

# Equity in Australian Schooling

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## An Update

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<Revision 2>

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What can the *My School* website data tell us about whether equity in schools has drifted in one direction or the other since the Review of Funding for Schooling (‘Gonski Review’) produced its report?

The Review Panel's report had a great deal to say on the question of equity and its recommendations are framed around the concern that any system of funding should have equity of opportunity for Australian students as one of its central goals. In Chapter 4 of the report, the panel lists a number of principles, including:

- *Public funding should be allocated in a fair, logical and practical way so that schools with similar characteristics and student populations have similar access to public funding, taking into account, in the non-government sector, the capacity for a contribution from private resources.*
- *Funding should be allocated to schools and students on the basis of need, in particular to ensure that differences in educational outcomes are not the result of differences in wealth, income, power or possessions.*
- *Funding from all sources should be sufficient to ensure that all Australian students have the opportunity to receive a high standard of schooling.<sup>1</sup>*

This paper uses data from the *My School* website to explore some indicators of change in the equity of schools since the evidence on which the panel based their findings was obtained. At the time of writing there is a bare three years since the release of the Gonski Report. Nevertheless there have been several significant developments in the state of education funding, in student outcomes and in the political landscape around education funding that make it timely to address these changes.

Although not primarily intended for that purpose, the data published on the *My School* website could potentially have a good deal to say on equity matters, since it carries comprehensive information about school demographics, outcomes and finances over several years. The architects of the website had aspects of equity in mind with their development of the Index of Community Socio-Educational Advantage (ICSEA) which assesses a number of non-school variables that are known to have an impact on school outcomes. The index is designed to establish the “statistical similarity” of the socio-educational setting of schools in order to provide a basis for fairly comparing outcomes.

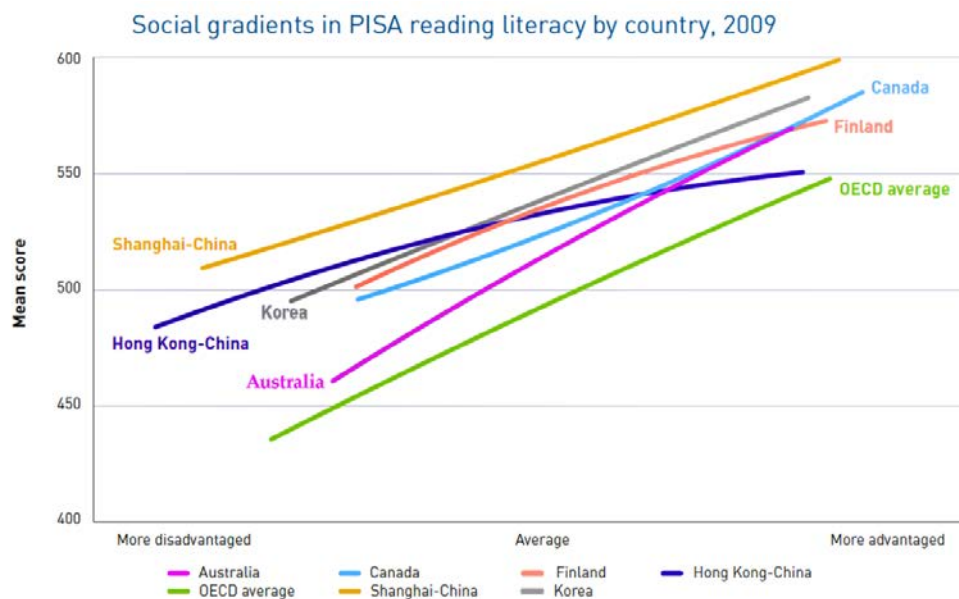
The ICSEA has been something of a work in progress since 2009. In 2009, the ICSEAs were based on readily available, but quite coarse-grained, census data. Since that time, the calculation has been based more and more upon individual student family information: a more reliable source, although collecting it has problems of its own. Still, each succeeding edition has inspired increased levels of confidence.

### Equity according to the Funding Review

The Gonski panel defined equity as an aspiration that:

*"differences in educational outcomes are not the result of differences in wealth, income, power or possessions."*<sup>2</sup>

Early in their discussion of equity they quoted this graph of social gradients in PISA reading literacy from a 2011 COAG report.



Source: Reproduced from COAG Reform Council 2011 [Figure 3.4, p. 35], using OECD, PISA 2009 data.

