

Secondary data analysis of large-scale international datasets in the service of national education policy evaluation: The case of PISA Australia

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Purpose

- To demonstrate the secondary analysis of a large scale dataset & explore possibilities to inform policy analysis/evaluation/reform
 1. PISA (Programme for International Student Assessment), a high quality, large scale dataset
 2. Findings regarding association of school socioeconomic status (SES) and student attainment in reading, maths
 3. Possible implications for policy debate on school funding (pre K-year 12)

What is PISA?

- Programme for International Student Assessment, designed and conducted by the OECD every 2 to 3 years since 2000
- Tests 15 year-olds' literacy in math, science, reading and problem-solving in over 40 countries (including 30 OECD countries)
- Other measures:
 - Student characteristics
 - School resources, climate, policies, teacher morale, etc. (completed by principal)
 - Expectations, sense of belonging, relationships with teachers, discipline, etc. (completed by student)

Advantages of PISA for this Study

- Rich measure of student SES
 - Highest parental occupation
 - Highest parental education
 - Family cultural and financial resources
- Ability to calculate mean school SES based on student SES
 - Many other datasets only have rough measures for this, such as postcode census data, % of students receiving free lunches, government assistance, etc.

Analyses of Australian PISA

- “League table” of student achievement cross-nationally and within the country
- Secondary analyses about ICT use, and differences between groups of students (rural/urban, gender, native/immigrant)
- Conducted by researchers at ACER

Australian Policy Context

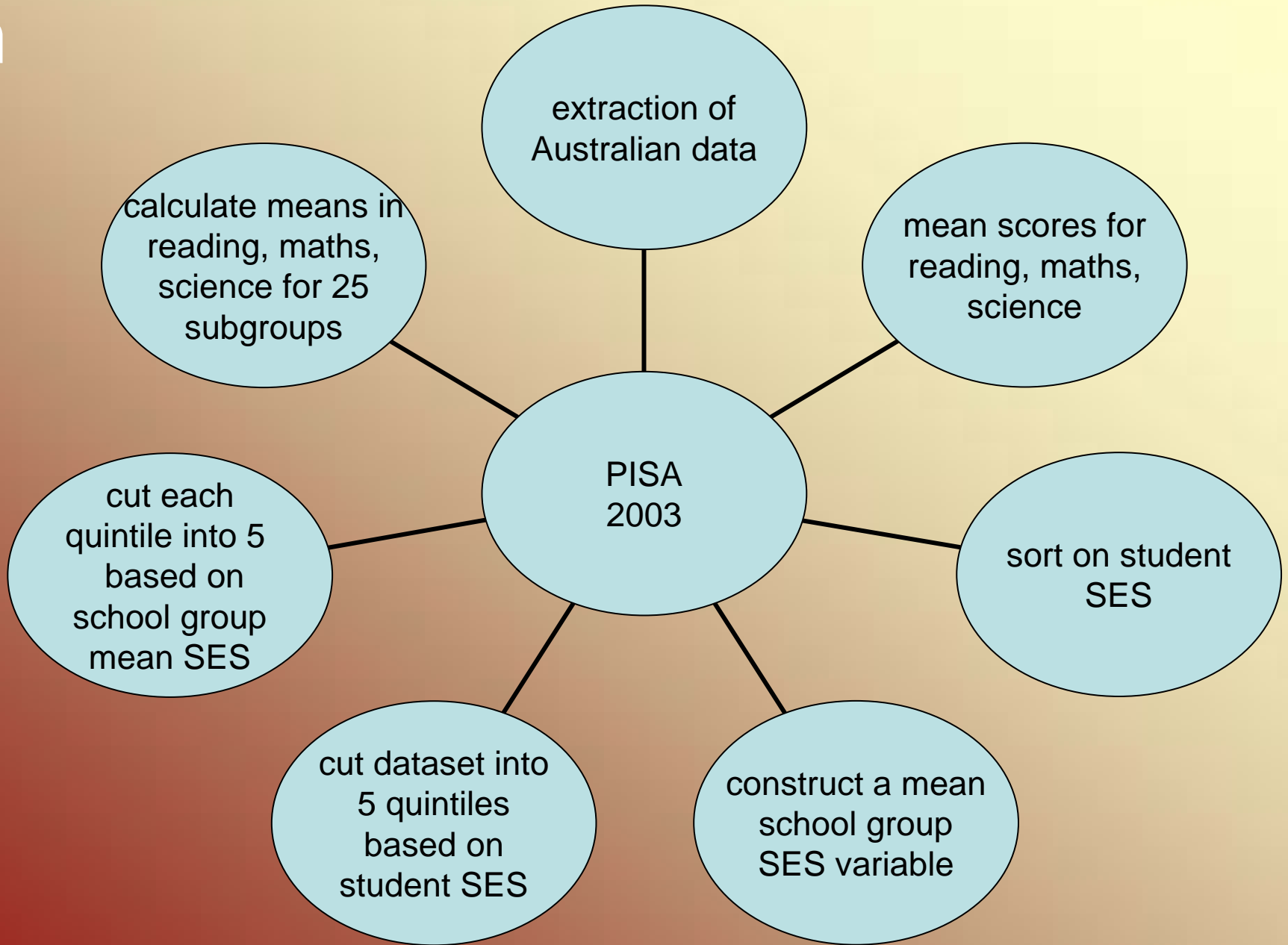
1. Increased public \$ for private sector
2. Increased enrolments in private sector (Ryan & Watson, 2004)
3. Increasing segregation by SES (Rothman, 2003)
4. Labour looking for mechanisms to increase funding for lower SES schools, regardless of private or public
5. Policy objective: to minimise differences among schools in the quality and outcomes of educational provision

