PERSPECTIVES ON QUALITY AND EQUITY FROM LARGE-SCALE ASSESSMENT STUDIES

Abstract

Over the past two decades there has been a number of large-scale assessment surveys conducted in Australia. These include international studies of achievement in fields such as reading, mathematics and science, as well as the annual National Assessment Program – Literacy and Numeracy (NAPLAN) surveys conducted for Years 3, 5, 7, and 9 as part of the National Assessment Program since 2008. All these surveys use similar assessment designs and psychometric methods that facilitate the measurement of change over time as well as analyses of the distribution of achievement. This paper focuses on analyses of data concerning 15-year-old students from the Programme for International Student Assessment (PISA) and NAPLAN Reading for students in Years 3 and 5. It notes the increased differentiation among secondary schools in the reading and mathematics achievement of 15-year-olds, and comments on the sources and possible consequences of that increased differentiation. It also reports on the improvements in reading for Year 3 students since 2008 and, more recently, for Year 5 students. It describes differences among students and education systems in the extent of those improvements, notes that the improvements have occurred in reading but not numeracy, and interprets the observed changes in terms of initiatives in the early school and preschool years. The paper is predicated on the assumption that perspectives on the impact of policies and practices on student outcomes can be informed by evidence about the ways in which achievement co-varies with differences in policy and practice, and about the extent to which achievement changes over time.

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Large-scale assessments play an important role in education policy and planning in many countries. Although they differ in purpose, approach and methods, these assessment programs are characterised by the use of a common assessment tool administered to large numbers of students (either samples or populations) under uniform conditions. Most use methods that enable the measurement of change over time. In Australia, the large-scale assessments are NAPLAN for Years 3, 5, 7 and 9, annually since 2008 (Australian Curriculum, Assessment and Reporting Authority [ACARA], 2013); PISA every three years since 2000 (Thomson, de Bortoli & Buckley, 2013); and the Trends in International Mathematics and Science Studies (TIMSS) every four years since 1994 (Thomson, Hillman & Wernert, 2012; Thomson et al., 2012). Large-scale assessments also typically include measures of aspects of student background that enable analyses of the distribution of achievement. In this paper we focus on trends in achievement using NAPLAN and PISA. Comparisons between countries or jurisdictions are mainly comparisons of changes and relationships rather than comparisons of achievement at a point in time.

Perspectives from NAPLAN

NAPLAN has been conducted with the full cohort of students in Years 3, 5, 7 and 9 each year since 2008, covering the domains of reading, numeracy, writing and language conventions (reported as 'spelling' and 'grammar and punctuation'). This paper focuses on reading and numeracy. Table 1 presents national means in reading and numeracy from 2008 to 2013[1, 2].

National changes in reading achievement

Results in Table 1 indicate that there was an improvement of 19 scale points in Year 3 mean reading achievement at a national level from 2008 to 2013. However, there was no significant difference between the means for 2012 and 2013. National means had increased from 2008 to 2009 by 10 scale points, followed by smaller increases each successive year from 2009 to 2012. These changes cumulatively represented an improvement, but one which had levelled off by 2013. Table 1 also shows an increase of 18 points in the mean reading achievement for Year 5 students from 2008 to 2013 but no substantial change between 2012 and 2013. There were no substantial changes over these time periods for reading achievement at Years 7 or 9 or for numeracy achievement at any year level.

The improvements in reading achievement from 2008 to 2013 were similar for both male and female students. In Year 3, the mean for female students was higher than the mean for male students by 15 scale points in 2008 and by 16 scale points in 2013. In Year 5, the corresponding differences were 12 scale points and 10 scale points. The improvements in reading

1 The reporting scales were set to an overall mean of 500 and a standard deviation of 100 in 2008.

2 Differences between 2008 and 2013 are recorded if the difference is statistically significant and the effect size is greater than 0.2 standard deviations in accord with the ACARA convention.

