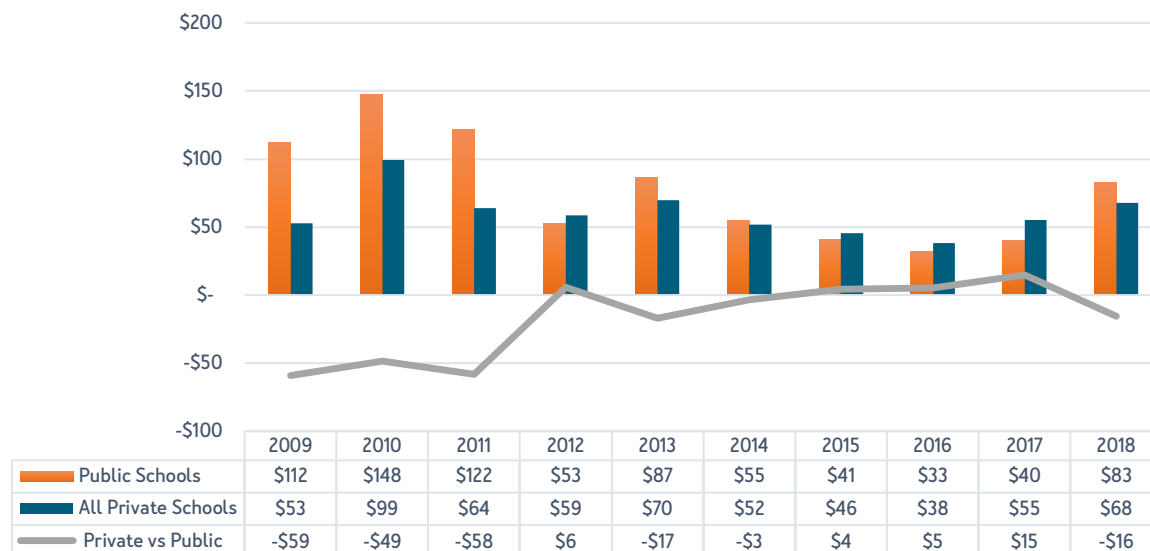


Australian Capital Territory

Annual Capital Investment

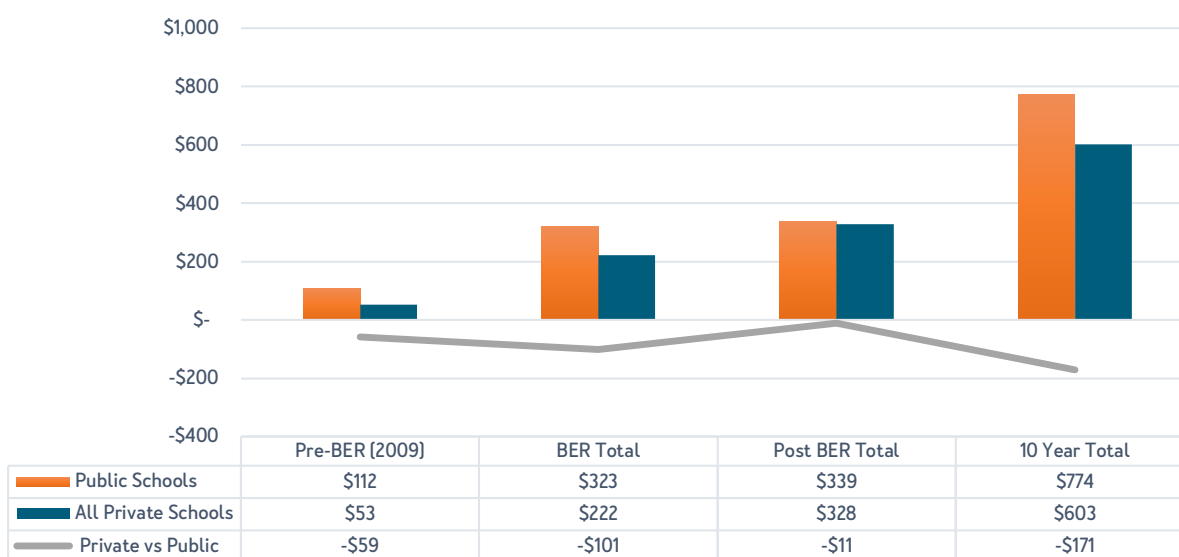
ACT Annual Capital Investment in Schools