Research/policy questions

School SES & Achievement

- are increases in the mean SES of the school consistently associated with increases in student academic outcomes?
- similarly, is there a threshold before which increases in the mean SES of the school have limited association with increases in academic achievement? In other words, is the relationship between mean school SES and academic achievement uniformly linear?

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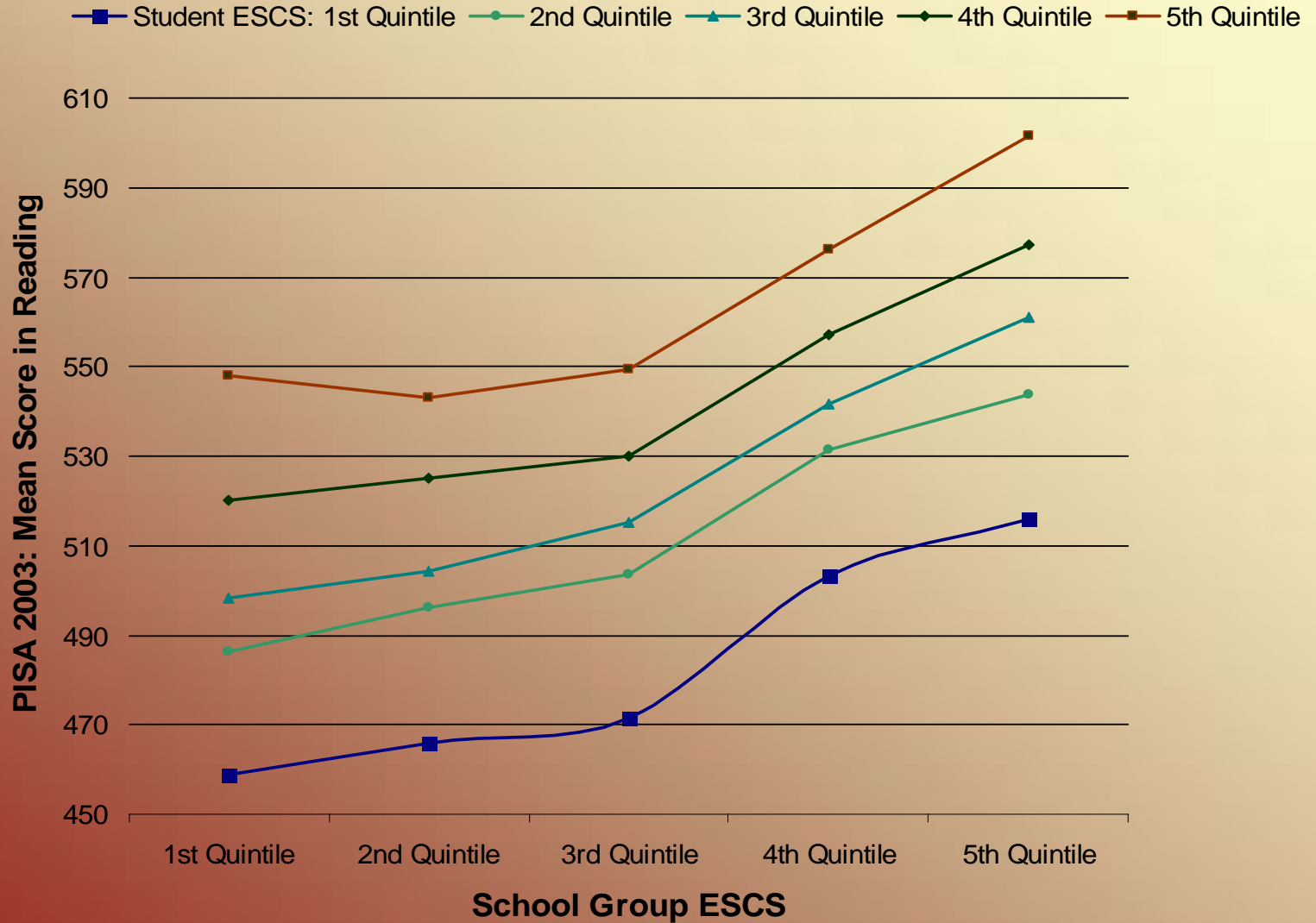
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Individual Student SES	School Group SES				
	1 st Quintile	2 nd Quintile	3 rd Quintile	4 th Quintile	5 th Quintile
1 st Quintile	n = 984 458.8	n = 690 466.0	n = 490 471.5	n = 231 503.3	n = 88 516.0
2 nd Quintile	n = 591 486.2	n = 681 496.0	n = 596 503.5	n = 425 531.4	n = 195 543.9
3 rd Quintile	n = 416 498.1	n = 492 504.2	n = 639 515.1	n = 568 541.7	n = 348 560.9
4 th Quintile	n = 213 520.3	n = 377 525.1	n = 516 529.8	n = 682 557.2	n = 693 577.2
5 th Quintile	n = 99 547.8	n = 199 543.0	n = 362 549.4	n = 602 576.1	n = 1212 601.7

Table 1. PISA 2003 Australia Reading Mean Scores by Individual Student and School Group SES

