



Measuring socio-economic background and its influence on school education outcomes

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Spring Seminar Series 2010

Quality and equity in education: Can we have both?

- Introduction
- What is meant by “socioeconomic status” and related concepts?
 - Students
 - Schools
- How is socioeconomic status measured?
 - Students
 - Schools
- How are the measures applied?
- What are the implications for “quality and equality?”

- Enduring interest
 - socioeconomic status of parents and
 - educational outcomes of children
- Range of special initiatives / funding
 - National
 - Disadvantaged schools program, National equity program for schools
 - State programs
 - Priority action schools program / Priority schools funding program
 - Other countries
 - Title 1 of Elementary and Secondary Education Act (USA)
 - Education action zones (UK)
 - Dutch Educational Opportunity Program

Introduction (2)

- Represents a status attainment model rather than a social class model
- Extensively researched
- Focus of meta-analytic reviews
 - White (1980), Sirin (2005)
- New perspectives from international studies
 - Countries differ in the relationship between SES and outcomes
 - Differences relate to policies and cultural traditions

Terminology

| Level | Terms | Comment |
|---------|--|---|
| Student | Socioeconomic status | Defined in terms of parental occupation, education, wealth |
| | Social/socioeconomic disadvantage (or advantage) | Also includes other factors such as Indigenous status, language background etc. |
| School | Socioeconomic context | Either <ul style="list-style-type: none">•aggregated student characteristics, or•community characteristics |
| | Social-demographic composition or Community social educational advantage | |

Definitions:

Socioeconomic Status

- Attained “status that depicts overall social standing” (Graetz, 1995)
- Determined by individual achievements:
 - Employment or occupational status
 - Educational attainment
 - Income and wealth (Graetz, 1995, p 50).
- Components sometimes used separately and sometimes as a combined index
- Socioeconomic status of children is taken as that of their parents

Concept of Social Advantage / Disadvantage

- In addition to socioeconomic status includes other attributes
 - Indigenous status
 - Language background
 - Ethnicity
 - Geographic location
 - Residential mobility
- Various combinations used

Concept of Social / Socioeconomic Context

- Refers to the aggregate composition of:
 - The school population
 - The community / area from which the school population is drawn
- Aggregate compositional influences may be greater than the combination of individual influences
- Usually based on the broad notion of advantage / disadvantage

Measurement issues

Socioeconomic status

- Data sources:
 - Student reports
 - Large scale surveys e.g. PISA, LSAY
 - Parent supplied information
 - Some states such as Victoria
 - National Assessment Program (sample studies, NAPLAN)
- Income and wealth not measured
 - Use indication of home possessions (books etc.)

Measurement processes

Socioeconomic status

- Occupational status
 - Approach 1
 - Code occupations as ASCO or ISCO codes
 - Transform ASCO / ISCO codes to status scores
 - Based on extensive empirical work on status
 - ANU5 scale (McMillan, Jones and colleagues)
 - ISEI scale (Ganzenboom and colleagues)
 - Results in scores on a continuous scale
 - Approach 2 (NAP etc)
 - Code occupations in five ordinal categories
 - If have data for two parents use the highest

Measurement processes

Socioeconomic status

- Educational attainment
 - Based on a series of ordinal categories
 - Issues of scalability (VET \approx school ?, intervals)
 - International surveys use ISCED categories
 - Nationally use ABS defined categories
 - If have data for two parents use the highest
- Household possessions
 - Most commonly number of books
 - Problem of measurement equivalence



Measurement processes

Socioeconomic status

- Combinations of components
 - E.g. PISA Indexes
 - HISEI – Highest International Socioeconomic Index
 - ESCS – Economic Social Cultural Status
- Often used separately

School socioeconomic context

- Approach 1

Aggregate individual scores (e.g. SFO)

- Various occupational categories and their weightings are used in the calculation of SFO as a weighted mean.