\$ MILLIONS



ACT Annual Capital Investment in Schools \$ millions

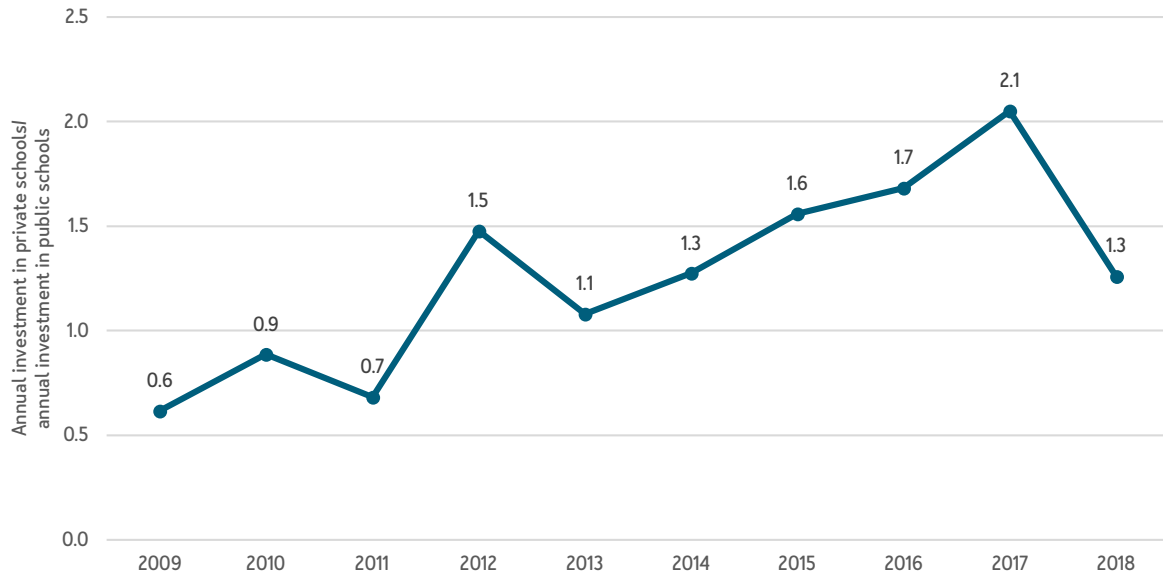
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

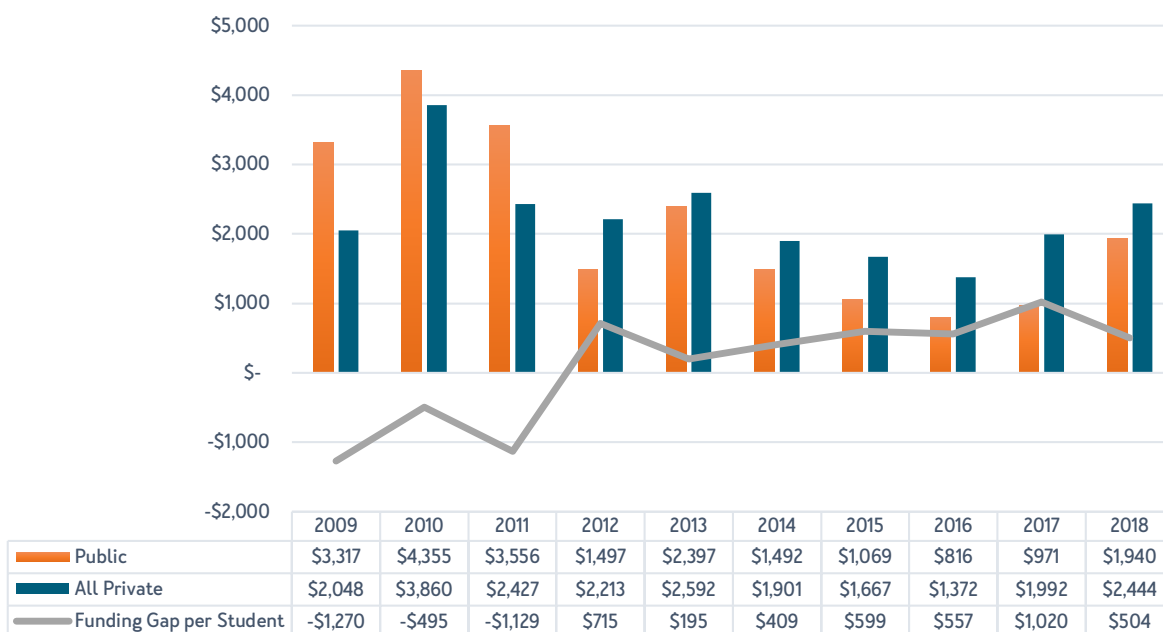
ACT Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