Performance in Reading According to Individual and School Group SES

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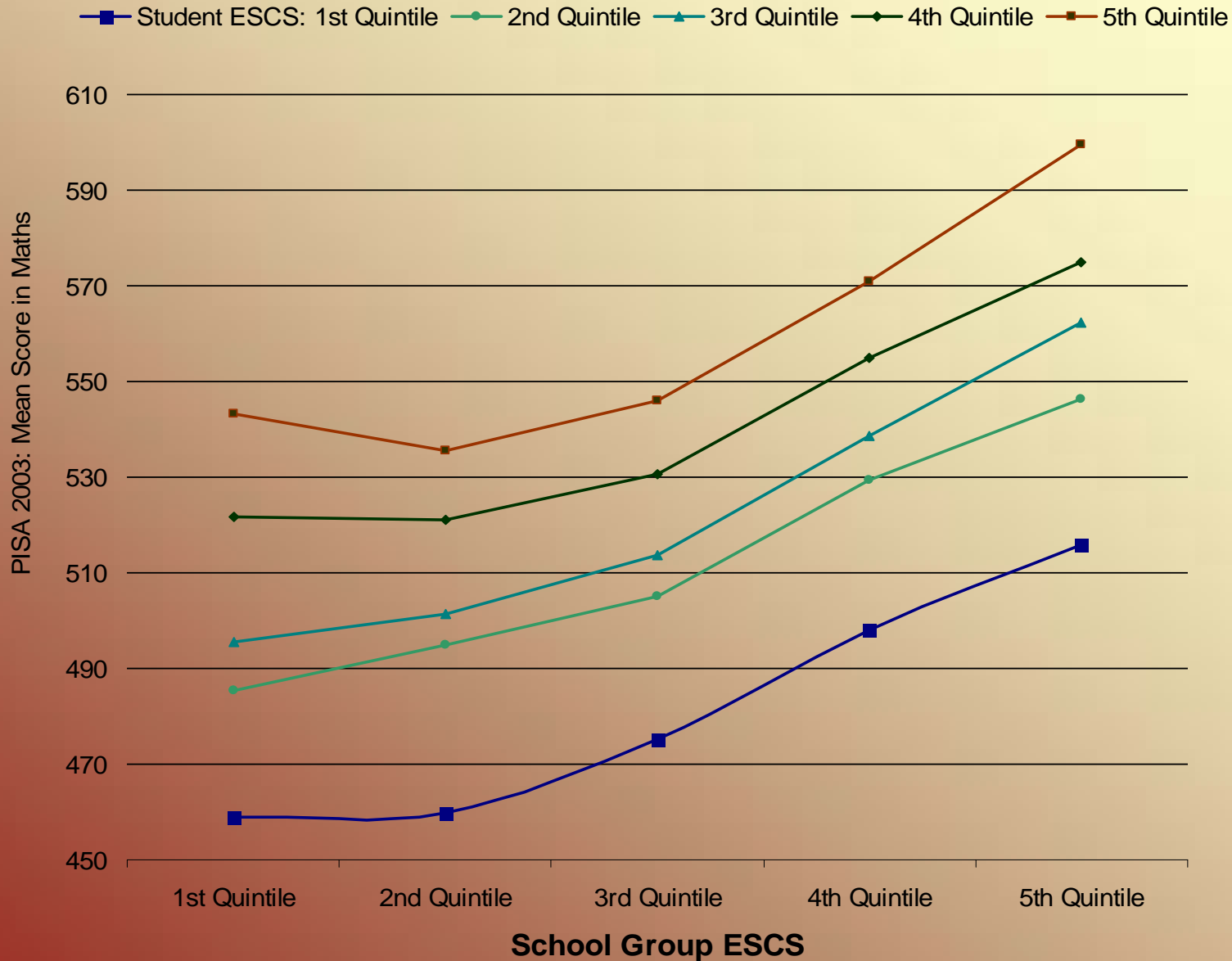


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Performance in Maths According to Individual and School Group SES



Findings Summary

- In the Australian context, it matters considerably where one goes to school.
 - As measured by PISA, there are substantial differences in average achievement associated with the aggregated SES of the school, that are consistently seen across Reading, Maths (and Science) and across all individual student SES levels.

Limitations & Assumptions

- Public/private vs high SES/low SES
- School group SES vs school SES
- Description vs prediction
- Policy objective = minimization of school-based differences in academic outcomes, taken as a whole

Policy Recommendations

- School segregation by SES is growing (Rothman 2003), but our findings suggest that it should be minimized. How?
 - Minimize funding differences between schools and sectors; invest more in lower SES schools
 - Determine school SES on the actual SES of enrolled students, not the postal code of the school or its students
 - Minimize curricular differences between schools
 - Require same accountability measures for all schools that receive public funds; group all schools into SES bands to allow comparison of like with like
 - Increased funding and support for at-risk students