Measuring of Socioeconomic Status: Some methodological issues

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Importance of Socioeconomic Status in educational research

• A large body of research has established an association between parental Socioeconomic Status (SES) and the child’s school performance (e.g., Coleman et al., 1966, White, 1982; Sirin, 2005; Yang, 2003), and occupational and economic outcomes later in life (e.g., Shavit & Blossfeld, 1993; Marks, 2014)

• However, a great variation in the SES-achievement relationship has also been observed, depending among other things on the conceptualization and operationalization of SES.
Measurement of socioeconomic status

• The most commonly used indicators of SES are parental education, parental occupational status and family income (The Big Three; Duncan, Featherman & Duncan, 1972);

• An expanded SES measure could include neighborhood and school resources, eligibility to free or reduced cost lunch, different home possessions, number of books at home, and ownership of different highbrow cultural items etc. (e.g., Cowan et al., 2014; Sirin, 2005).

• SES can be treated as a categorical variable as in social class, or as a continuous variable describing the social gradient of an individual.

• SES can be measured by a single indicator or by multiple indicators, or by a composite of multiple indicators.
Factors that affect the size and changes of SES effects

• Unit of analysis for SES data;
• Type of SES measures;
• Measurement scale of SES and achievement indicators;
• Role of the minority status;
• Role of school locations.
A Swedish example

Swedish register data for cohorts between 1988 and 2011

- The SES measure is parental educational level:
  - Dichotomized parental educational level (less than two years of tertiary education vs. two or more years of tertiary education (Educ2)
  - 6 categories of parental educational level (Educ6)
- Outcome variable is student’s school grade:
  - Percentile transformed school grade (PercGrade) for all cohorts
  - Norm-referenced grades 1988 to 1997
  - Criterion-referenced grades 1998 to 2011
Correlations between parental education and student achievement 1988 to 2011

- The correlation with Educ6 is higher than with Educ2;
- For Educ6 there is an increasing trend, while for Educ2 it is curvilinear;
- For the norm-referenced grades the percentile transformation has no effect, but for the criterion-referenced grades it has a strong effect;
How SES composite is measured in a latent variable model

Formative construct

Reflective construct
How SES composite is measured

unidimensional

Multi-dimensional

 SES

 x1  x2  x3

 Economic capital

 x1  x2  x3

 Cultural capital

 x4  x5  x6
Collective-level SES

Collective level SES represents the sociodemographic characteristics of school intake body;

The SES effect on educational outcome at school-level reflects how school system works;

The difference in the SES-achievement association between schools in a cross-country comparison may reveal the organizational differentiation in different school systems.
SES as a multi-dimensional continuous latent construct

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<th>School level</th>
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Note. The beta coefficients in Italic are not statistically significant ($p < .05$).

3 latent SES classes at individual-level

Class 1: Economically and culturally affluent group
Class 2: Culturally well-off group
Class 3: Culturally disadvantaged group
To sum up

• Modeling approach within latent variable framework is highly recommended in measuring SES;

• When SES is regarded as a continuous construct, reflective measurement model of SES should be used to avoid problems in measurement error, limited scale problem of the manifest indicators of SES as well as multicollinearity;

• Since the mechanisms of SES at different level may differ, multilevel analysis may be more revealing than a single level analysis of the overall SES effect;

• When SES is regarded as a categorical construct, latent class or latent profile analysis is appropriate to avoid artificial categorization of SES indicators.
Thank you for your attention!

Questions?
Functions of SES

• A control variable to statistically adjust for background differences and confounding effects with other factors;

• A stratification variable to increase the precision of comparing treatment effects or interaction effects of different treatments within different SES groups;

• An independent variable in causal models to examine its effects on educational outcomes;

• A descriptive aggregated variable at classroom or school level in contextual, teaching effect, or school-effect.