ACT Annual Capital Investment in Schools

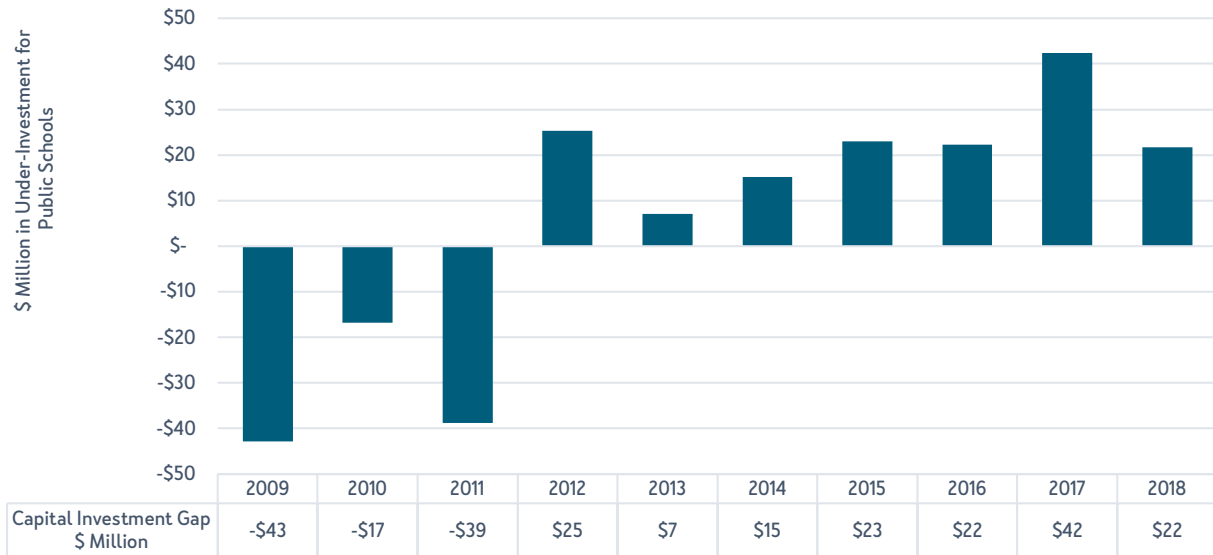
\$ PER STUDENT



Capital Investment Gap

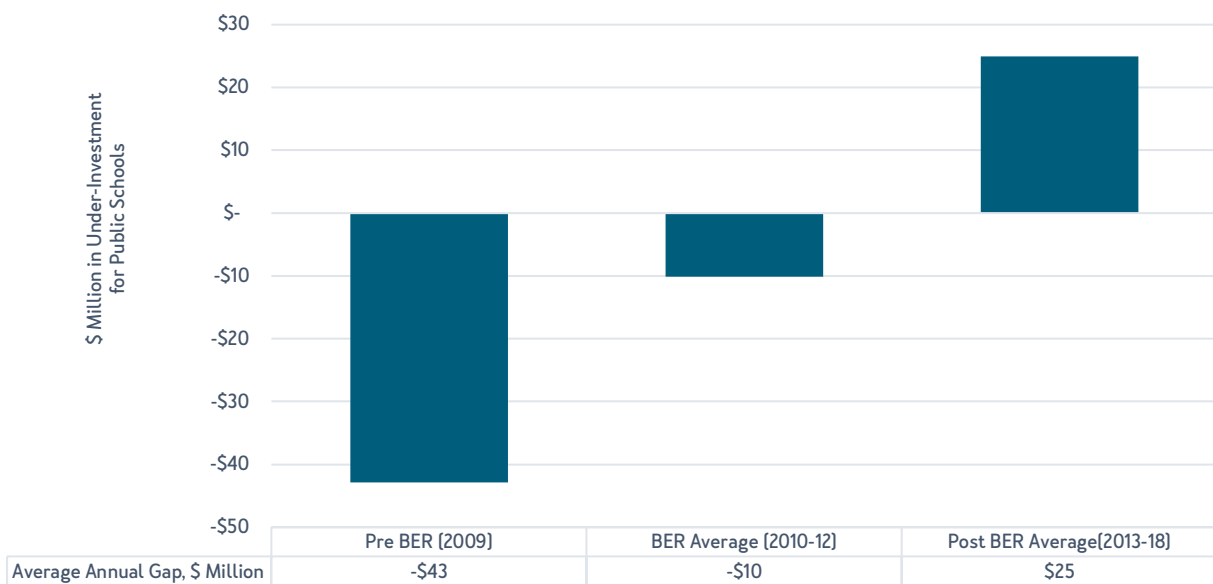