- Approach 2

Use census data

- Code each students home address to a CCD
- Assign scores for the CCD to each student
- Combine selected measures to form an index
- Index is the average of scores

School socioeconomic context

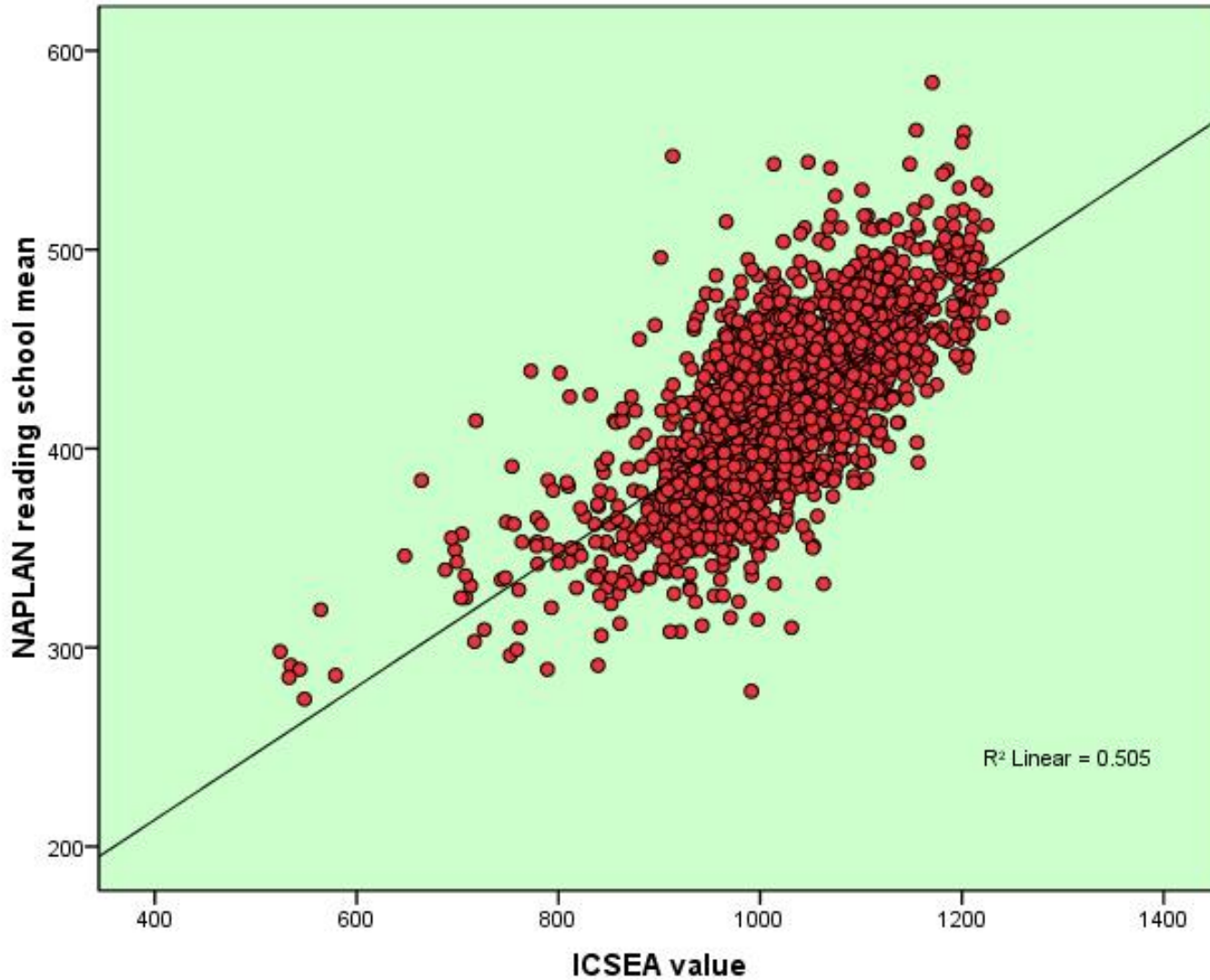
- Approach 2A Principal component weights
 - Uses correlations among census measures
 - Ross-Farish Indexes - used in disadvantaged schools
 - ABS Socioeconomic Indexes for Areas (SEIFA)
 - Indicator H from the socioeconomic model
- Approach 2B Regression weights
 - Weight components for best prediction of achievement
 - ICSEA – used in *MySchool*
(Index of Community Socio-Educational Advantage)
 - ICSEA currently being reviewed