Table 1 National mean scores for NAPLAN reading and numeracy from 2008 to 2013

	2008	2009	2010	2011	2012	2013	Difference 2008–13
Reading							
Year 3	401	411	414	416	420	419	**19**
Year 5	484	494	487	488	494	502	**18**
Year 7	537	541	546	540	542	541	
Year 9	578	581	574	580	575	580	
Numeracy							
Year 3	397	394	395	398	396	397	
Year 5	476	487	489	489	489	486	
Year 7	545	544	548	545	538	542	
Year 9	582	589	585	583	584	584	

Source: ACARA (2013).

Table 2 Mean scores in reading for Indigenous and non-Indigenous students in Years 3 and 5 from 2008 to 2013

	2008	2009	2010	2011	2012	2013	Difference 2008–13
Year 3 reading							
Indigenous	314	327	331	332	333	344	**30**
Non-Indigenous	405	415	419	420	424	423	**18**
Year 5 reading							
Indigenous	403	414	410	410	409	439	**36**
Non-Indigenous	489	498	491	492	498	506	**17**

Source: ACARA (2013).

achievement from 2008 to 2013 for students with a language background other than English (LBOTE) and non-LBOTE students were also similar. The difference in reading achievement between LBOTE and non-LBOTE at Year 3 was 3 scale points in 2008 and 4 scale points in 2013. At Year 5 the corresponding differences were larger: 20 and 17 scale points.

Improvements in reading for Indigenous students

The data in Table 2 show that Year 3 reading achievement improved from 2008 to 2013 for both Indigenous (by 30 points) and non-Indigenous students (by 18 points). The greater improvement by Indigenous students was reflected in a reduction in the difference in mean reading achievement between Indigenous and non-Indigenous students from 91 points in 2008 to 80 points in 2013. There was also an improvement (of 36 scale points) in the mean reading score for Year 5 Indigenous students between 2008 and 2013, which mainly came about between 2012 and 2013[3].

Jurisdictional trends in reading achievement

Table 3 records Year 3 and Year 5 reading achievement data for each jurisdiction. From 2008 to 2013, there were increases in mean reading achievement among Year 3 students in Queensland, Western Australia, the Australian Capital Territory and the Northern Territory. However, in these jurisdictions there was no noteworthy increase in mean reading achievement between 2012 and 2013. In New South Wales, Victoria, South Australia and Tasmania, there was no increase that met the criteria for noting from 2008 to 2013 or from 2012 to 2013[4, 5].

There were also increases in mean reading scores among Year 5 students over the period from 2008 to 2013 in all jurisdictions except New South Wales. The largest increases were in the Northern Territory (32 points) and Queensland (31 points). Furthermore, in these two jurisdictions there were also increases in mean reading scores from 2012 to 2013. In the Northern Territory, most of the increase over the six years from 2008 arose between 2012 and 2013. In Queensland, there was little overall change in mean reading achievement scores from 2008 to 2011 but there were increases from 2011 to 2012, as well as from 2012 to 2013.

Achievement in numeracy

It was noted in Table 1 that numeracy achievement at the national level has remained unchanged for all four year levels assessed from 2008 to 2013. This lack of change was also evident among subgroups disaggregated by sex, Indigenous status and language background. However, there was an improvement in Year 3 numeracy achievement in Queensland (by 18 points) and in Year 5 there were improvements in Queensland, Western Australia and the Australian Capital Territory (by between 14 and 23 points).

3 The percentage of Year 3 Indigenous students achieving at or above the national minimum standard increased by 13 percentage points (from 68 to 81 per cent) from 2008 to 2013. The percentage of Year 5 Indigenous students achieving at or above the national minimum standard increased by 20 percentage points (from 63 to 83 per cent) from 2008 to 2013.

4 The criteria adopted by ACARA are that the difference is statistically significant and the effect size is greater than 0.2 standard deviations.

5 However, for New South Wales, Victoria and Tasmania there were increases of 12 to 14 scale points, which did not quite meet the criteria of statistical significance and an effect size greater than 0.2.