ACT Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



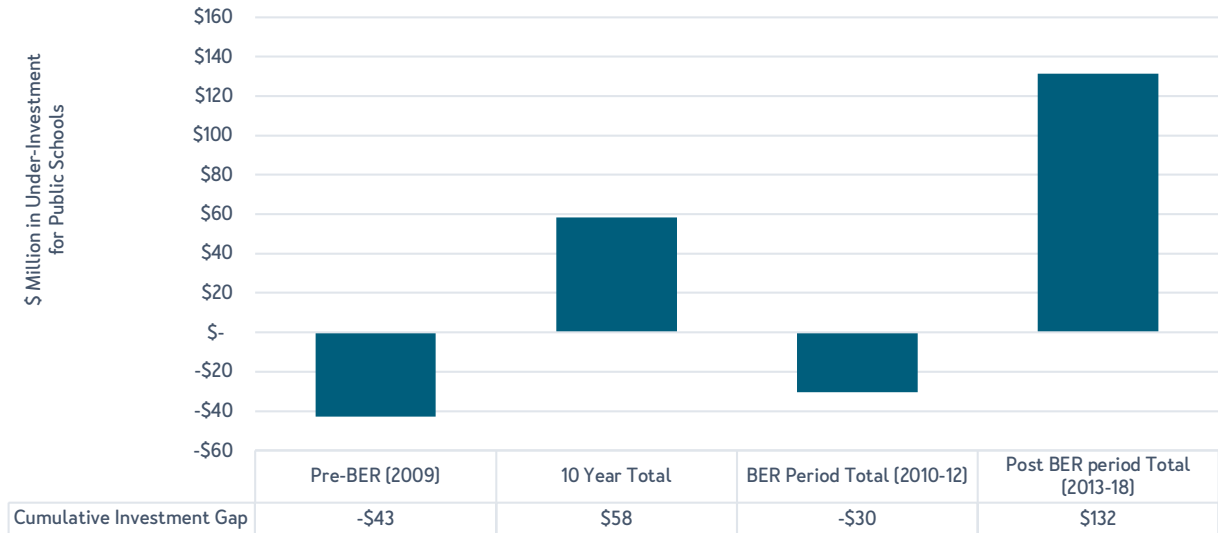
ACT Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