ICSEA Components

- Components of SEIFA (14 components)
 - % of people in a CCD with specified levels of income,
 - % of people in a CCD with specified levels of educational qualifications
 - % of people in a CCD with specified occupational categories
 - % of one parent families with dependent offspring only,
 - % of occupied private dwellings with no internet connection,
 - % of people who identified themselves as Aboriginal or Torres Strait Islander
- Census collection districts (CCDs)
(where the students in a school live)
- Accessibility/Remoteness Index of Australia (ARIA) - location
- % Indigenous students enrolled
- Mean = 1000 Standard deviation = 100

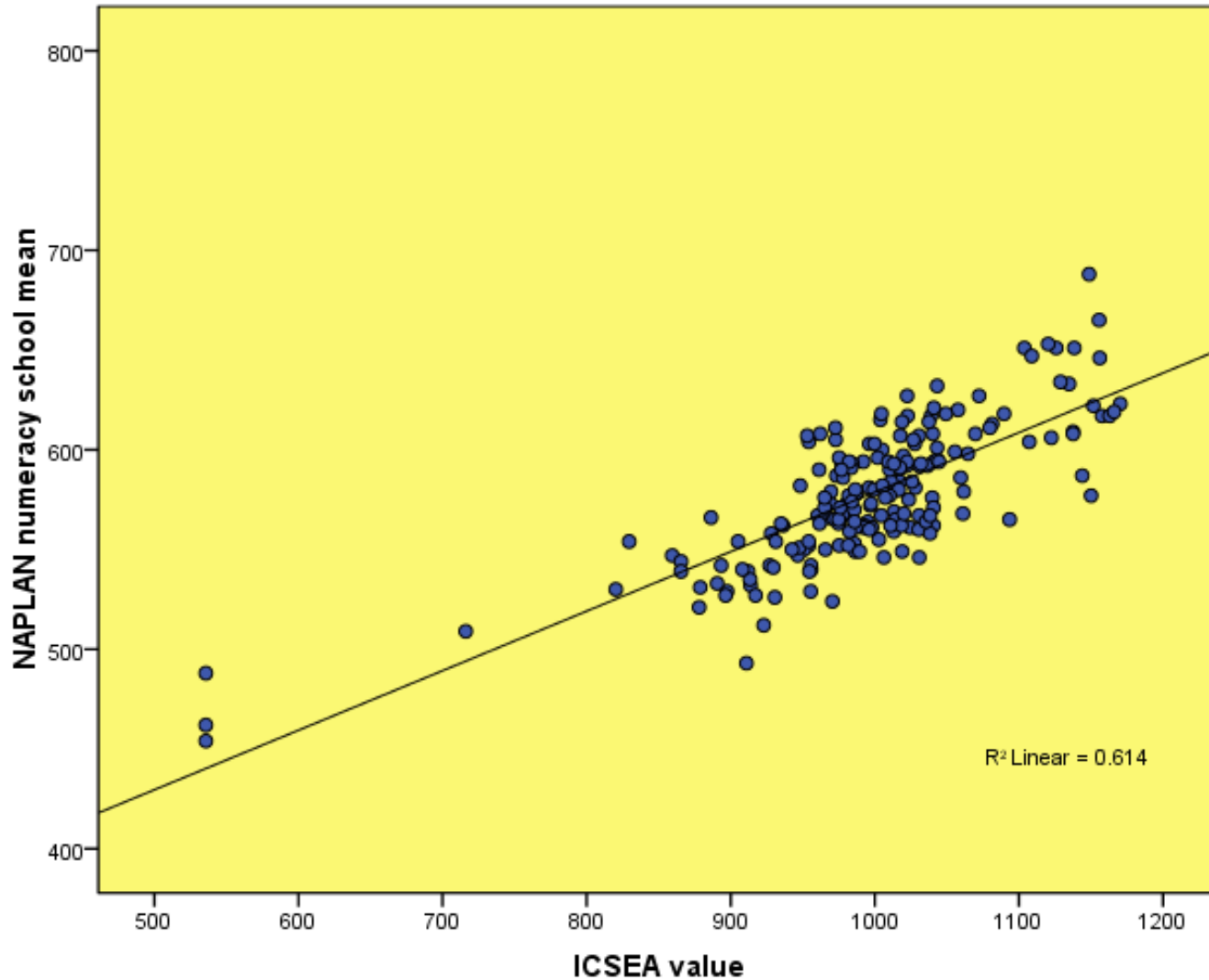
Year 3 Reading

One state



Year 9 Numeracy

One state



School Statistical Neighbours