Table 3 Jurisdictional mean scores for reading in Years 3 and 5 from 2008 to 2013

	2008	2009	2010	2011	2012	2013	Difference 2008–13
New South Wales							
Year 3	412	422	422	423	426	424	
Year 5	495	503	496	495	500	506	
Victoria							
Year 3	420	430	431	434	432	434	
Year 5	497	506	502	504	504	510	**13**
Queensland							
Year 3	371	386	393	400	409	408	**37**
Year 5	466	478	469	469	480	497	**31**
Western Australia							
Year 3	387	396	399	400	408	406	**19**
Year 5	474	482	478	480	483	495	**22**
South Australia							
Year 3	401	399	402	402	409	410	
Year 5	478	484	477	478	484	492	**14**
Tasmania							
Year 3	401	405	414	410	419	415	
Year 5	476	487	485	486	492	496	**20**
Australian Capital Territory							
Year 3	421	434	439	443	444	442	**21**
Year 5	503	513	509	516	519	519	**16**
Northern Territory							
Year 3	307	322	329	323	332	339	**33**
Year 5	405	421	412	403	405	437	**32**

Source: ACARA (2013).

Summary

There appear to have been improvements in reading achievement in Years 3 and 5 over the period 2008 to 2013, but no evidence of any similar improvement in numeracy. This appears to be consistent with an emphasis on reading in reform initiatives in preschool, early school and the middle primary years. Improvements have occurred in the areas at which most reform initiatives have been targeted.

It is of interest that, while there have been substantial initiatives in early school and preschool education in most jurisdictions, in Queensland there were structural changes with the introduction of Year K (or preparatory year) in schools prior to and at this time[6]. This appears to have been associated with the improvement in Year 3 reading achievement in Queensland from 2008 to 2012 and in Year 5 reading achievement from 2011 to 2013. There were smaller improvements in numeracy achievement at Year 3 (18 points) and Year 5 (23 points) in Queensland, suggesting that the impact of the structural change was not confined to reading[7]. In the Northern Territory, there were also improvements in reading achievement

6 There had been a similar structural change in Western Australia a little earlier and too soon to impact on trends in Year 3 achievement.

7 The only other jurisdictions in which there were improvements in numeracy achievement were Year 5 in Western Australia (17 points) and the Australian Capital Territory (14 points).

at Year 3 (a steady rise, accumulating to a total of 33 scale points) and Year 5 (an increase of 32 scale points between 2012 and 2013). In the Northern Territory, there had been substantial reform initiatives focused on reading achievement, especially Indigenous student achievement. It is also notable that the improvements in reading achievement among Indigenous students in Years 3 and 5 reflect a number of reform initiatives at national and jurisdictional levels. The improvements were steady over the six years for Year 3, but for Year 5 there was a sudden upturn between 2012 and 2103.

Messages from PISA

PISA focuses on achievement by 15-year-old students in three domains (reading, mathematical and scientific literacy) over a three-year assessment cycle. A different domain is chosen to be the major domain in each assessment cycle. This means that more assessment items are included from, and more assessment time is allocated to, the major domain than the two minor domains. More precise assessments are possible for a major domain than for minor domains, and more accurate estimates of trends are possible between cycles that involve a common major domain. Reading literacy was the major domain in 2000 and 2009. Mathematical literacy was the major domain in 2003 and 2012. This paper focuses on trends in reading literacy achievement from 2000 to 2009 (with reference to data for 2012) and in mathematical literacy achievement from 2003 to 2012.

Changes in achievement

Table 4 shows that, between 2000 and 2009, the average achievement in reading literacy for Australia declined from 528 to 515, a difference of 13 scale points (about one-eighth of a standard deviation). Other

Table 4 Mean reading performance for selected OECD countries: PISA 2000, 2009 and 2012