**Figure 1 Social Gradients in PISA reading literacy 2009 quoted in the report of the funding review**

It shows trendlines for the PISA reading literacy results of a number of countries that we often compare ourselves with, along with the OECD average. The horizontal scale is the socio-economic status of the students and the vertical scale is their reading scores. For all of the countries shown, the higher the SES of the students, the better their reading scores. The slope of that kind of graph is referred to as a "social gradient", since the slope is determined by social factors.

The reality that the graph is reflecting is that the students' socio-economic status is having a large say in determining how well the students learn to read and that's an equity issue. It is not unimportant that the steepest line shown here – indicating the greatest impact of SES on reading in 2009 – is the one belonging to Australia.

Since the *My School* data includes NAPLAN test averages and ICSEA measures, the ingredients exist for a similar presentation of outcomes against, in this case, the socio-educational factors measured by ICSEA. We could do this for each NAPLAN domain and each cohort, but to obtain a more generalised picture, it is useful to combine them in a statistically appropriate way that reflects the overall efficacy of each school's performance. The NAPIndex used in this analysis is such a measure, combining the results of different cohorts equally and weighting literacy-based domains equally with numeracy results. The overall average for the NAPIndex is 500: numerically similar to NAPLAN scores ... but quite different from them.

## Then and now

To apply this idea, figure 2 shows trendlines<sup>3</sup> for 2010 (blue) and 2013 (red), with the actual data points obscured for clarity and privacy. Since the ICSEA is the determining variable, we can call the slope of the trendlines we get here a Socio-Educational Gradient (SEG).

We see at once that the slopes of the plots are different, with the data for 2013 indicating a steeper result than that for 2010. Some caution is needed at this point. In order that student progress can be tracked from Year 3 through to Year 9, NAPLAN results are carefully crafted to be comparable from year to year. However, as noted earlier, the ICSEA measure has evolved somewhat over the years and we have to allow that - certainly in the earlier years - there is variability in the index that might not reliably reflect the socio-educational situation of each school's community.

