

New approaches to persistent problems

Background paper

Background paper No. 01/2014

April 2014

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Acknowledgements

The author sincerely thanks the many colleagues and peers of the Mitchell Institute who contributed their sources, ideas and feedback to this document.

About the author

Mailie Ross is an education policy analyst at the Mitchell Institute. She has worked as a secondary school teacher through the Teach for Australia program and was a Senior Associate at The Boston Consulting Group. Mailie was recently awarded a Frank Knox Memorial Fellowship to study at the Harvard Graduate School of Education.

About the Mitchell Institute

The Mitchell Institute for Health and Education Policy is an independent research and policy institute that works to improve the connection between evidence-based social research and public policy reform. The Institute was founded on the principle that health and education are critical components in the development and progress of an economically and socially prosperous society. This is reflected in its focus on disadvantaged communities and the transformational change effective education and good health can deliver. The Institute's policy and research program aims for big systemic change and is underpinned by a collaborative model which uses policy and research networks to build a solid evidence base and achieve large scale policy impact. The Institute was established in 2013 through the generous financial support of the Harold Mitchell Foundation and Victoria University, Melbourne.

Purpose

In November 2013, the Mitchell Institute hosted a policy forum titled *New approaches to persistent problems* attended by approximately 100 of Australia's leading education, government and policy leaders, researchers, and practitioners. The discussion was chaired by Mark Burford, Executive Director of the Mitchell Institute and led by an expert panel comprising Kathryn Greiner, John Hattie, Lisa O'Brien and Yong Zhao.

This background paper was provided to panel members and forum participants as pre-reading. The highlights and outcomes of the forum are outlined in the Mitchell Institute forum report No. 1/2014, *New approaches to persistent problems in education*, April 2014.

Summary

- Despite decades of reform programs and increasing investment in schools, we are not seeing progress in student learning outcomes
- A significant gap remains between low and high socioeconomic status (SES) students
- A large proportion of young people are at risk of not achieving good education outcomes, with serious social, health and economic consequences
- Despite likely strong returns on investment, we are still investing relatively little in the early years
- It is not clear that the reforms associated with school funding will deliver improved outcomes; however, school funding has created an opportunity to recalibrate the school reform agenda

1. Context for education reform

Summary

- Education is fundamental for the wellbeing of individuals, the community and the economy
- There has been substantial national school reform recently, building on decades of reform at the state and territory level

1.1 Education is fundamental for the wellbeing of individuals, the community and the economy

Social benefits

- Education is a key social determinant of health and wellbeing¹
- Education affects physical and mental health in three ways
 - Indirectly (higher income enables access to health services and support)²
 - Directly (improved “agency”)³
 - Inter-generationally (better provision for health and wellbeing of children)⁴
- Keeping young people connected to education is a critical protective factor
 - 1 in 4 young people experience mental health problems⁵
 - Education and mental outcomes have a cause and effect relationship
- Education influences achievement in the next generation as parents’ education impacts student outcomes
- Schools can instil values that encourage civic and social engagement⁶
- Lower crime rates are associated with higher levels of education⁷

Economic benefits

- Education can bring financial independence
 - High levels of education correlate with higher earnings; 15% increase in earnings for completing year 12, 20% for completing Certificates III or IV⁸
- Higher levels of skill in the labour force bring productivity benefits to the community
 - Researchers, Hanushek and Woessmann predict that increasing scores in the Program for International Student Assessment (PISA) will increase economic growth⁹
 - Access Economics estimates that increasing year 12 attainment to 90% will result in 1.1% GDP growth¹⁰
- Addressing disengagement with education can reduce later costs
 - Education can provide early protection against some mental health problems and other social issues, which are expensive to treat later in life.
 - In one extreme example, \$5.5m was spent on contacts with services for a single young person¹¹

1.2 There has been substantial national school reform recently, building on decades of reform at the state and territory level

The wide-ranging federal reform agenda established by the Council of Australian Governments (COAG) in 2008 is associated with new federal-state/territory financial arrangements

- The Intergovernmental Agreement on Federal Financial Relations (IGAFFR) formalised a new approach to federal financial relations that aimed to increase state and territories' flexibility in delivering services, and improve accountability and reporting
- The COAG Reform Council was established to strengthen performance and accountability
- Themes of reform were focussed on economic and social participation, health, and indigenous disadvantage
- The reform agenda was to be implemented through national agreements (such as the National Education Agreement and National Indigenous Reform Agreement) and national partnerships¹²
- The reforms built on those that had been implemented in previous decades under Liberal and Labour Governments

The current goals for education listed in the Melbourne Declaration set the agenda for education reform in 2008

- At the end of 2008, the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) set goals for Australian education for the next 10 years:¹³
 - Goal 1: Australian schooling promotes equity and excellence
 - Goal 2: All young Australians become:
 - o successful learners
 - o confident and creative individuals
 - o active and informed citizens
- This remains the only national documentation that sets out education goals
- The 2012 National Education Agreement reinforced these goals with targets for school completion and achievement in literacy and numeracy¹⁴

The development of the Australian Curriculum has reinforced the Melbourne Declaration goals

- The general capabilities included in the Australian Curriculum are explicitly designed to support Goal 2 of the Melbourne Declaration¹⁵
- These capabilities are:
 - o Literacy
 - o Numeracy
 - o Information and communication technology (ICT) capability
 - o Critical and creative thinking
 - o Personal and social capability
 - o Ethical understanding
 - o Intercultural understanding

A proliferation of National Partnerships was established to drive reform

- These are outlined in Appendix 1

2. The current state of school education in Australia

Summary

- Governments have invested substantially in schools over the last decade, driven by student teacher ratios and teacher pay
- There has been some success, but student achievement overall has not improved
- The current system for measuring outcomes is narrow, which is problematic for interpretations of progress
- The evidence suggests that student engagement for many students is low and not improving
- Performance in the Australian school system is strongly influenced by socioeconomic status
- The concentration of low socioeconomic status (SES) students in some schools is increasing, which makes it harder to achieve good outcomes in those schools