Country	Mean score PISA 2000	Mean score PISA 2009	Difference 2000–2009	Mean score PISA 2012	Difference 2000–2012
Japan	522 (5.2)	520 (3.5)	–2	538 (3.7)	16
Korea	525 (2.4)	539 (3.5)	**14**	536 (3.9)	11
Finland	546 (2.6)	536 (2.3)	**–10**	524 (2.4)	**–22**
Ireland	527 (3.2)	496 (3.0)	**–31**	523 (2.6)	–3
Canada	534 (1.6)	524 (1.5)	–10	523 (1.9)	–11
Poland	479 (4.5)	500 (2.6)	**21**	518 (3.1)	**39**
New Zealand	529 (2.8)	521 (2.4)	–8	512 (2.4)	**–17**
Australia	528 (3.5)	515 (2.3)	**–13**	512 (1.6)	**–16**
Germany	484 (2.5)	497 (2.7)	**13**	508 (2.8)	**24**
France	505 (2.7)	496 (3.4)	**–9**	505 (2.8)	1
United States	504 (7.0)	500 (3.7)	–4	498 (3.7)	–7
Czech Republic	492 (2.4)	478 (2.9)	**–14**	493 (2.9)	1
Portugal	470 (4.5)	489 (3.1)	**19**	488 (3.8)	**18**
Hungary	480 (4.0)	494 (3.2)	**14**	488 (3.2)	8
Spain	493 (2.7)	481 (2.0)	**–12**	488 (1.9)	–5
Israel	452 (8.5)	474 (3.6)	**22**	486 (5.0)	**34**
Sweden	516 (2.2)	497 (2.9)	**–19**	483 (3.0)	**–33**
Chile	410 (3.6)	449 (3.1)	**40**	441 (2.9)	**32**
OECD average	496 (0.7)	496 (0.5)	1	498 (0.6)	2

Notes:

1 Differences that are statistically significant are shown in bold.
2 Countries listed in order of mean scores for 2012.

Data source: Thomson et al. (2013).

Table 5 Mean mathematical literacy for selected OECD countries: PISA 2003 and 2012

Country	Mean score PISA 2003	Mean score PISA 2012	Difference 2003–2012
Korea	542 (3.2)	554 (4.6)	12
Japan	534 (4.0)	536 (3.6)	2
Netherlands	538 (3.1)	523 (3.5)	**–15**
Finland	544 (1.9)	519 (1.9)	**–26**
Canada	532 (1.8)	518 (1.8)	**–14**
Poland	490 (2.5)	518 (3.6)	**27**
Belgium	529 (2.3)	515 (2.1)	**–15**
Germany	503 (3.3)	514 (2.9)	**11**
Australia	524 (2.1)	504 (1.6)	**–20**
Ireland	503 (2.4)	501 (2.2)	–1
Denmark	514 (2.7)	500 (2.3)	**–14**
New Zealand	523 (2.3)	500 (2.2)	**–24**
Czech Republic	516 (3.5)	499 (2.9)	**–17**
France	511 (2.5)	495 (2.5)	**–16**
Portugal	466 (3.4)	487 (3.8)	**21**
Italy	466 (3.1)	485 (2.0)	**20**
Russian Federation	468 (4.2)	482 (3.0)	**14**
Slovak Republic	498 (3.3)	482 (3.4)	**–17**
United States	483 (2.9)	481 (3.6)	–2
Sweden	509 (2.6)	478 (2.3)	**–31**
Hungary	490 (2.8)	477 (3.2)	**–13**
OECD average	500 (0.6)	496 (0.5)	–3

Notes:

1 Differences that are statistically significant are shown in bold.
2 Countries listed in order of mean scores for 2012.

Data source: Thomson et al. (2013).

countries to record a significant decline in average reading scores included Ireland, Sweden and the Czech Republic. Seven countries (Chile, Israel, Poland, Portugal, Korea, Hungary and Germany) recorded significant improvements (with gains of 13 to 40 scale points) (Organisation for Economic Co-operation and Development [OECD], 2010). In 2012, the average achievement in reading literacy in Australia was 512, which represented an overall decline since 2000 of 16 scale points (about one-sixth of a standard deviation). Germany continued to improve so that its average achievement was 508 (484 in PISA 2000), and Sweden continued to decline so that its average was 483 (it had been 516 in PISA 2000).