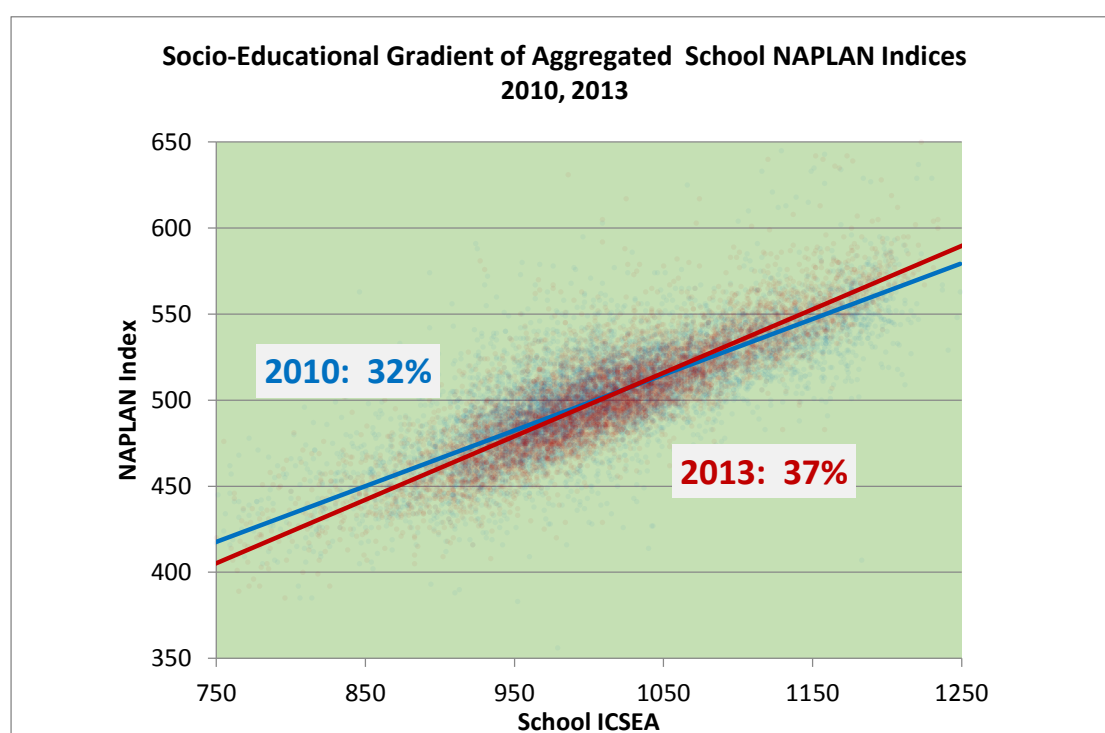


Figure 2 SEG of NAPLAN Indices for all school types; 2010, 2013

With that caveat clearly in mind, we nonetheless note that the socio-educational gradient of NAPLAN performance appears to have increased over the years from 2010 to 2013. If this is an accurate representation of the situation, then school-to-school *equity* has declined measurably over the period, with high-ICSEA schools improving and low-ICSEA schools declining in performance.

It would be unsafe on the basis of these results alone to draw anything other than a suspicion, albeit a fairly strong one, of declining equity; we should look to other evidence as well. Perhaps the most unsettling feature of this result is that it does not give us any reason to think that equity has actually *improved* over the period.

## SEG in other contexts

If we confine ourselves to just the most recent (i.e. 2013) data, we find some intriguing results in comparing the SEGs for particular subsets of schools.

### City and Country

A division that is of particular interest relates to schools in metropolitan and provincial areas. Figure 3 shows how schools in those categories line up against their ICSEA.

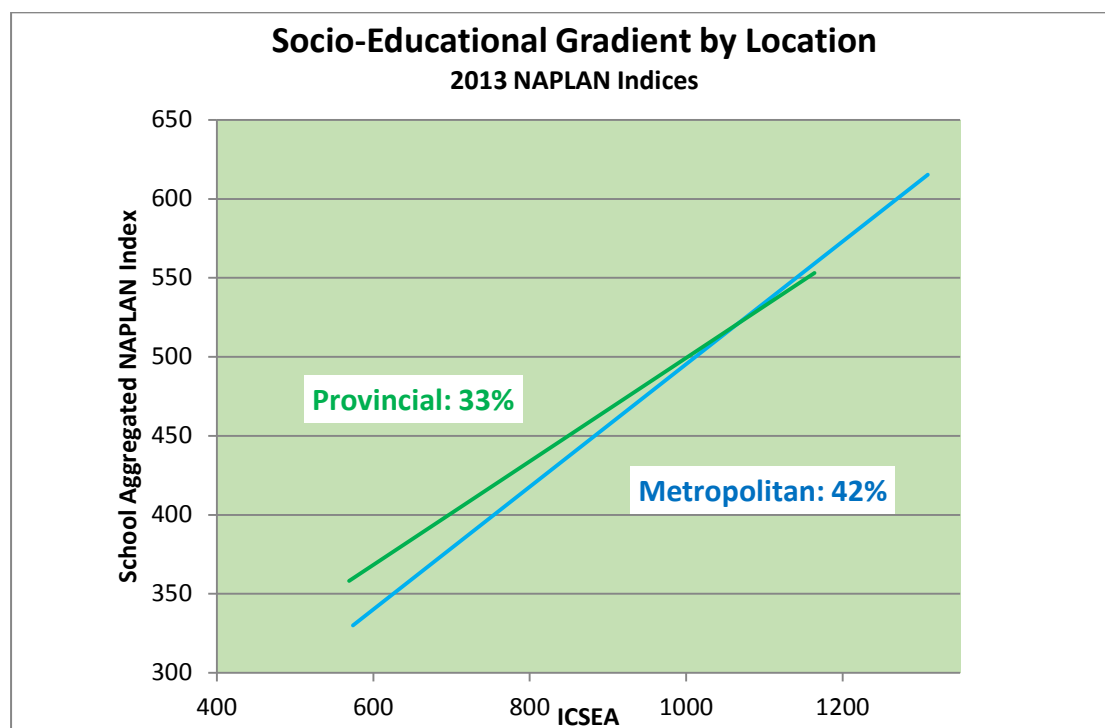


Figure 3 SEG for provincial and metropolitan schools; 2013

The most striking observation about this view of the data is that the performance of metropolitan schools is much more strongly affected by ICSEA than that of provincial schools. We tend to think of more remote schools when we think of inequity, but in terms of school-to-school *differences*, it seems to be in metropolitan areas that the differences related to advantage are greatest. We may wonder why this is the case.