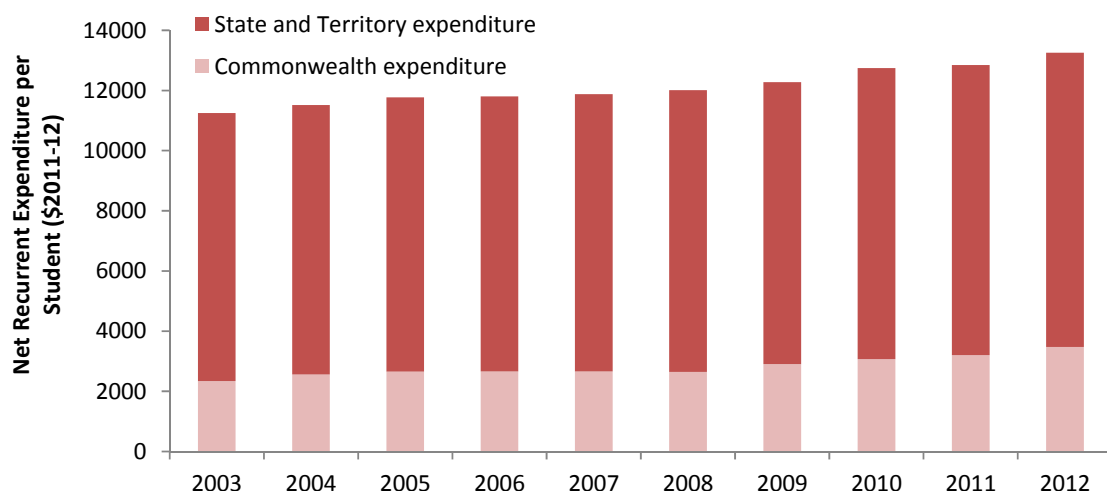
2.1 Governments have invested substantially in schools over the last decade, driven by student teacher ratios and teacher pay

Government recurrent spending in schools has increased by approximately 1.5% p.a. since 2003

(Figure 1)

- There are three major ways money can be invested in teachers (who account for about 70% of school recurrent expenditure) - Class size, salaries, face-to-face hours
- Just over half of the 1.5% p.a. increase can be explained by reductions in class sizes and increases in teacher salaries, but it is difficult to determine where the remainder of the recurrent funding has been invested
- There has also been substantial non-recurrent schools spending (e.g. through the Building the Education Revolution funding)

Figure 1. Net recurrent schools expenditure per student¹⁶



Decreases in class sizes may account for about a quarter of the increase in recurrent expenditure

- In the decade since 2003, student : teacher ratios in government schools have dropped from 15.0 to 13.9¹⁷
- Assuming teachers account for 70% of recurrent costs, this accounts for an approximate 0.3% p.a. increase, which is one quarter of the overall increase
- Student : teacher ratios are a proxy for class sizes, although they can also indicate changes in other school-level staffing arrangements

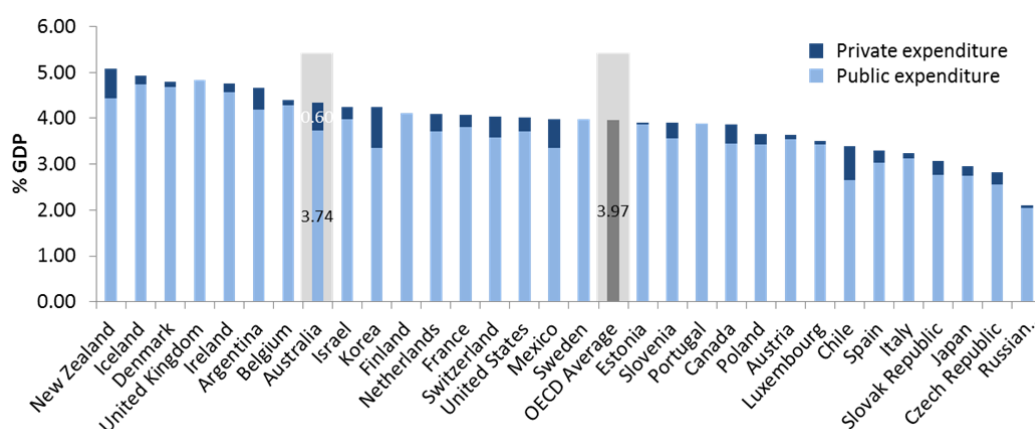
Teacher pay may account for over one third of the increase in recurrent expenditure, but has still not kept pace with other professional pay

- Between 2000 and 2010, teacher pay increased by 0.7% p.a. in real terms¹⁸
- This accounts for about a 0.5% p.a. increase in recurrent costs, or 32% of the overall increase
- Professional pay (as defined by the Australian Bureau of Statistics) increased by 1.1% p.a. over the same period, perhaps attracting people with high academic aptitude *away* from teaching. This may have contributed to reducing teacher quality¹⁹

Australia spends more than the international average on school education

- This is illustrated in Figure 2

Figure 2. Organisation for Economic Co-operation and Development(OECD) countries' expenditure on primary, secondary and post-secondary non-tertiary education as a percentage of GDP (2010)²⁰



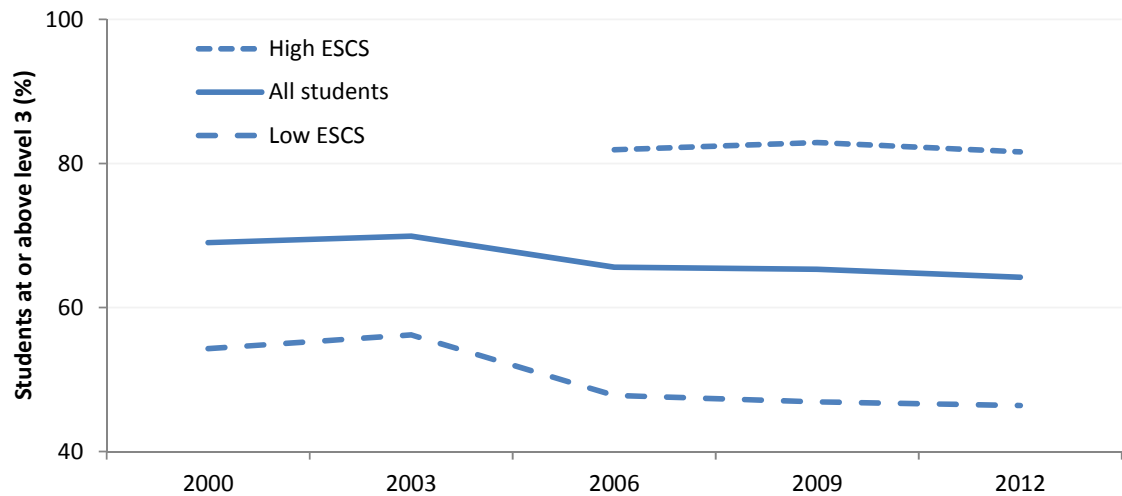
2.2 There has been some success, but student achievement overall has not improved

Australia achieves high results by international standards, but there are signs we are falling behind

- Australia performs significantly higher than the OECD average in reading, maths and science in PISA tests
- However, more countries are now outperforming us than when we first undertook PISA tests⁸
- Australia's performance in reading and maths has declined since 2000, and our science performance has shown no change.²¹ Figure 3 shows reading results for that period