Table 5 shows that, between 2003 and 2012, the average achievement in mathematical literacy for Australia declined from 524 to 504, a difference of 20 scale points (about one-fifth of a standard deviation). Other countries to record a significant decline in average mathematical literacy scores included Finland, Sweden and New Zealand. Five countries (Poland, Portugal, Italy, the Russian Federation and Germany) recorded significant improvements (with gains of 11 to 27 scale points) (OECD, 2013). In Germany, the average achievement in 2012 was 514 (503 in PISA 2003), and in Sweden the average was 478 (it had been 509 in PISA 2003).

Table 6 Jurisdictional trends in PISA reading achievement: 2000, 2009 and 2012

	PISA 2000	PISA 2009	PISA 2012	Difference 2000–2012
New South Wales	539 (6.3)	516 (5.6)	513 (3.3)	**–26**
Victoria	516 (7.6)	513 (4.7)	517 (3.5)	1
Queensland	521 (8.6)	519 (7.0)	508 (3.4)	–13
Western Australia	538 (8.0)	522 (6.3)	519 (3.1)	–19
South Australia	537 (7.7)	506 (4.8)	500 (4.0)	**–37**
Tasmania	514 (9.7)	483 (5.8)	485 (3.6)	**–30**
Australian Capital Territory	552 (4.6)	531 (6.0)	525 (3.6)	**–27**
Northern Territory	489 (5.6)	481 (5.6)	466 (8.3)	**–23**

Notes:

1 Standard errors are shown in parentheses.
2 Differences between 2000 and 2012 that are statistically significant are shown in bold.

Source: Thomson et al. (2013, p. 199).

Student background

Achievements in PISA can be investigated in relation to student characteristics such as sex, Indigenous status, socioeconomic background, language background, immigrant background, and geographic location. There were no significant changes from 2000 to 2009 for reading or from 2003 to 2012 for mathematics in the differences between females and males, between Indigenous and non-Indigenous students, or between students in metropolitan and non-metropolitan locations (Ainley & Gebhardt, 2013; Thomson et al., 2013; Ryan, 2013).

For both reading (2000 to 2009) and mathematics (2003 to 2012) there was a reduction in the difference between students with an immigrant background and those with a non-immigrant background, and between LBOTE and other students, arising mainly from the fact there was no decline for students with an immigrant background or LBOTE students, whereas there had been a decline for other students.

There was no change in the slope of the relationships between reading literacy (2000 to 2009), or mathematical literacy (2003 to 2012), and socioeconomic status as measured by the index of Economic, Social and Cultural Status (ESCS)[8]. Nor were there any changes in the percentage of the variance in achievement explained by ESCS. Ainley and Gebhardt (2013) used quantile regression to show that the relationships between reading literacy and these student characteristics were similar across the range of achievement for all PISA cycles[9].

Differences among jurisdictions

Table 6 indicates that there were differences among jurisdictions in the change in mean reading scores between 2000 and 2012. In Tasmania, South Australia, New South Wales, the Australian Capital Territory and the Northern Territory there were significant declines. There were no significant changes in Western Australia, Victoria or Queensland (Thomson et al., 2013). The variations among Australian jurisdictions in the extent of the declines suggest that there may be some systemic factors associated with curricula or

8 Although there was small drop in the average reading literacy scores of students from the top quarter of the distribution of socioeconomic status (Ainley & Gebhardt, 2013).

9 There was a small change in the distributions of student scores in reading in 2000 and 2009. There was a greater decline in the 75th, 90th and 95th percentiles than in the 5th, 10th and 25th percentiles (Ainley and Gebhardt, 2013). The decline of the 90th percentiles was 18 scale points, whereas the decline of the 10th percentile was 11 points. There was a significant decline in the percentage of students at proficiency level 5 and above (18 per cent in 2000 compared to 13 per cent in 2009) but no significant change in the percentage of students below level 2 (13 per cent in both 2000 and 2009) (OECD, 2010). This shift in distribution is also evident when the distribution of reading literacy data in PISA 2012 is compared with that from PISA 2000 (Thomson et al., 2013). There did not appear to be any corresponding shift in distributions for mathematical literacy between 2003 and 2012 (Thomson et al., 2013).