### A Comparison of School Types

What differences exist among the different levels of schooling recognised in the *My School* data: primary, secondary and combined? Figure 4 shows us that secondary schools are considerably more differentiated by socio-educational advantage than primary schools, with combined schools in between. Again, this raises questions: firstly about what the data is saying, but also about why it is the case.

That's a lot of questions lined up already, but before we have a look in directions that might provide clues, we should examine the situation of the secondary years more closely, with NSW as a case in point (figure 5).

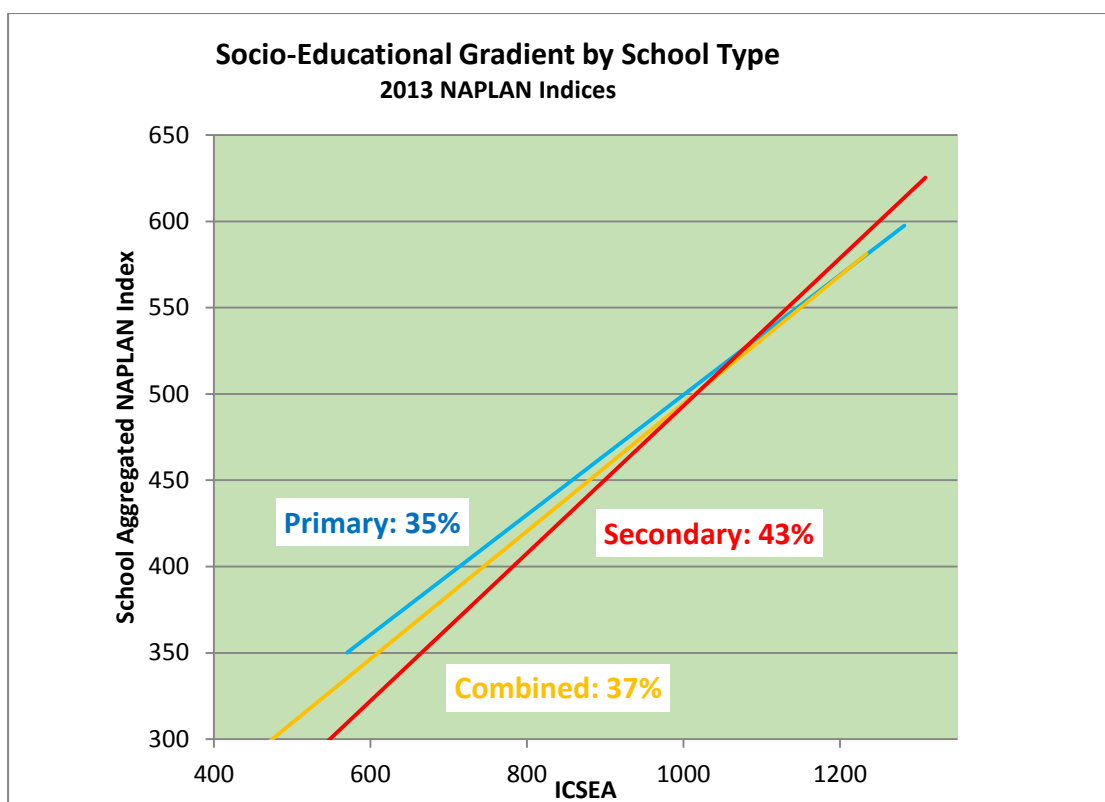


Figure 4 Socio-educational gradient by school type; all schools, all sectors; 2013