- The gap for students with low economic, social and cultural status (ESCS) remains. Figure 3 illustrates this point

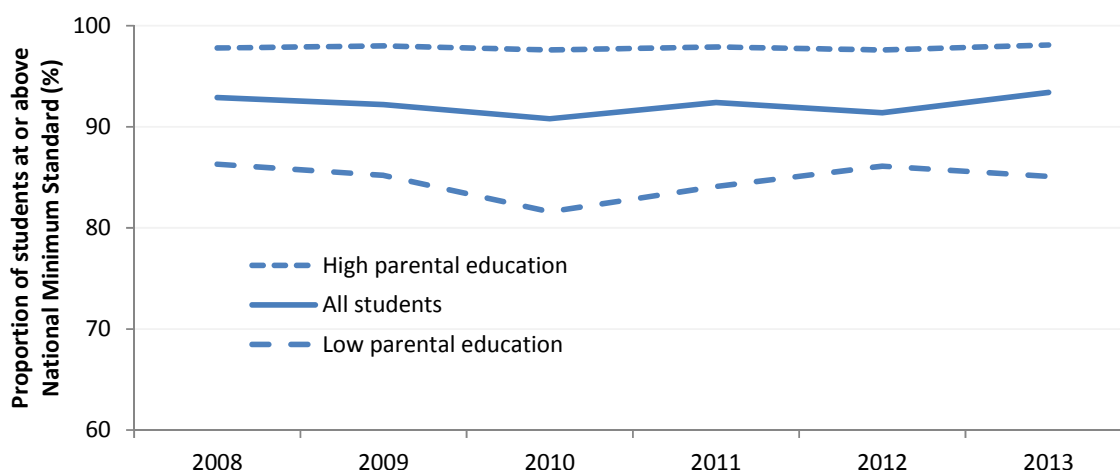
Figure 3. Proportion of Australian 15-year-olds at or above level 4 in PISA reading literacy¹⁶



The National Assessment Program – Literacy and Numeracy (NAPLAN) tests also suggest that there have been some gains, but on average student achievement is stagnating

- Between 2008 and 2013, there were improvements in years 3 and 5 for reading in NAPLAN²²
- There has been little other change, except year 9 numeracy in which the proportion of students achieving the national minimum standard has declined. For the most part, student achievement has not improved since NAPLAN testing began in 2008. Figure 4 illustrates this trend
- There are significant gaps for students whose parents have low levels of education (year 11 or below)
- NAPLAN results show that significant gaps remains for students from disadvantaged backgrounds

Figure 4. Proportion of year 9s at or above National Minimum Standard in NAPLAN reading²²



2.3 The current system for measuring outcomes is narrow, which is problematic for interpretations of progress

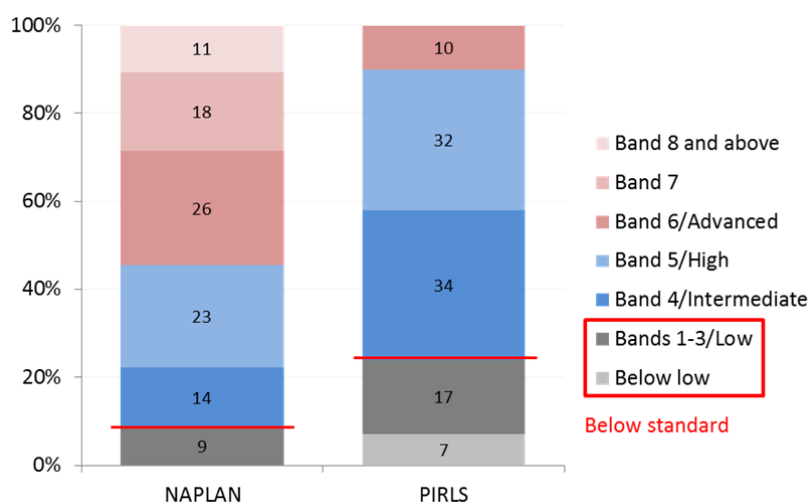
There are outcomes that we do not measure

- Outcomes against the stated Melbourne Declaration goals across improving equity, developing confident and creative individuals, and developing active and informed citizens have not been measured
- There is no nationally consistent way to track students through the school system and to identify when they drop out (some jurisdictions, such as Victoria, are able to do this, but not all)
- There are no systematic longitudinal measures of student success beyond school

Where outcomes are measured, reporting can be problematic

- Comparison of NAPLAN, which is Australian, with the Progress in International Reading Literacy Study (PIRLS), which is international, indicates that NAPLAN performance benchmarks are set very low against the standards compared to international assessment. Figure 5 illustrates this point
- NAPLAN results are frequently used to discuss absolute level of achievement, when results can also be used to identify *improvement* in achievement. When this is done the picture of performance changes. For example, the states and territories that perform worst when absolute level of achievement is considered alone (NT, Qld and WA), have in fact shown the biggest improvements in achievement.²³

Figure 5. Proportion of students at each reading level in year 4 PIRLS and year 5 NAPLAN (2011)²⁴



Results on tests of achievement need to be considered cautiously, as they are strongly influenced by students' attitude to the test

- Students who complete most of the hundreds of background questionnaire items on the Trends in International Mathematics and Science Study (TIMSS) also do better in the test, indicating that the results are influenced by persistence and motivation²⁵
- Experimental evidence indicates that achievement on cognitive test scores is affected by motivation and conscientiousness²⁶

2.4 The evidence suggests that student engagement for many students is low and not improving

Direct and proxy measures for student engagement show some worrying trends

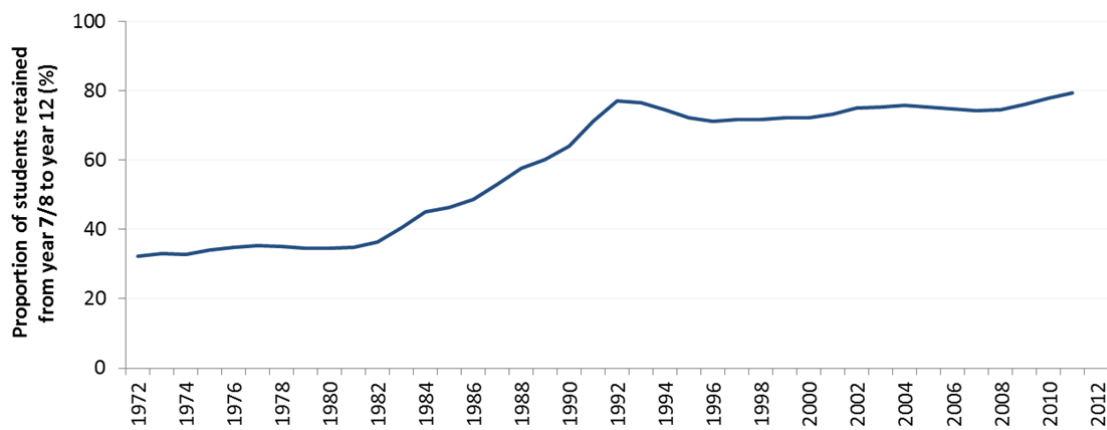
- Retention to year 12 has stalled
- There are alarming levels of absence in high schools
- 50,000 school aged students in Australia are not even enrolled in school²⁷
- Surveys of school students show broad disengagement