| | | | <i>Type of group</i> | |
|--------------------------------|--------------------------|------------------|----------------------|----------|
| | | | Fixed | Fluid |
| <i>Basis of identification</i> | Single measure | | | |
| | <i>Multiple measures</i> | Scale-based | | Current |
| | | Similarity-based | Like schools | Possible |

School Statistical Neighbours

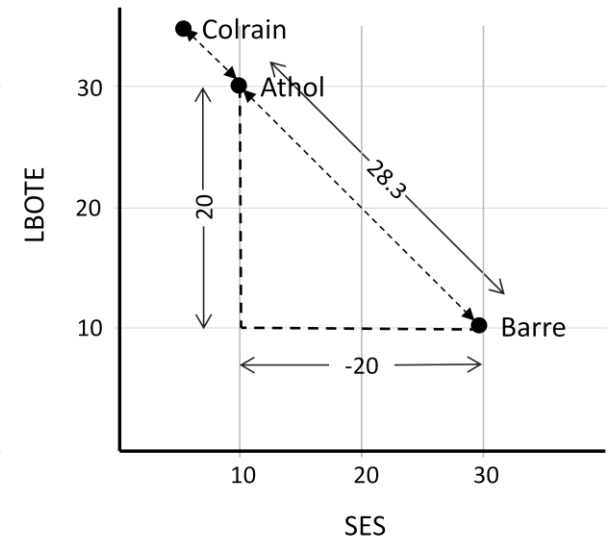
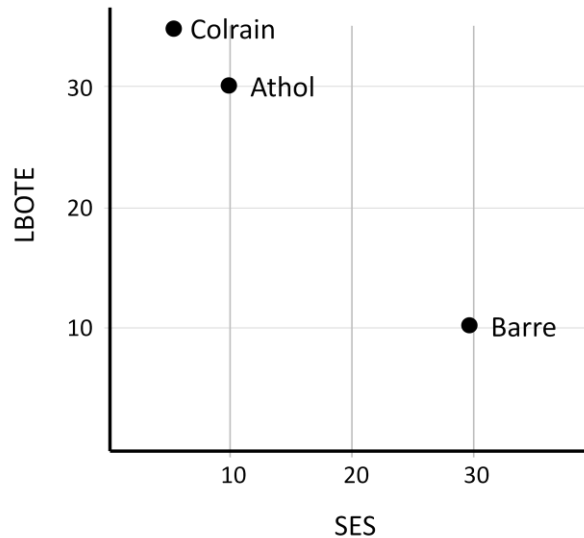
- Scale-based approach
 - Based on similar ICSEA scores
 - Closest scores above and below
 - Can be made of different mix of components
- Alternative would be a cluster approach
 - Multidimensional approach
 - Define characteristics of interest
 - Look at schools that are similar in combination of characteristics