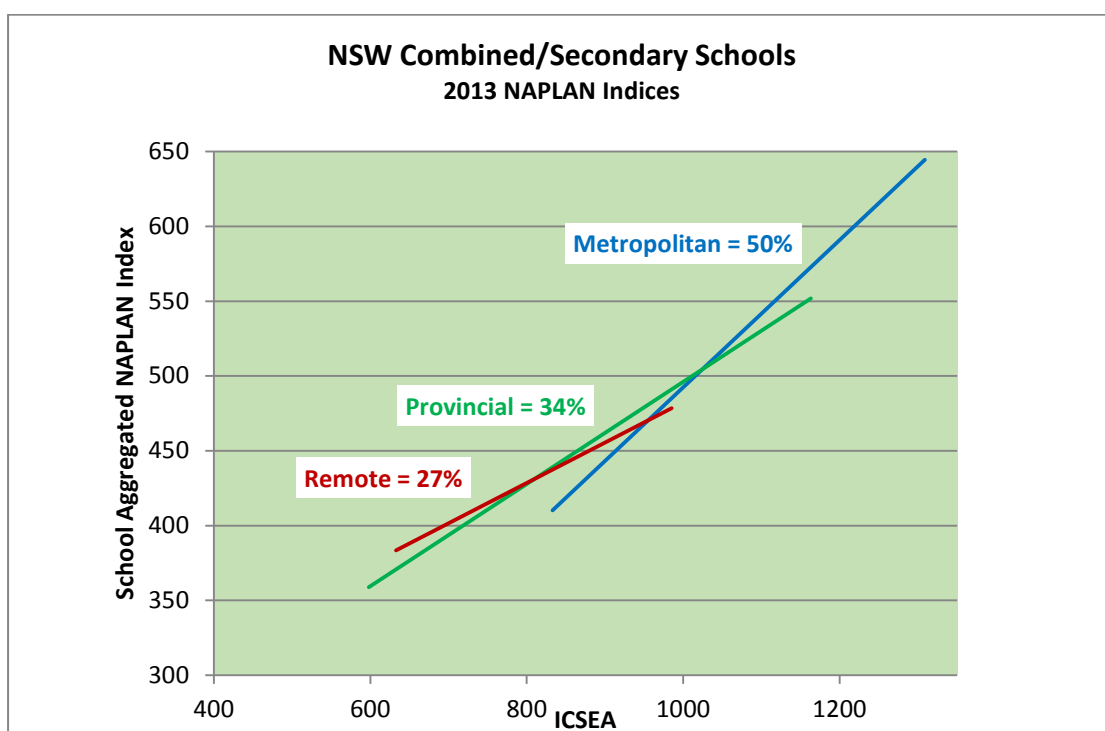


Figure 5 SEG of NSW secondary and combined schools by geo-location

Our remote secondary schools in NSW have definitely been struggling: the fact that they are only modestly differentiated at 27% pales alongside the fact that they need far better outcome performance overall (recall that the average NAPIndex is 500). Our provincial schools do a little better performance-wise, but they are more influenced by socio-educational advantage. The NSW metropolitan schools, at an SEG of 50%, represent the most highly differentiated group of its kind in the country.

## What is going on?

Coming to the "why is it so?" questions, the *My School* data holds some clues. Figure 6 shows five graphs superimposed, one for each year from 2009 to 2013. Each graph shows the total full-time-equivalent enrolments in schools of all types, in all sectors, at points along the ICSEA scale. The median values for each year are labelled. These are the points on the ICSEA scale where exactly 50% of students sit either side<sup>1</sup>.

Perhaps the first thing we note is that the median points have been shifting to the right (i.e. high-ICSEA end) by close to one ICSEA unit per year. While this may not seem much, one unit around the middle of the scale is the population equivalent of around 35 schools, or something like 15,000 students.