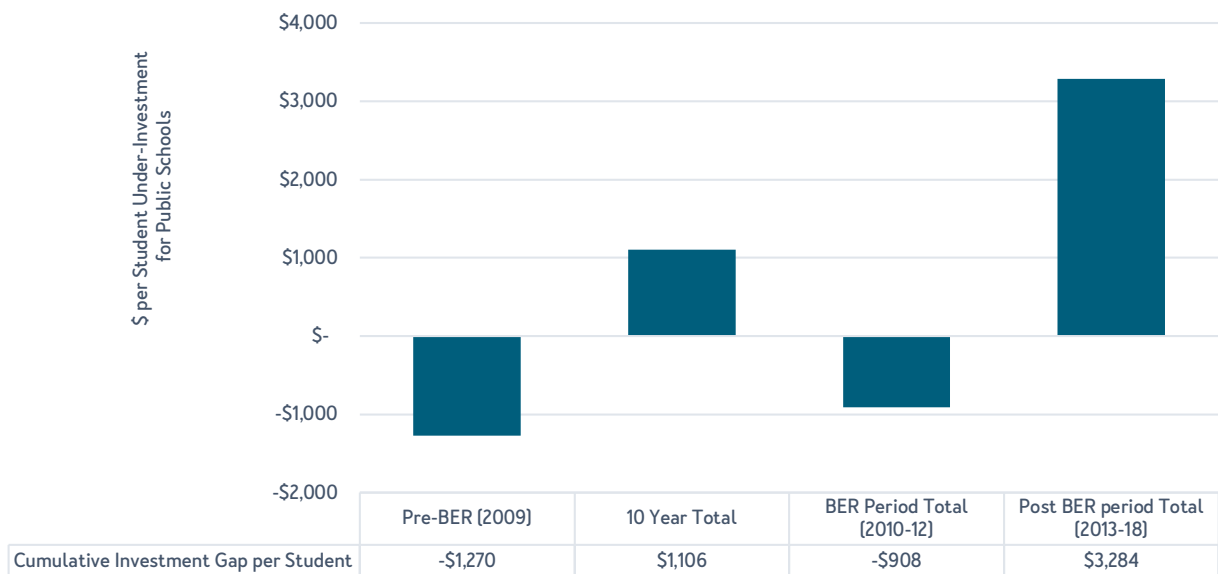
ACT Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