Retention to year 12 has stalled

- By international standards, we have high rates of year 12 completion
- However, we have made little progress on improving retention to year 12 in the last 20 years, as Figure 6 illustrates
- The number of 20-24 year olds with year 12, Certificate II or higher qualifications has increased since 2008.²³ While this appears positive, there is disagreement about whether Certificate II is equivalent to year 12 and concern about the quality of Certificate II qualifications (e.g., COAG 2020 targets specify Certificate III as equivalent to year 12; however, interim targets state Certificate II as equivalent²⁸)

- Increases in retention through the 1980s saw more than twice as many students finishing school than had previously, significantly changing the mix of students in school and increasing the challenge of engaging students
- However, despite having a more diverse cohort, Australia still has relatively narrow certification pathways for students finishing school, largely focused on Australian Tertiary Admission Ranks (ATARs). This may affect retention to year 12
- The distorting effect of ATARs may be decreasing, as the proportion of tertiary entries via ATAR has significantly dropped over time²⁵

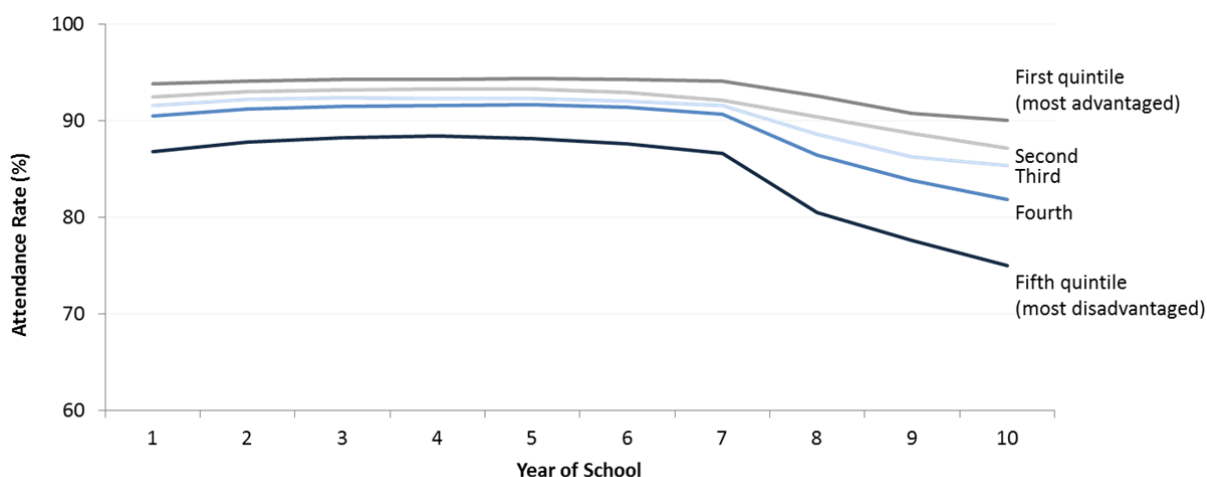
Figure 6. Proportion of students retained from year 7/8 to year 12^{17,29}



High levels of absence in high school

- Data from WA show reasonably high attendance in primary school, dropping substantially when students enter high school (year 8 in WA) and continuing to drop through later years³⁰
- According to the Telethon Institute, which assembled the data, the WA figures are representative of the other states and territories
- Attendance correlates with achievement at school as measured by NAPLAN
- Attendance is much lower for subgroups (defined by NAPLAN) including low SES, Aboriginal and Torres Strait Islanders, students with high mobility (frequent school changes), remote students, and those with low parental education and occupation

Figure 7. Average attendance by year of school and socioeconomic status³⁰



Surveys of school students show broad disengagement

- National studies using the Longitudinal Survey of Australian Youth (LSAY) show that students in the later years of high school are less engaged with school than younger students, and that those from low-income families are less engaged than those from high income families^{31–33}
- Victoria’s annual Attitudes to School Surveys reinforce these findings. The results show that engagement with learning and with school are reasonably high in primary school but drop substantially as soon as students enter high school³⁴
- Paradoxically, Australian students’ confidence in international tests is higher than students in systems that outperform us³⁵
- The relationship between confidence and achievement in PISA is unclear

Connectedness to school is a protective factor

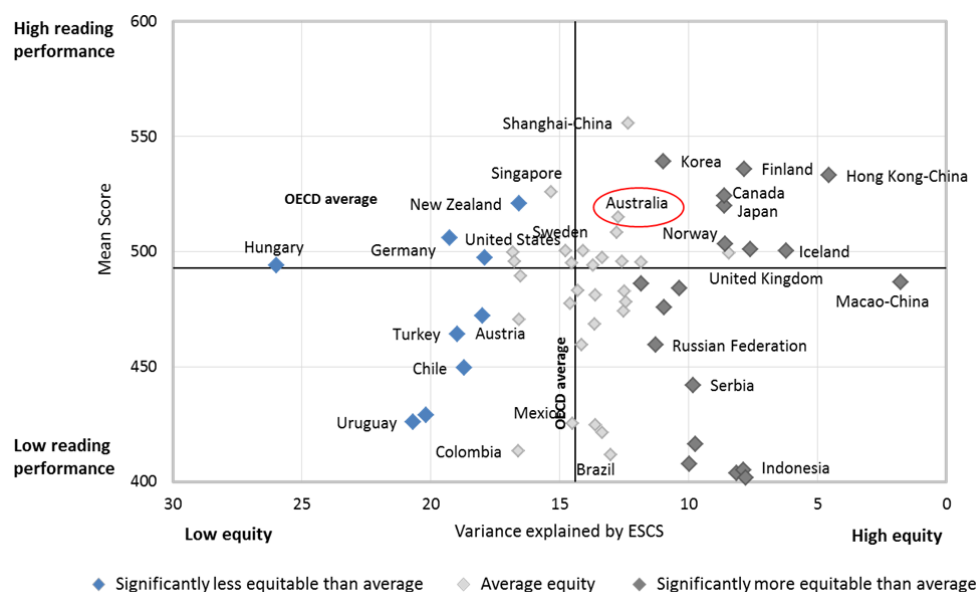
- Engagement with school affects intentions to stay at school which affects actual school completion³¹
- Connectedness to school can predict later health and wellbeing outcomes³⁶