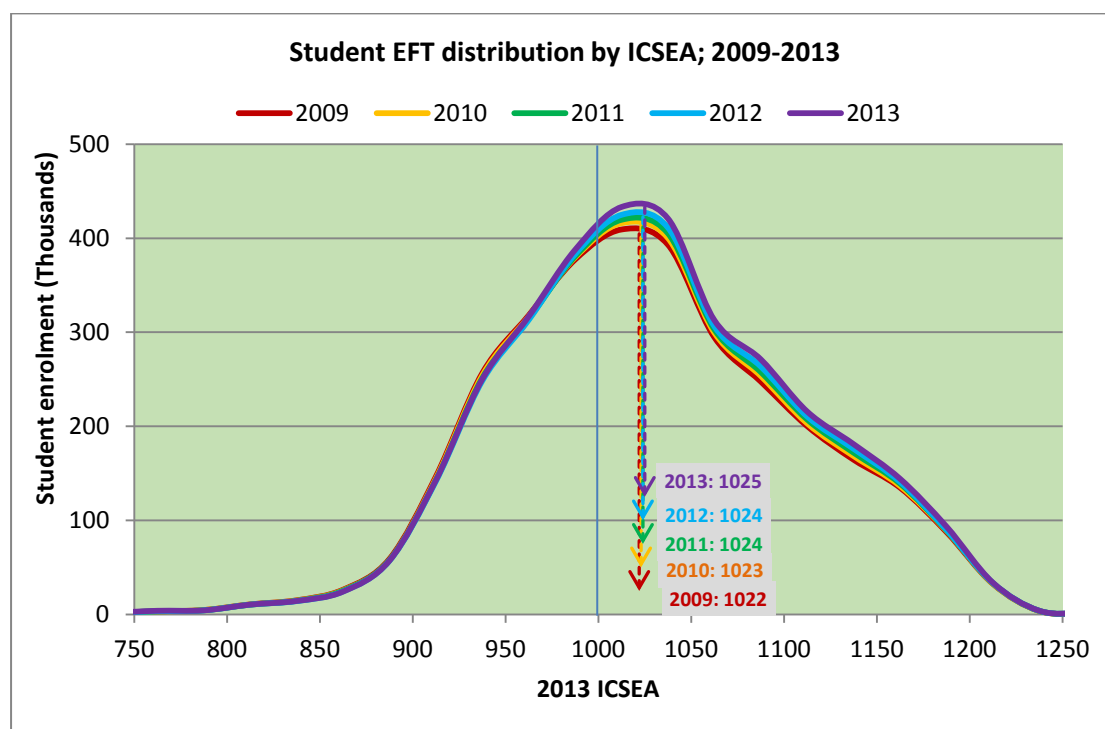


Figure 6 Student enrolment (EFT) distribution by ICSEA 2009-13

The second thing to notice is that the graphs overlap almost perfectly, but the areas where they *don't* overlap (i.e. the 'colour-fringed' zones) give us important information. The schools that have grown most over recent years have been the schools above the ICSEA average of 1000.

What this is telling us is that over the period since Gonski reported, schools of 1000 ICSEA or more have taken an increasing share of the student population. The detail of the data says that the shift is not just at the middle, but there is a drift towards the right of the graph across most of the range (see table 1, table 2). Some of the growth will be due to natural increase in Australia's student population which, in the absence of other data, we might assume would impact evenly across the ICSEA range. From the

<sup>1</sup> In interpreting the data here (as elsewhere in this paper) it should be recalled that the methodology and data sources for socio-educational advantage calculations have changed over the years, however the final index itself continues to be distributed around a mean of 1000 and SD of 100.

pattern of the shifting percentiles, we actually see that there is a rightwards "drift" superimposed on the natural growth.

Percentile\Year	2009	2010	2011	2012	2013
10th	929	930	931	932	932
20th	957	959	959	960	961
30th	982	983	983	984	985
40th	1003	1004	1005	1006	1006
50th	1022	1023	1024	1024	1025
60th	1042	1042	1043	1044	1044
70th	1066	1067	1069	1069	1070
80th	1097	1098	1099	1100	1101
90th	1138	1138	1139	1139	1140

Table 1 School ICSEA values by population percentile; 2009-2013

ICSEA \ Year	2009	2010	2011	2012	2013
700	0.43%	0.43%	0.42%	0.42%	0.40%
800	0.82%	0.82%	0.80%	0.77%	0.78%
900	4.16%	4.16%	4.10%	3.99%	3.94%
950	16.85%	16.49%	16.21%	16.89%	16.70%
1000	38.55%	38.02%	37.57%	37.11%	36.79%
1050	63.59%	63.27%	62.92%	62.61%	62.36%
1100	80.50%	80.35%	80.13%	79.98%	79.83%
1150	91.87%	91.84%	91.78%	91.76%	91.70%
1200	98.81%	98.81%	98.80%	98.80%	98.81%

Table 2 Cumulative school population percentage at ICSEA points; 2009-2013

If, as seems probable, most of that drift is due to the physical transfer or diversion of students to higher ICSEA schools in their locality or elsewhere, then it would likely be a direct consequence of school choice policies put in place by successive governments and supported via their funding measures.