ACT Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS

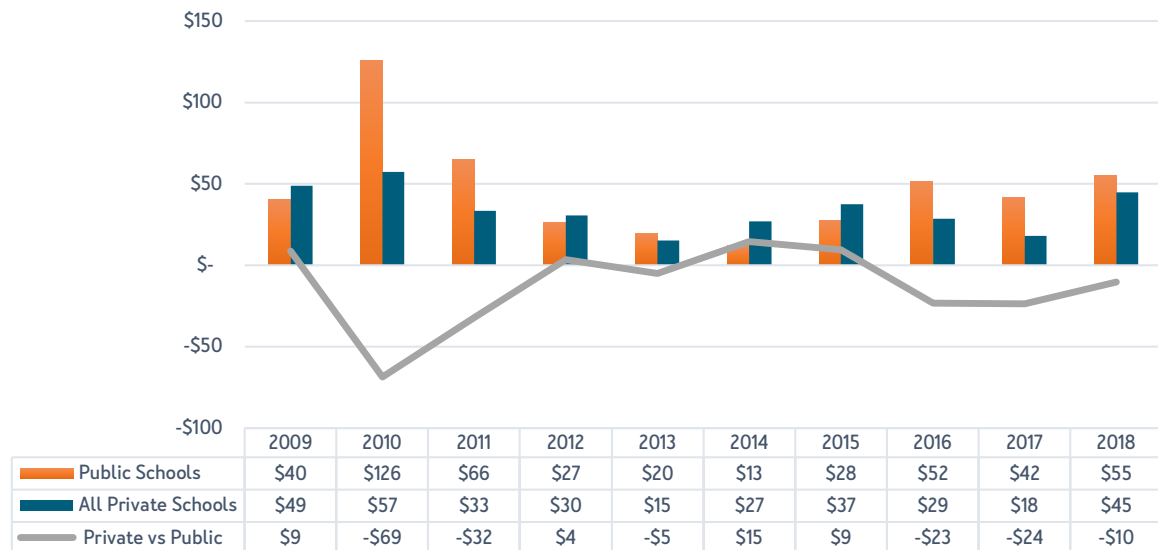


Northern Territory

Annual Capital Investment

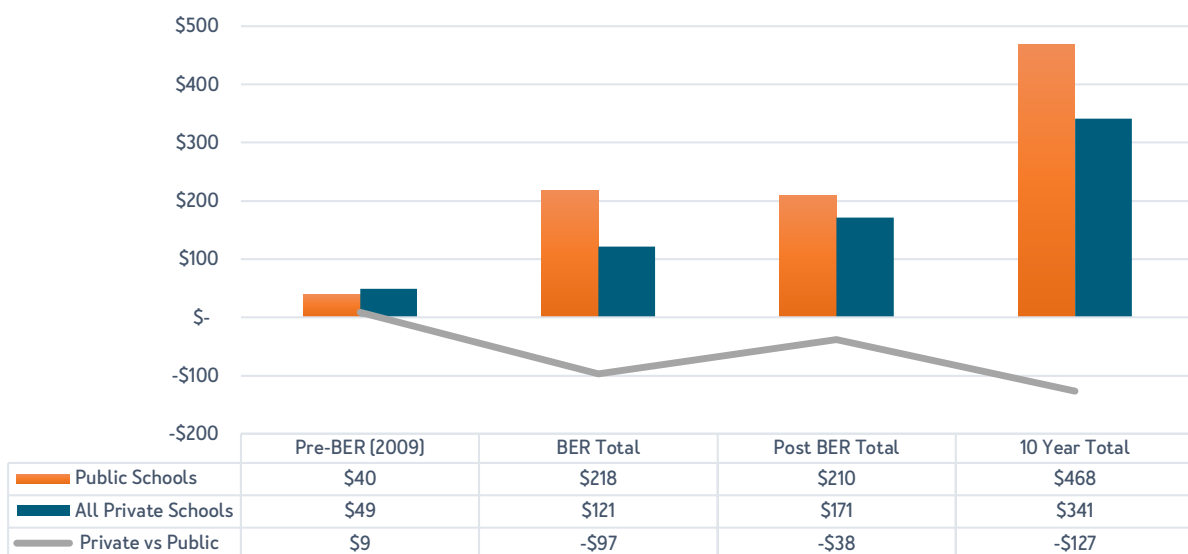
NT Annual Capital Investment in Schools

\$ MILLIONS



NT Annual Capital Investment in Schools \$ millions

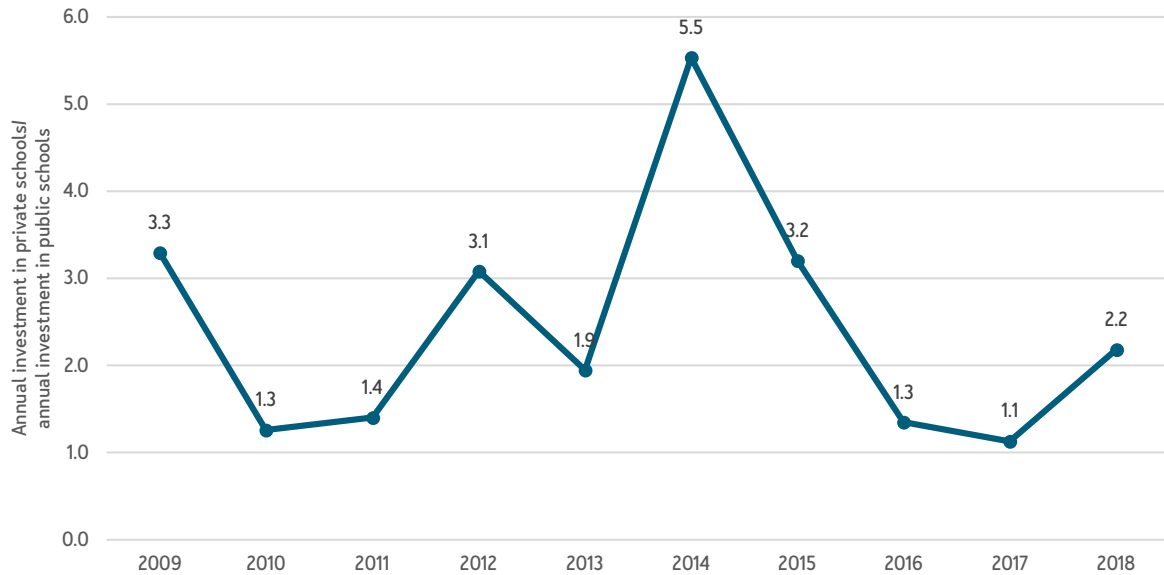
BY INVESTMENT PERIOD



Ratio of Inequity (ROI)