2.5 Performance in the Australian school system is strongly influenced by socioeconomic status

We have lower equity than many of the other high performing OECD school systems

- In Australia, while our high performing students are among the best in the world, the impact of socioeconomic status on student performance in PISA is equal to the OECD average
- Other countries with similar socioeconomic status are more equitable than us, including Canada, Iceland, Finland and Norway
- Figure 8 shows how countries’ reading performance compares to their economic, social and cultural status (ECSC)

Figure 8. OECD reading performance compared to equity, 2009³⁷



Socioeconomic status can explain much of the variation between schools and school sectors

- Individual SES and the SES of a student cohort influence achievement
- Analysis by the National Institute of Labour Studies shows that when those two factors are taken into account, average differences between the government, Catholic and independent sectors disappear. Schools from the three sectors have the same distribution of “value added” for reading, science and mathematics after controlling for school resources and SES⁸
- The Australian Council for Educational Research’s analysis of the latest PISA results reinforces this. When student-level and school-level socioeconomic background are taken into account, there is no difference in mathematics performance between government, Catholic and independent schools²¹

2.6 The concentration of low SES in some schools is increasing, which makes it harder to achieve good outcomes in those schools

There is an ongoing movement of students from government to non-government schools

- This shift has been occurring since the mid-1970s³⁸
- Increasingly, high SES parents are choosing to enrol their students in independent schools, out of Catholic and government schools³⁸
- “Average” SES students are increasingly enrolling in Catholic schools³⁸
- There is a reduction in enrolments of high and average SES students in government schools³⁸
- There is substantial disagreement about how to address this movement and about the degree of difficulty created by having high concentrations of low SES in particular schools

A high proportion of students with additional needs are in government schools

- Schools that serve poor families are predominantly government schools, whether regional or metropolitan³⁹
- 80% of students with disabilities are educated in government schools⁴⁰

- 80% of indigenous students are educated in government schools⁴⁰

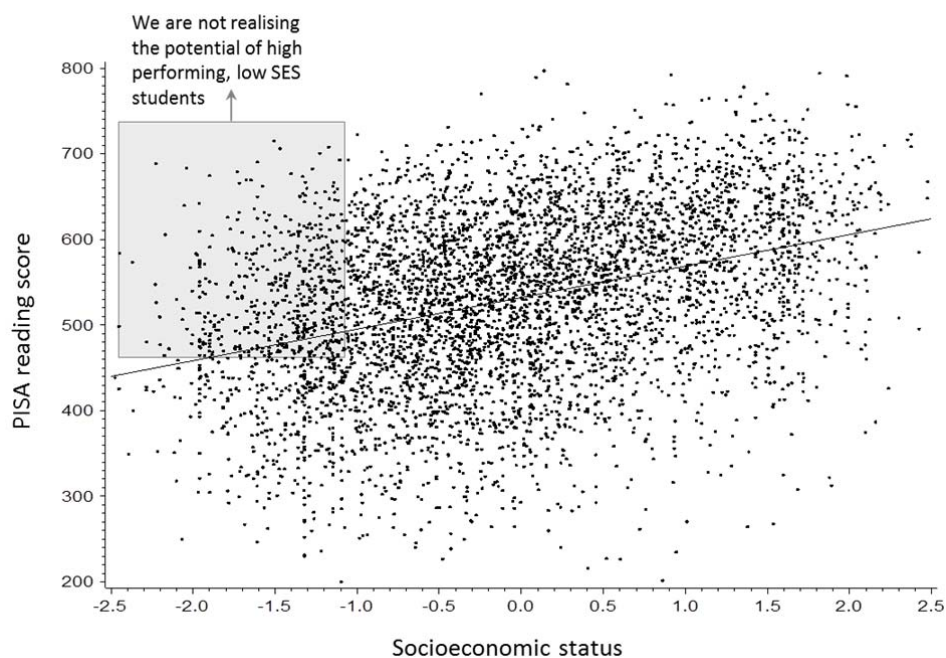
There is a concentration of high need in certain schools

- Stratification along SES lines leads to a concentration of high needs students in certain schools
- Performance is influenced by a student's own SES and by the SES of their cohort⁸
- This concentration affects teacher morale, community engagement with the school, and the ability to attract good teachers and students

System inequality may be holding us back from having a truly top-performing system

- Australia's top performing students are high SES students, who disproportionately attend high SES schools
- As Figure 9 illustrates, there are also large numbers of high performing, low SES students; however, these high performing low SES students do not do as well as their high performing, high SES peers

Figure 9. Student PISA reading scores vs socioeconomic status⁴¹



3. Early childhood development

Summary

- Early childhood development cannot be ignored in schooling and education reform
- There has been substantial reform in early childhood education and care
- Early childhood education has a significant impact on outcomes at school
- The return on investment in early childhood education is high
- Expenditure in early childhood education has increased significantly but is low by international standards
- More children are attending early childhood settings, both childcare and preschool
- Increased investment is starting to show results, but a significant gap remains for disadvantaged children

3.1 There has been substantial reform in early childhood education and care

A national quality agenda for early childhood education and care has been developed

- In July 2009, COAG agreed to a National Early Childhood Development Strategy, called Investing in the Early Years,⁴² providing a national focus for ensuring all children have access to a quality early childhood education
- Governments established National Partnership Agreements on early childhood education and on Indigenous early childhood development, as well as a National Quality Framework for Early Childhood Education and Care
- Under the National Partnership Agreement on Early Childhood Education, in 2008 the Commonwealth Government committed \$970 million to states and territories over five years⁴³

3.2 Early Childhood Education has a significant impact on outcomes at school

Development opportunities prior to school can improve performance at school

- Developmental concerns evident at school entry tend to continue and be exacerbated over the primary school years, particularly for low SES children⁴⁴
- Even three years after the preschooling has taken place, NAPLAN scores of year 3 children are significantly higher than for those who had not attended preschool
- Attendance at preschool with qualified early childhood educators has a significant positive impact on year 3 NAPLAN Reading and Numeracy results equivalent to half a year of schooling⁴⁵

The quality of early childhood education provision is important

- Children whose preschool teacher had a diploma or degree in early childhood education or childcare gained the most from attending preschool – the level and specialisation of preschool teacher qualifications are important⁴⁵