Table 7 Jurisdictional trends in PISA mathematics achievement: 2003 and 2012

	PISA 2003	PISA 2012	Difference 2003–2012
New South Wales	526 (4.3)	509 (3.6)	**–17**
Victoria	511 (5.1)	501 (3.7)	–10
Queensland	520 (6.9)	503 (2.9)	**–16**
Western Australia	548 (4.1)	516 (3.4)	**–32**
South Australia	535 (4.9)	489 (3.3)	**–46**
Tasmania	507 (9.4)	478 (3.4)	**–30**
Australian Capital Territory	548 (3.5)	518 (3.6)	**–30**
Northern Territory	496 (4.9)	452 (10.4)	**–45**

Notes:

1 Standard errors are shown in parentheses.
2 Differences between 2003 and 2009 that are statistically significant are shown in bold.
3 The mean score differences have been calculated from data that do not round off decimal places and may seem different from those suggested by simply substracting the whole numbers in the table.

Source: Thomson et al. (2013, p. 50).

Table 8 Between-school variance as a percentage of total variance in PISA reading scores in 2000 and 2009 for selected countries

	Percentage variance between schools			
	Reading		Mathematics	
	PISA 2000	PISA 2009	PISA 2003	PISA 2012
Finland	8	9	5	8
Sweden	9	18	9	13
Canada	20	22	17	20
New Zealand	16	24	17	24
Australia	20	26	22	28
United States	30	36	24	24
Mexico	53	48	45	35
Germany	59	60	57	53
OECD average	36	37	33	35

Data source: OECD database.

school organisation that may be linked to these declines in reading achievement.

Table 7 indicates that there were differences among jurisdictions in the change in mean mathematics scores between 2003 and 2012. There were significant declines in all jurisdictions except Victoria. The larger declines were in South Australia (46 points), the Northern Territory (45 points), Western Australia (32 points), Tasmania (30 points) and the ACT (30 points). There were smaller declines in New South Wales (17 points) and Queensland (16 points). In Victoria there was no significant decline.

The jurisdictional declines in reading and mathematics achievement were correlated (r = 0.72), which suggests that it is unlikely that particular changes in curricula or teaching in these areas would provide the main explanation for those declines, although they could be associated with more general changes in approaches to teaching.

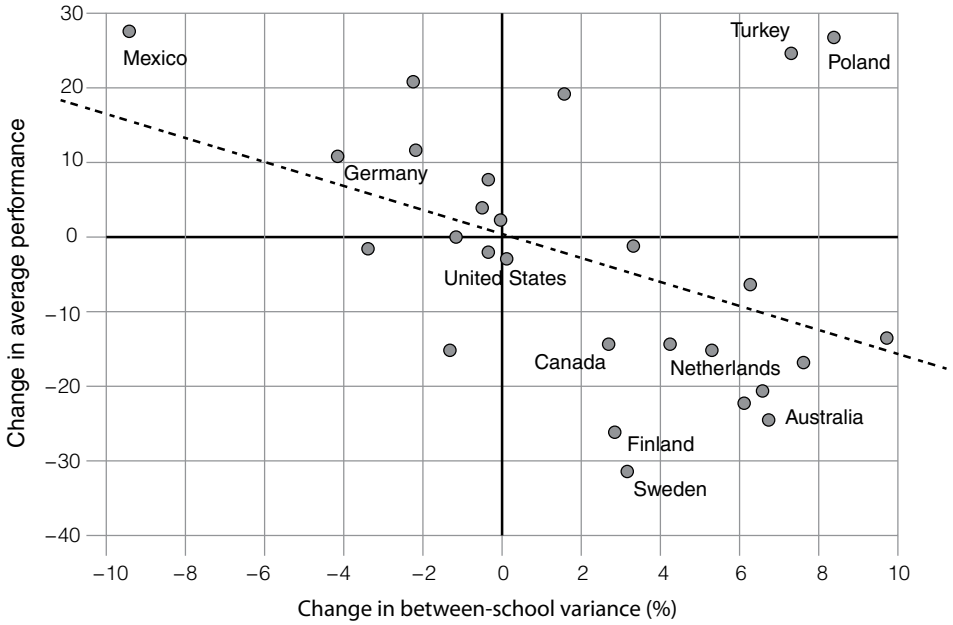

Figure 1 Relationship between change in between-school variance and change in average performance