NT Private School Investment per Student as a Multiple of Public School Investment

PER STUDENT



NT Annual Capital Investment in Schools

\$ PER STUDENT



Capital Investment Gap

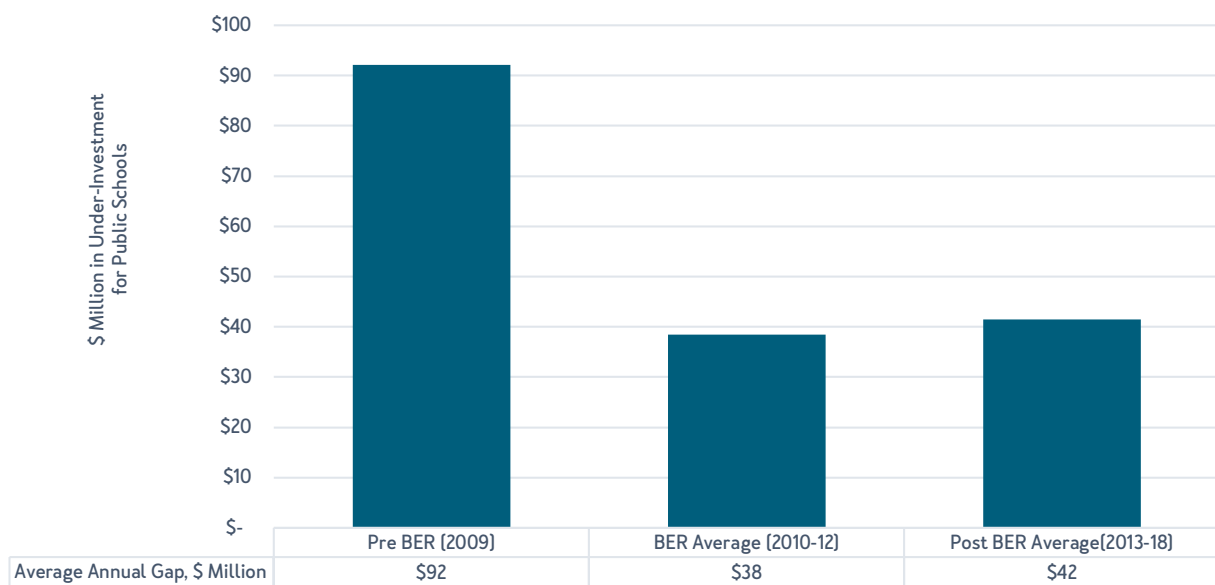
NT Investment Gap for Public Schools

\$ MILLION UNDER INVESTMENT PER YEAR



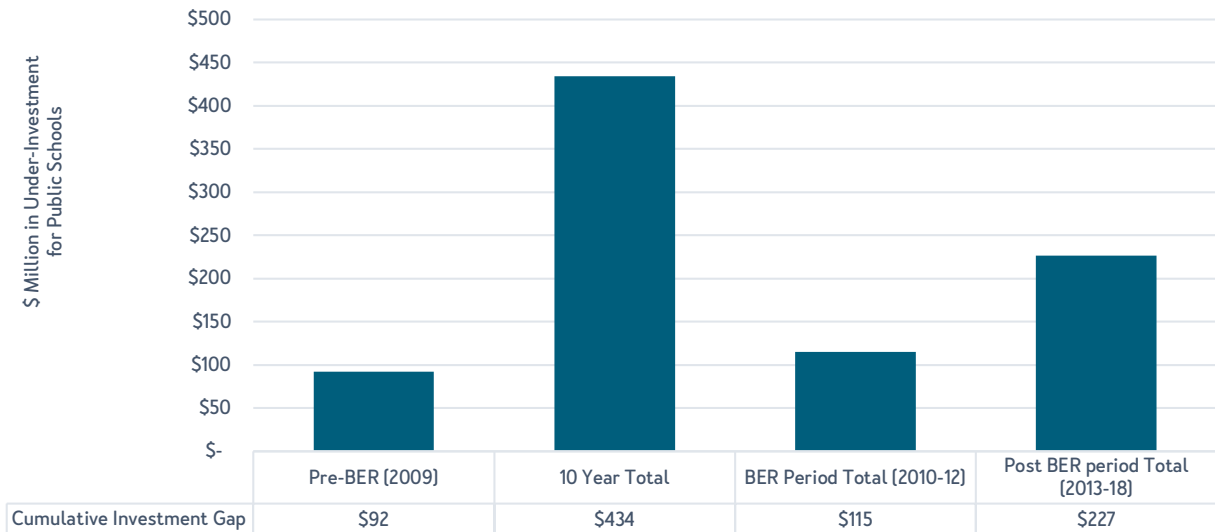
NT Annual Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



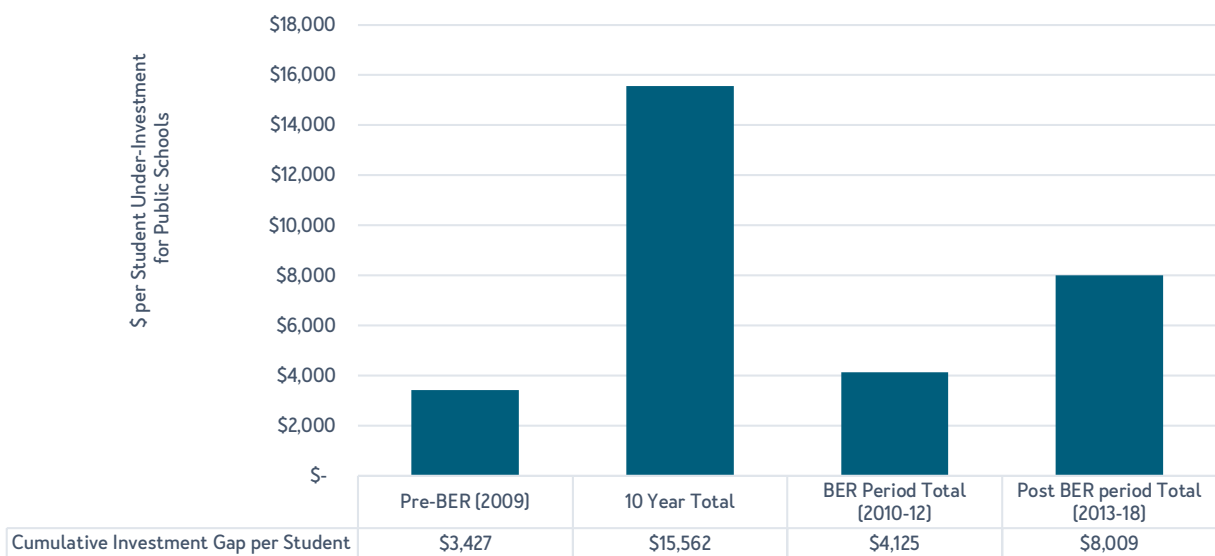
NT Cumulative Investment Gap for Public Schools

COMPARISONS BY PERIOD (\$ MILLION)



NT Cumulative Investment Gap

\$ PER STUDENT FOR PUBLIC SCHOOLS



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ADAM RORRIS

Adam Rorris is an education economist and policy analyst working extensively in Australia and overseas. He has worked for the World Bank, UNICEF, UNESCO, Department of Foreign Affairs and Trade (DFAT) and other international agencies to help develop robust funding systems for national school systems throughout Asia and the Pacific. During 2002-2007 Adam worked as the Manager/Principal Analyst of the Schools Resourcing Taskforce for the Ministerial Council of Australian Education Ministers. He has worked with all state and Commonwealth departments of education as well as representatives of the nongovernment school sector.