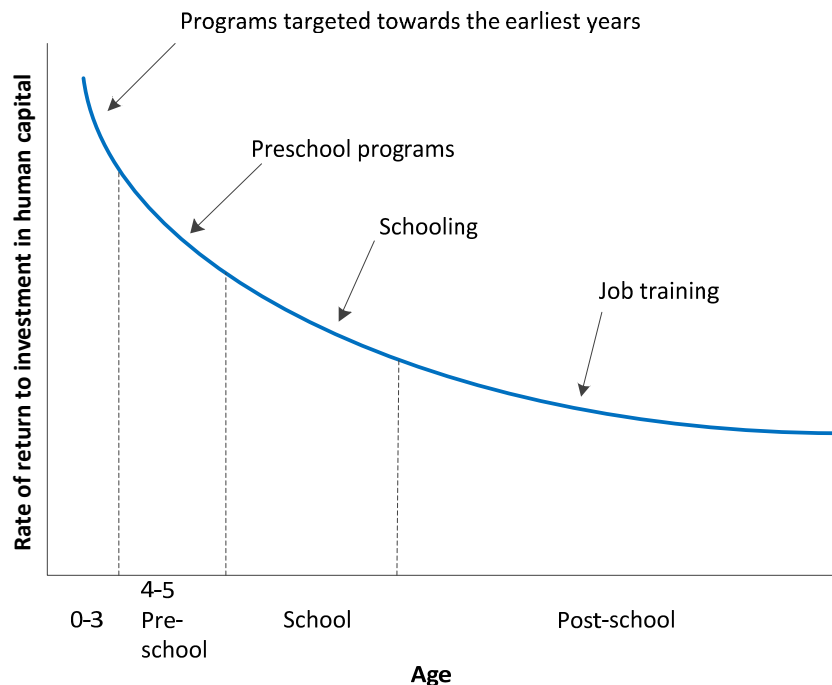
- Children whose preschool teacher had only a certificate level qualification in childcare or early childhood teaching or had no relevant childcare qualification showed no significant benefit from attendance at preschool⁴⁵
- There are significant benefits to be gained from preschool teachers who are specifically trained in developmentally appropriate teaching practices for young children
- The strongest influence on children's development is the nature of parent-child relationships and home learning environments. Optimising home learning environments is an important goal for improved educational outcomes⁴⁵

3.3 The return on investment in early childhood education is high

Increased investment in early childhood education is starting to show results

- Early intervention programs have been shown to mitigate the factors associated with disadvantage and have long term benefits⁴⁶
- The long-term causal impacts of early childhood education and the additional benefit of highly qualified preschool teachers on NAPLAN test scores demonstrate the importance and value of Australia's preschool system⁴⁵
- Because Australia still invests relatively little in early childhood education (despite recent increases), the marginal returns for increased investment are likely to be high
- Modelling by education expert, Heckman suggests the most effective educational investment is in early childhood. Figure 10 shows the returns to a unit dollar invested at different ages from the perspective of the beginning of life, assuming one dollar is initially invested at each age

Figure 10. Returns to a Unit Dollar Invested at different ages⁴⁷

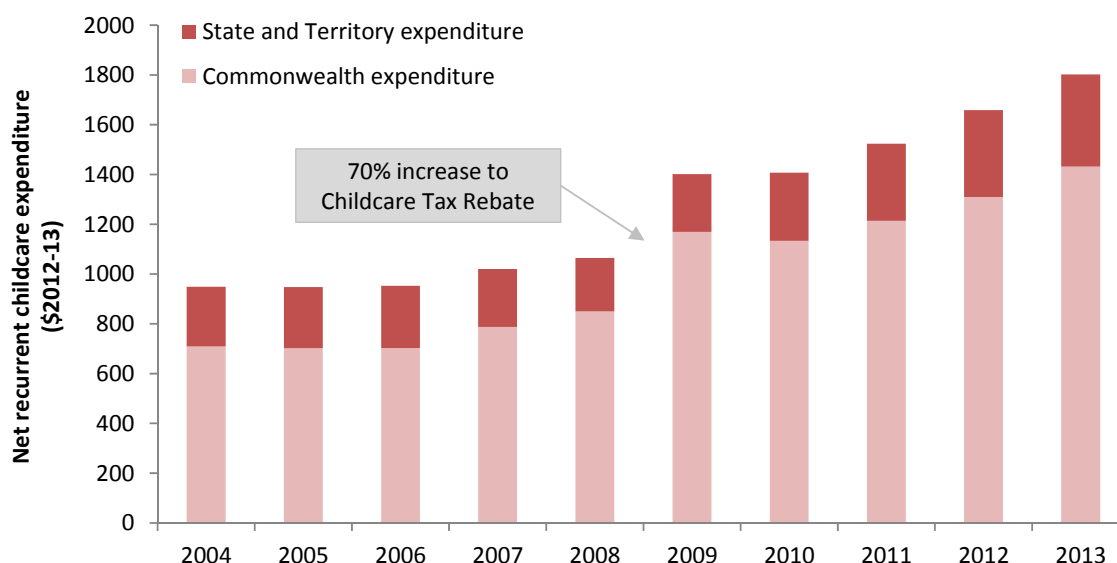


3.4 Expenditure in early childhood has increased significantly but is low by international standards

Government expenditure in early childhood has increased significantly in recent years

- This is illustrated in Figure 11

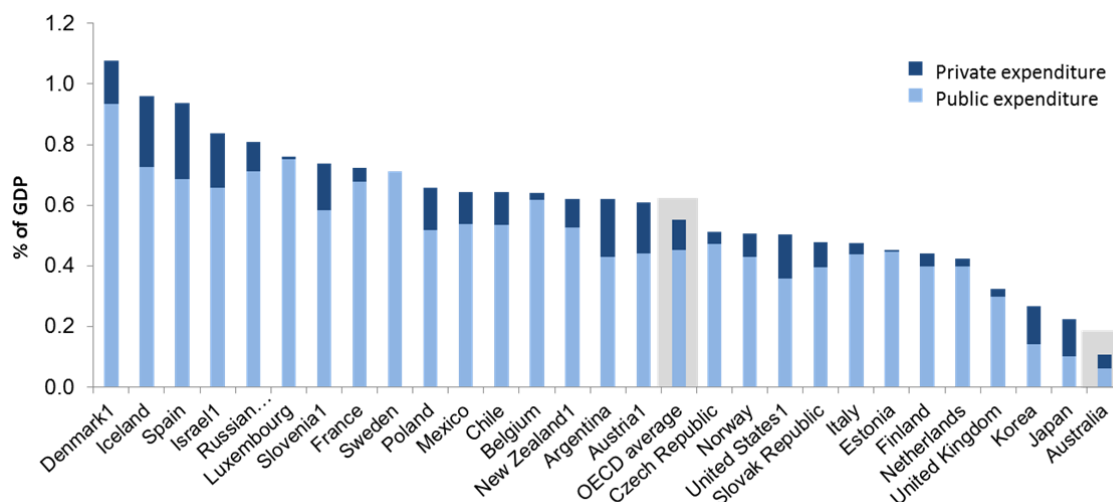
Figure 11. Childcare expenditure per child aged 0-12 in the resident population¹⁶