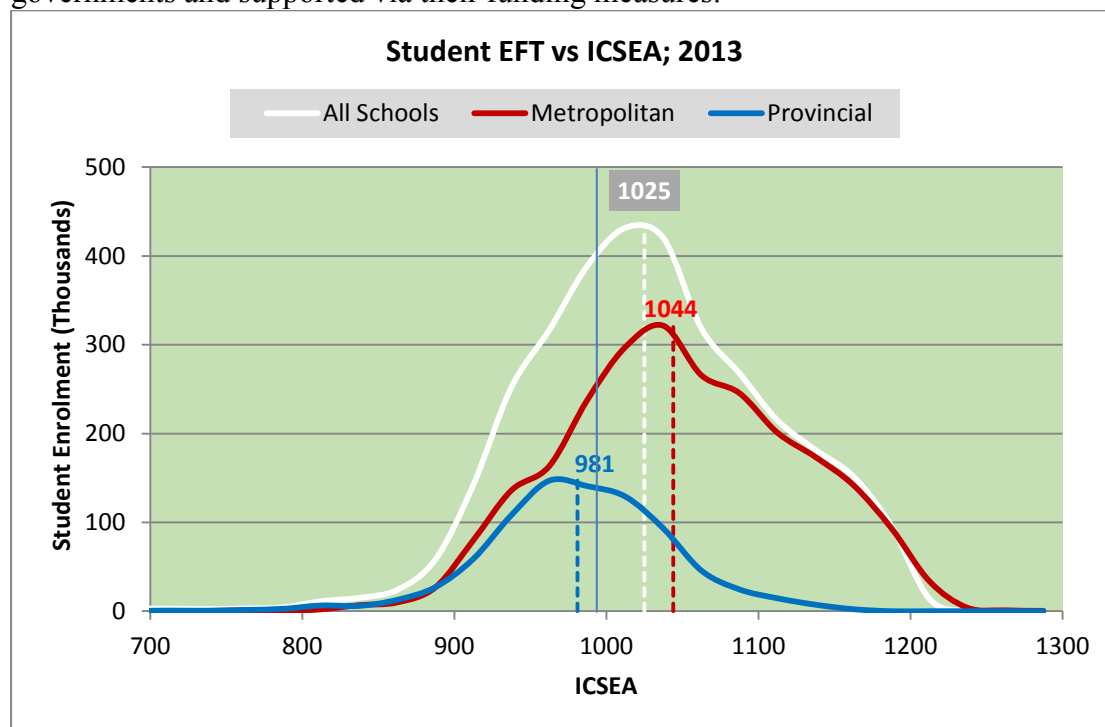


Figure 7 Student EFT distribution by ICSEA for metropolitan and provincial schools



Figure 7 gives us an insight into how city-country SEG differences arise. Detail in the data shows that 73% of metropolitan students are in schools with above-average ICSEA ratings. Some will see great merit in that statistic, since more students will be situated in more advantaged schools, however we must also consider what it means in equity terms for those students in the remainder of the schools.

In particular, we might examine the equity implications when we have a sizeable minority (27%) of metropolitan students and a small *majority* of non-metropolitan students (~63%) in schools with ICSEAs below 1000 and showing, on earlier indications, relatively modest to poor NAPLAN performance.

If we would be correct in speculating that the students moving to the higher-ICSEA schools would include a preponderance of the students from relatively advantaged families, then we are describing a situation of concentrating disadvantage among the other schools. Research shows that the *concentration* of disadvantage brings its own impost on outcomes in addition to that of the disadvantage itself<sup>4</sup>.

What is clear is that socio-educational advantage, which is what ICSEA measures: (i) is quite strongly associated with performance, by definition and (ii) is not evenly spread through our schools. In fact, the indications are that separation is increasing.

Although other countries – including some more educationally successful ones – have made different decisions, we have declared as a society that the free choice of schooling is a virtue to be supported by public policy and funding on the implicit assumption that it is available to all.

What we are seeing here is arguably one consequence of that decision. Unless we are prepared as a society to say that the families and students who do not or cannot choose a "more advantaged" school are of no importance, then our system must ensure that *their* school – and their educational outcomes – are the best they can be.

### How are we responding to this situation?

I will finish by updating another graph from the Gonski report. It's the one that compares the distribution of socio-educational advantage across our schooling sectors in terms of the "Quarter" divisions, where Quarter 1 is the lowest and 4 is the highest.

With blocks of data the size of these, there are few differences and some that exist in figure 8 may relate to differences in the methods of calculating SEA referred to earlier. Looking across the 50% line, we see that the middle student in the government system is still near the top of Quarter 2 as was the case in 2010. The middle student in the Catholic system is still a Quarter 3 student. We see that nearly half of the students in the Independent sector were and still are from Quarter 4.

