**Education Research Brief** 

## **Australia's PISA Results 2012**

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December 2013

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### Australia's PISA 2012 Results At a Glance

- 1. Australia continues to have high average results, but there have been significant declines in reading and mathematics [Chart 1]. The large part of the decline in reading occurred between 2000 and 2006; since then the average score has been stable. There has been a very significant decline in the average mathematics score since 2003 which is equivalent to about half a school year. There was a small decline in science between 2006 and 2012, all of which occurred between 2009 and 2012. There was a very small decline in reading between 2009 and 2012.
- 2. Australia has slipped down the international league table in reading and mathematics but there was only minor drop in the case of science. In 2009, Australia was outperformed by 6 countries in reading, 12 countries in mathematics and 6 countries in science. In 2012, Australia was outperformed by 9 countries in reading, 16 countries in mathematics and 7 countries in science.
- 3. Australia's advantage over the average results for the OECD has narrowed in each subject [Chart 2]. Australia was over half a school year ahead of the OECD in reading, mathematics and science in 2000, 2003 and 2006, respectively. The advantage in reading and mathematics narrowed to less than half a school year in 2012.
- 4. Large declines in reading and mathematics occurred in all states and territories, except Victoria [Chart 4]. There were very large declines in mathematics in Western Australia, South Australia, Tasmania, ACT and Northern Territory.
- 5. Catholic schools had the largest declines of any school sector in reading, mathematics and science between 2009 and 2012 [Chart 6]. Government schools had the lowest average decline across reading, mathematics and science. All sectors experienced significant declines in mathematics. The decline in reading in government schools was marginal and similar to that in Independent schools. The decline in mathematics in government schools was larger than in Independent schools, but smaller in the case of science. These trends are consistent with a recent study by the Melbourne Institute for Applied Economic and Social Research which showed that falling results in private schools largely contributed to the decline in reading and mathematics results between 2000 and 2009.
- 6. There were significant declines in the percentage of students at the most advanced levels in private schools between 2009 and 2012, but little change in government schools [Table 3]. The percentage at the advanced reading levels fell from 14 to 11% in Catholic schools compared to no decline in government schools, while the percentage for Independent schools dropped from 22 to 20%. The declines in the percentage at the most advanced mathematics levels were also larger in Catholic and Independent schools than in government schools: from 17% to 14% in Catholic schools and from 25 to 23% in Independent schools compared to a very small decline in government schools at the most advanced science levels from 25 to 21% compared to very small declines in government and Catholic schools.

- 7. Average results in reading, mathematics and science are similar across Government, Catholic and Independent schools after allowing for differences in student and school socio-economic status.
- 8. Average results declined by similar amounts at all levels of achievement in mathematics between 2003 and 2012. Scores at the 10<sup>th</sup> and 25<sup>th</sup> percentiles declined by 17 and 23 points respectively, while the decline for the 75<sup>th</sup> and 90<sup>th</sup> percentiles was 21 and 14 points respectively. There was no change in scores at different achievement levels in science between 2006 and 2012. There were significant declines in reading at the top levels between 2003 and 2006 but little change between 2006 and 2012. There was little change in scores at the bottom levels between 2000 and 2012.
- 9. A significant proportion of all students are below the international proficiency benchmarks [Chart 7]. Fourteen per cent of students are below the reading proficiency benchmark, 20% are below the mathematics benchmark, and 13% are below the science benchmark. There has been a significant increase in the proportion below the mathematics benchmark since 2003, from 14 to 20%. There was a small increase in the percentage below the reading benchmark, but this increase occurred between 2000 and 2006 [Table 1].
- 10. The average mathematics results for the lowest SES quartile declined by about half a school year since 2006 with smaller declines for the other quartiles [Chart 9]. There was little change in the average reading results across all SES quartiles and small declines in science in the lowest quartiles and the highest quartile [Charts 10 & 11].
- **11.** Average reading results for remote area students declined by about half a school year since 2006 and average mathematics results for remote area and Indigenous students declined by over half a school year [Charts 9-11].
- 12. There are large inequalities in school outcomes in Australia:
  - a. The range of scores between the highest and lowest achieving students is high by international standards [Chart 12];
  - b. There are very large achievement gaps between low SES, Indigenous and remote area students and high SES students [Chart 13]:
    - i. Low SES students are about two and a half years behind high SES students in reading, mathematics and science;
    - ii. Indigenous students are three or more years behind high SES students;
    - iii. Remote area students are two and a half to three years behind high SES students.
  - c. High proportions of low SES, Indigenous and remote area students performing at the lowest levels [Chart 14]:
    - i. 23% of low SES students not achieving the reading and science proficiency benchmarks and 33% are not achieving the mathematics benchmark compared with 5-8% of high SES students;
    - ii. 51% of Indigenous students are not achieving the mathematics benchmark and 37 and 39% are not achieving the reading and science benchmarks, respectively;
    - iii. 30-39% of remote area students are not achieving benchmarks.
  - d. Very low proportions of low SES, Indigenous and remote area students performing at the highest levels [Chart 15]:

- i. 4-5% of low SES students are achieving at the most advanced levels compared to 23-27% of high SES students;
- ii. Only 2% or less of Indigenous students and 5-6% of remote area students are achieving at the most advanced levels.

## 13. Inequities in school outcomes have not decreased since 2006 and have increased in several instances:

- a. The achievement gap between low SES and high SES students increased in mathematics and remained much the same in reading and science [Chart 13];
- b. The gaps between Indigenous and high SES students and between remote area and high SES students increased in reading and mathematics [Chart 13];
- c. There were large increases in the percentage of low SES, Indigenous and remote area students below the mathematics benchmark [Chart 16].









Note: Change for Mathematics is from 2003 and for Science from 2006

























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Australi	ia, PISA 20	000-2012	2					
	Read	Reading		Mathematics		nce		
	2000	2012	2003	2012	2006	2012		
NSW	8	15	14	19	13	14		
VIC	15	11	17	20	13	14		
QLD	15	15	17	20	12	13		
WA	12	12	9	16	10	11		
SA	12	15	11	23	12	15		
Tas	19	21	18	26	20	20		

# Table 1: Percentage of 15 Year-Old Students Below Proficiency Benchmark,

### Table 2: Percentage of 15 Year-Old Students at Most Advanced Levels, Australia, PISA 2000-2012

	Read	ding	Mather	natics	Science	
	2000	2012	2003	2012	2006	2012
NSW	18	13	20	17	17	17
VIC	14	11	16	12	11	11
QLD	16	11	18	15	13	12
WA	22	13	27	18	19	16
SA	19	8	23	10	15	11
Tas	16	7	14	9	11	10
ACT	25	15	27	18	21	17
NT	10	6	15	7	13	9
AUST	18	12	20	15	15	14

ACT

AUST

NT

### Table 3: Percentage of 15 Year-Old Students at Advanced & Low Levels, by School Sector, Australia, PISA 2009-2012

	Reading		Mathematics		Science	
	2009	2012	2009	2012	2009	2012
Level 5 & Above						
Government	10	10	14	13	12	11
Catholic	14	11	17	14	14	13
Independent	22	20	25	23	25	21
Level 1 & Below						
Government	19	18	21	25	17	18
Catholic	8	9	10	14	7	9
Independent	5	5	8	9	5	5