Government spending in early childhood education still lags behind other OECD countries

- Our expenditure on early childhood education is well below the OECD average, as shown in Figure 12
- This does not include expenditure on childcare
- Early childhood education at age 3 is the norm in many Western European countries²⁰

Figure 12. Expenditure on early childhood educational institutions as a percentage of GDP (2010)²⁰

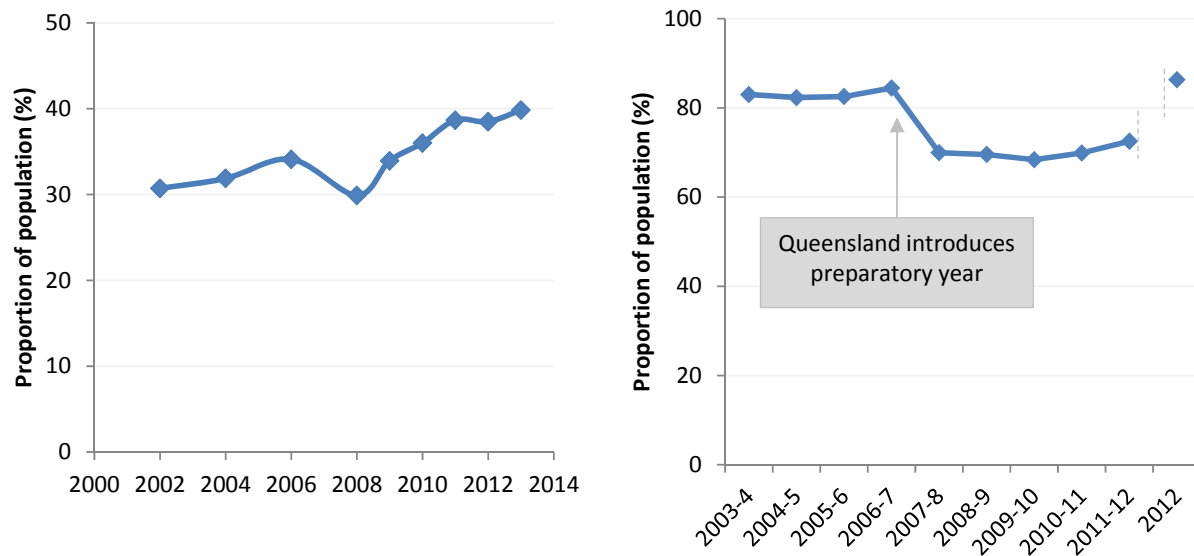


3.5 More children are attending early childhood settings – both childcare and preschool

Participation in childcare and preschool has increased

- This is illustrated in Figure 13

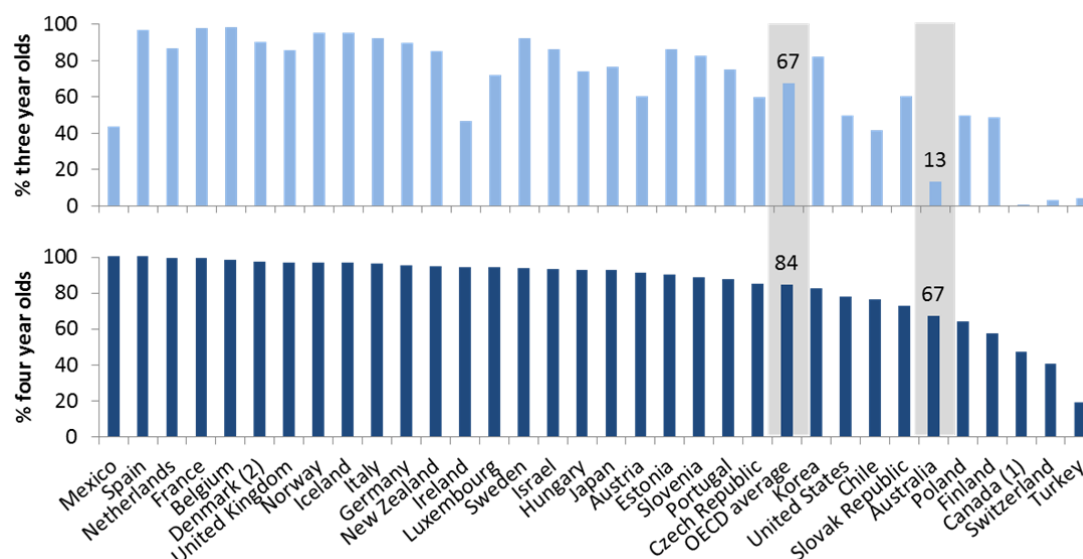
Figure 13. Proportion of population aged 0-5 attending childcare (LHS) and proportion of population attending preschool in the year before full time school (RHS)¹⁶



Nevertheless, Australia still has low rates of enrolment in early childhood education by international standards

- This is illustrated in Figure 14

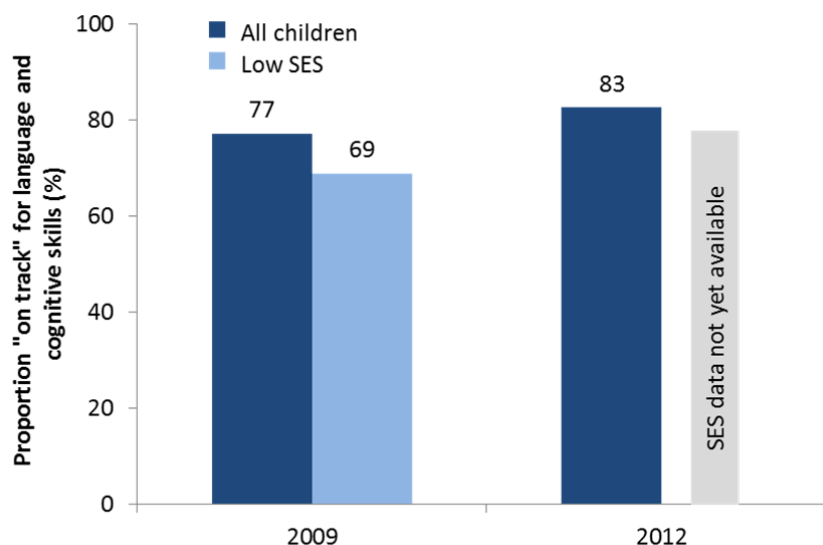
Figure 14. Enrolment rates of three and four year olds in early childhood or primary education (2011)²⁰



3.6 Increased investment is starting to show results, but a significant gap remains for disadvantaged children

The Australian Early Development Index (AEDI) shows a significant increase in the number of children who were developmentally “on track” for school between 2009 and 2012. This is illustrated in Figure 15.