One of the most tangible and relevant manifestations of our national approach to equity since the Gonski Review has been the continued distribution of government funding to these sectors.

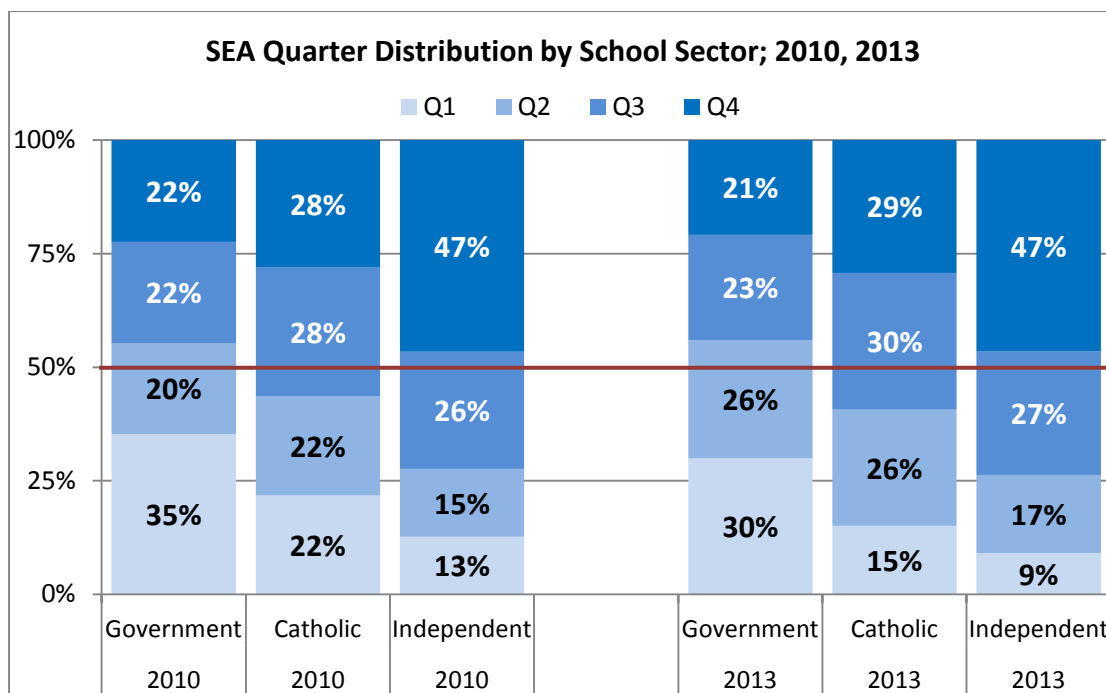


Figure 8 SEA Quarters distribution; 2010 and 2013

As *My School* data shows, government schools, with 56% of their students in the Q1 and Q2 groups received per-student funding increases over the period averaging 3.6% per annum, which is close to the inflation figure. Catholic schools, with fewer (41%) of their students in Q1/Q2 received government-sourced increases of 5.0% per-student, per annum over the same time. Independent schools with even fewer Q1/Q2 students (26%) had their per-student government funding raised by 5.5% per annum.

### To conclude ...

In examining the entrails of *My School* since 2010 for signs, it would seem that the indicators of educational need have been pointing one way, while public funding for schools has been continuing in the other. This needs to change. The New South Wales government is to be congratulated for being the earliest and most enthusiastic adopter of the Gonski funding principles outlined at the start of this paper. It is imperative that other jurisdictions follow their lead.

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 October, 2014

<sup>1</sup> Review of the Funding of Schooling Report, p 149

<sup>2</sup> Review of Funding for Schooling Final Report; Dec, 2011, p 105

<sup>3</sup> Throughout this paper, the trendlines are derived from Ordinary Least-Squares Regression.

<sup>4</sup> NSW submission to Gonski: NSW Government, Review of Funding for Schooling New South Wales Government Submission to the Australian Government, September 2011;

<https://www.det.nsw.edu.au/media/downloads/about-us/news-at-det/announcements/yr2011/schoolfundingreview/submission.pdf>

Also Richard Teese; From opportunity to outcomes. The changing role of public schooling in Australia and national funding arrangements. <http://resources.news.com.au/files/2012/01/31/1226258/621517-aus-news-file-public-schools-in-australia-report.pdf>