An illustration

Two approaches: three schools

| School | Low SES (%) | LBOTE (%) | Additive score |
|---------|-------------|-----------|----------------|
| Athol | 10 | 30 | 40 |
| Barre | 30 | 10 | 40 |
| Colrain | 5 | 35 | 40 |





Student level results: Differences in PISA 2006

| | Reading | | Maths | |
|----------------------------|------------|-----------|------------|-----------|
| | Score | Gap | Score | Gap |
| Highest quarter SES | 557 | 84 | 561 | 78 |
| Lowest quarter SES | 473 | | 483 | |
| Non-Indigenous | 515 | 81 | 522 | 80 |
| Indigenous | 434 | | 442 | |
| Metropolitan | 530 | 16 25 | 526 | 18 40 |
| Provincial | 514 | | 508 | |
| Remote | 489 | | 468 | |
| LBOTE | 517 | 20 | 523 | 2 |
| ELB | 497 | | 521 | |
| Females | 532 | 37 | 513 | -14 |
| Males | 495 | | 527 | |

International comparisons Maths 2003 and ESCS

| Country | Unadjusted mean score | Strength of relationship % explained variation in student performance | Slope of gradient Score point difference associated with one unit on the ESCS |
|------------------|-----------------------|--|--|
| Canada | 532 | 11 | 34 |
| Finland | 544 | 11 | 33 |
| Australia | 524 | 14 | 42 |
| Sweden | 509 | 15 | 42 |
| New Zealand | 523 | 17 | 44 |
| United States | 483 | 19 | 45 |
| Germany | 503 | 23 | 47 |
| Belgium | 529 | 24 | 55 |
| <i>OECD mean</i> | <i>500</i> | <i>20</i> | <i>45</i> |

International comparisons: Within and between-schools

| Country | Overall | Within-school | | Between-school | | Index |
|---------------|---|---|----------------------------------|--|-----------------------------------|---|
| | Score point difference associated with one unit on the ESCS | Student-level score point difference associated with one unit on the student-level ESCS | Explained within-school variance | School-level score point difference associated with one unit on the school mean ESCS | Explained between-school variance | Percentage of ESCS variation within schools |
| Finland | 33 | 33 | 10 | -2 | 22 | 89 |
| Canada | 34 | 25 | 6 | 39 | 47 | 82 |
| Sweden | 42 | 38 | 12 | 29 | 53 | 88 |
| Australia | 42 | 27 | 5 | 57 | 70 | 74 |
| New Zealand | 44 | 33 | 10 | 55 | 75 | 83 |
| United States | 45 | 31 | 9 | 55 | 69 | 77 |
| Germany | 47 | 17 | 4 | 90 | 77 | 70 |
| Belgium | 55 | 25 | 7 | 97 | 74 | 68 |

Continuation to Year 12

| | 2001 | | 2005 | |
|-----------------------------|----------------|----|-------------|----|
| | % | | % | |
| | Year 12 Gap | | Year 12 Gap | |
| Professional-managerial | 85 | 13 | 90 | 8 |
| Skilled or unskilled manual | 72 | | 82 | |
| Non-Indigenous | 80 | 26 | 85 | 15 |
| Indigenous | 54 | | 70 | |
| Metropolitan | 82 | 8 | 87 | |
| Provincial | 74 | | 78 | 7 |
| Remote | | | 80 | |
| LBOTE* | 86 | 8 | 96 | 11 |
| ELB* | 78 | | 85 | |
| Females | 83 | 8 | 87 | 6 |
| Males | 75 | | 81 | |
| Base | Year 9 in 1998 | | PISA 2003 | |

Summary

- Socioeconomic status is a major correlate of outcomes
- Can be measured at an individual or aggregate level
- Achievement distribution is not as equitable in Australia as we would like to think
- Greater variation within schools than between schools
- It is possible to have greater equality without loss of quality



Thank you

Comments

Discussion

Questions