Figure 15. Proportion of children who were “on track” for language and cognitive skills based on AEDI^{48,49}



Despite these improvements, there is still a significant gap for disadvantaged children and many children start school poorly equipped to benefit from the social and learning opportunities it provides

- 22% of Australian children are vulnerable on one or more developmental domains when they start school⁴⁸
- 32% of children living in the most socioeconomically disadvantaged Australian communities are developmentally vulnerable on one or more of the AEDI domains (based on 2009 results)⁴⁹
- 17.5% of children in these communities are developmentally vulnerable on two or more of the AEDI domains⁴⁹
- The rate of children on care and protection orders has almost doubled over the past decade⁵⁰
- The proportion of children enrolled in preschool in the year before full-time school is lower for children from low SES backgrounds
- The National Quality Standards have revealed that low SES and remote students have a lower quality of care in early childhood than the average⁵¹

4. Funding reform

Summary

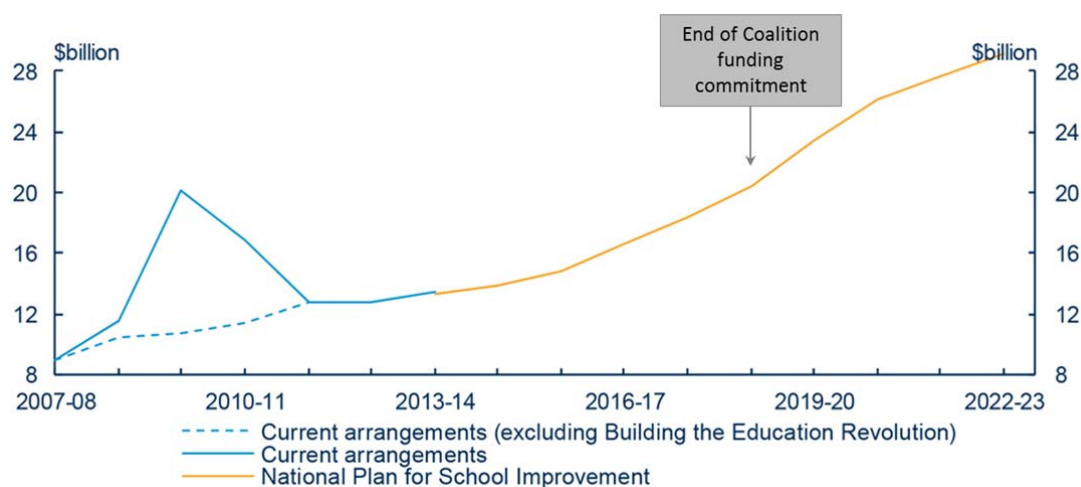
- School funding reforms have created a new funding model with loadings for disadvantage, but the measures are problematic
- The *Australian Education Act 2013* outlines a reform agenda to complement the new funding regime

4.1 School funding reforms have created a new funding model with loadings for disadvantage, but the measures are problematic

Allocation of funding is defined under the *Australian Education Act 2013*⁵²

- School funding is based on recommendations from the Review of Funding for Schooling (known as the Gonski Report)⁵³ and the subsequent National Plan for School Improvement (NPSI)⁵⁴
- Recommendations in the Review of Funding for Schooling aimed to help create “a schooling system that is among the best in the world for its quality and equity, and [which prioritises] support for its lowest performing students”⁵³
- The plan is to achieve this through a changed funding formula based on a set “student resource standard” (SRS), with loadings for low SES, disability, Aboriginal and Torres Strait Islanders, low English proficiency, school size and location
- Government schools will have their SRS fully funded. Non-government schools will be funded based on “capacity to contribute”. Between 10% and 80% of SRS will be funded by the school, depending on its SES score
- The Coalition has committed to four years of funding, although the proposed changes will be implemented over six years. The biggest increase in funding will occur after the fourth year. This is illustrated in Figure 16
- At this stage, the details of how funding reforms will proceed are unclear

Figure 16. National Plan for School Improvement (“Gonski Plan”) funding in 2013-14 budget⁵⁴



There are significant problems with the way the funding reforms measure SES, which may prevent funds being allocated fairly

- Disadvantage will be measured by the SES of a student's address, not at the individual level⁵⁵
- Proxy measures tend to inflate measures of SES (i.e. the poorest students in an area will be funded based on their postcode's more advantaged average SES)
- The National Education Reform Agreement includes a proposal to review these measures for 2016⁵⁶
- Direct measures of disadvantage would allocate funding more fairly

4.2 The Australian Education Act 2013 outlines a reform agenda to complement the new funding regime

The reform directions are outlined in legislation

- The original NPSI proposed reforms alongside the funding, which have been incorporated into the *Australian Education Act 2013*. The "reform directions" are:
 - quality teaching
 - quality learning
 - empowered school leadership
 - meeting student need
 - transparency and accountability

Clarity is required around the current and future funding strategies

- The Gonski model does not state what the funding should be spent on. It is unclear how the Coalition intends to proceed with the funding model after 2018, but the new government has outlined its education agenda through its "students first" strategy.⁵⁷ The areas of focus are:
 - teacher quality
 - principal autonomy
 - engaging parents in education
 - strengthening the curriculum
- There is an opportunity for a new compact between the Commonwealth and state/territory governments

Appendix 1: National Partnerships in Education since 2008

National Partnerships based around facilitation and reward payments for states and territories in specific areas:^{58,59}

- Building the Education Revolution (\$16.2b over 3 years from 2009/10, primarily for economic stimulus)
- Digital Education Revolution (\$2.3b over 6 years)
- Smarter Schools National Partnerships:⁶⁰
 - Low Socio-Economic Status School Communities (\$1.5b over 7 years)
 - Literacy and Numeracy (\$540m over 4 years)
 - Improving Teacher Quality (\$550m over 5 years)
- Trade Training Centres in Schools (\$2.5b over 10 years)
- Youth Attainment and Transitions (\$706m over 5 years)
- Other National Partnerships in Early Childhood Development⁵⁸

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