Changes in the relative variation of achievement between and within schools

Students vary in reading achievement and the extent of variation is indicated as the variance in achievement scores. Variance is a measure of dispersion calculated as the mean of the squared deviations of observed values from a mean. The total variance in student achievement can be envisaged as made up of two sources: the variance within schools and the variance between schools' mean scores. In other words, the (total) variance can be decomposed into between-school variance and within-school variance so that the sum of the between- and within-school variance is equal to the total variance. Both the between- and the within-school variance can be expressed as a percentage of the total variance. The percentage of the total variance that is between schools provides an indication of the extent to which schools differ in their average achievement scores.

The balance of these two forms of variation also differs between countries. In some countries, students are very similar to each other within schools, but the schools are very different from each other in average performance. In other countries, schools are on average quite similar to each other in performance, but students within those schools vary considerably. The extent of differentiation is influenced by factors such as explicit selectivity in entry to types of secondary school, the extent of enrolment in private schools and the extent to which residential location is socially stratified.

The highest level of differentiation is found in tracked education systems where entry to secondary school is based on measured performance (e.g. Germany). The lowest level of differentiation is found in fully comprehensive school systems where there is little social stratification by location (e.g. Finland). Table 8 records the percentage of the variance that is between schools for Australia and selected OECD countries in reading between 2000 and 2009 and in mathematics between 2003 and 2012.

More generally, there may be a negative relationship between the change in mean performance and the change in percentage of variance that is between-school variance. Figure 1 shows the relationship between the change in average mathematics achievement (trend estimate) and the change in percentage of variance that is between-school variance for 28 OECD countries. The result shows that for each percentage point of increase in between-school variance (horizontal axis), the national average performance dropped by 1.6 PISA scale points (vertical axis). This is equivalent to a medium effect size (0.42). In addition, the change in between-school variance explained 17 per cent of the variation in trend estimates. Two countries clearly did not follow this pattern; Turkey and Poland showed a large increase in both average performance and

between-school variance. If these two countries were excluded from the analysis, 53 per cent of the variation in trend estimates would be explained by a change in between-school variance.

Summary

Results from PISA indicate declines of between one-eighth and one-fifth of a standard deviation in reading and mathematics achievement over the relevant nine-year periods among 15-year-old students in Australia. These declines do not appear to be associated with changes in the personal, social and demographic characteristics of students. However, there did appear to be differences among jurisdictions in the magnitude of the declines, and those jurisdictional declines appeared to be similar for reading and mathematics. In our view, the underlying correlates of these patterns deserve further investigation. There was also an increase in the percentage of the variation in student scores that was associated with differences among schools. Other literature has suggested that higher levels of differentiation are associated with lower levels of achievement (OECD, 2010; Willms, 2010). This paper suggests that changes in differentiation are associated with changes in average achievement.

Conclusion

There are two quite different themes emerging from this paper. The first concerns reading achievement in the primary school years in Australia. There has been a steady improvement in reading achievement among Year 3 students from 2008 to 2013 and in Year 5 reading achievement over the same period. Moreover, the improvements have been greatest where there have been the strongest interventions. These improvements give some cause for optimism in terms of the efforts that have been made in the preschool years, the early years of schooling and primary school in general. The counterpoint is that there have been only isolated instances of improvement in other curriculum areas such as numeracy or writing.

The second theme concerns reading and mathematics achievement in the middle secondary years, in which there have been declines over periods of 9 to 12 years. These declines vary among jurisdictions and have been associated with increased differentiation among schools. That should suggest caution regarding initiatives that might have the concomitant effect of exacerbating differences among schools in intake characteristics or effectiveness and support for measures that provide quality assurance.

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