High School Social Class Composition and the Educational Attainment Pipeline

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Background

- The socioeconomic composition of schools has been recognized as an important school effect since the Coleman Report (1966) found that it had the greatest impact on student achievement of any school factor.

- Since then an extensive body of research has been amassed that validates Coleman's finding and extends it to include not only the impact of SES composition on student achievement, but also on students' graduation from high school.

Background(cont.)

- SES composition continues to draw the interest of educational researchers and policy makers out of concern that it may heighten inequity in learning environments.

- Social class composition (SCC or SES composition) is the average socioeconomic status of students attending a school.

- In this study SCC is measured using an equally-weighted composite of five components including mother's and father's educational attainment and occupational status, and family income.

Focus of the present study

- This study examines how SCC impacts both proximal (high school graduation) and distal (college enrollment and persistence) attainment.

- Past studies on the effect of SCC on attainment have focused high school graduation. This examines HS graduation and post-secondary attainment measures in a longitudinal design.

Literature

- Research has identified several individual and school factors associated with educational attainment. Student risk factors can be broken down into background characteristics and school behaviors.

- Background characteristics cover a broad array of factors both social and academic such as misbehavior, grades, and attendance.

- School-based risk factors can be categorized into school input factors or school practices.

Literature(cont.)

- Inputs are conceptualized as being largely beyond the control of school site personnel, while schools have control over practices. School inputs include compositional effects (e.g., social and racial composition, average achievement), structural features of the school (size, urbanicity), and school resources (teacher salary, computers, quality and condition of physical structures).

- School practices are perhaps the most important type of school factor because these are aspects of the school that school site personnel have the greatest control to change. Practices may impact whether students graduates from high school and if so whether they are sufficiently prepared to enroll and succeed in college.

Literature(cont.)

- Practices include the academic press and the learning climate of the school, the attitudes and practices of the teachers, or the leadership characteristics of the principal. They may also include policies that facilitate involuntary dropout due to low grades, poor attendance, and misbehavior.

- Discriminating school risk factors by inputs and practices allows for the examination of whether school practices are contributing to or ameliorating attainment pipeline dropout above and beyond inputs.

Conceptual Framework

Figure 1: Multilevel Theoretical Framework of the Effects of HS Socioeconomic Composition on Student Attainment
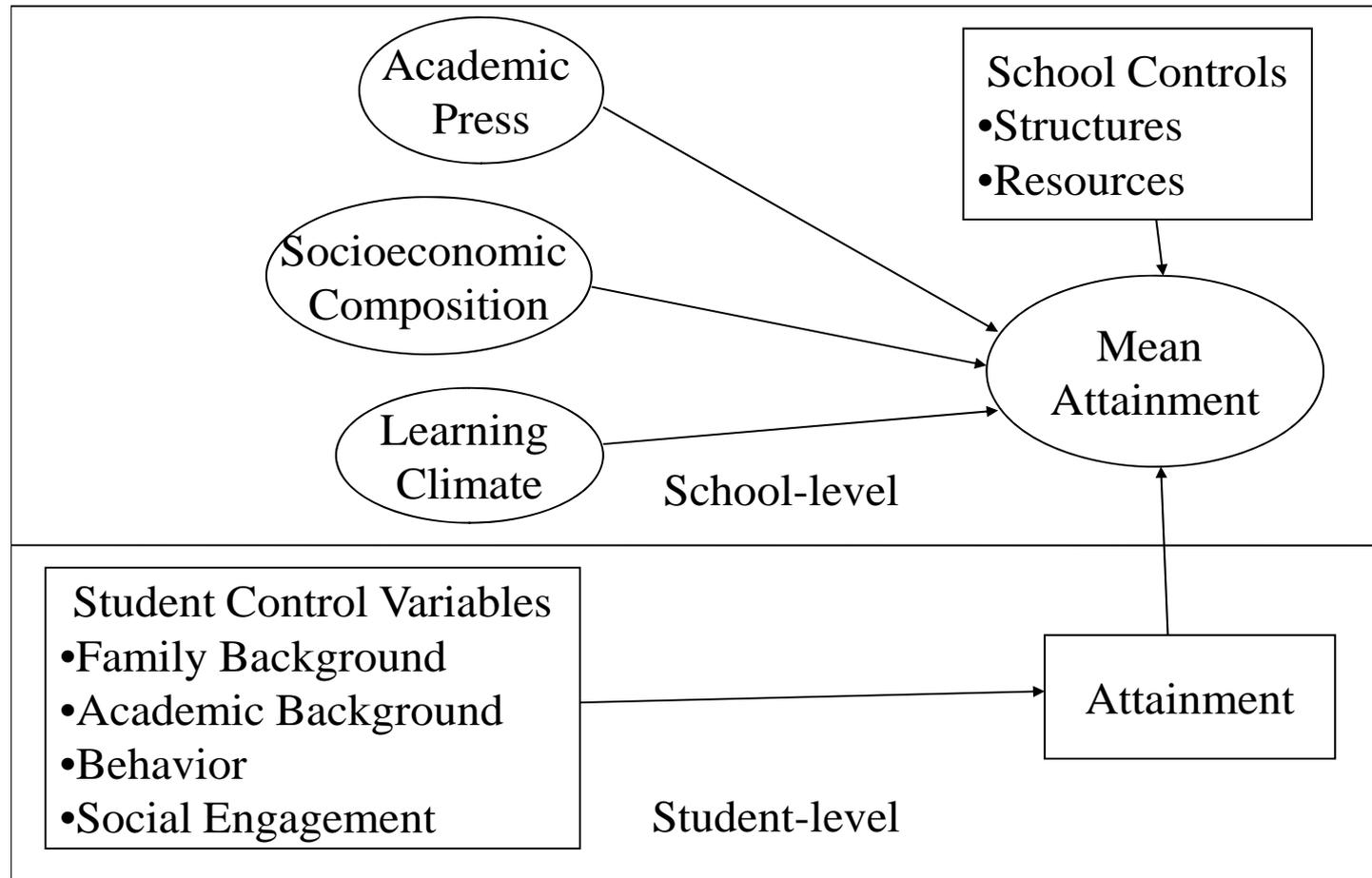
Research Questions

- Is high school SCC associated with educational attainment – graduation, college matriculation, and college persistence?

- Does Student Background (family, behavioral, and academic) moderate the association between SCC and attainment measured at each sequential stage?

- Do School Control Factors (compositional effects, resources, and structure – collectively these might be called "school inputs") moderate the association between SCC and attainment measured at each sequential stage?

- Do School Practices (Academic Press, Learning Climate, etc.) moderate the association between SCC and attainment measured at each sequential stage?

Data Set: Educational Longitudinal Study (ELS)

- Began in 2002 with 16,252 10th graders enrolled in a national sample of public and private high schools

- Surveys were administered to students their teachers, parents, and high school administrators.

- Students were "followed-up" in 2004 and 2006, when most were high school seniors and graduates, respectively.

- The present study uses only students attending public schools, to investigate the association between school social composition and attainment at 3 sequential stages.

Multilevel modeling

- Students were initially nested in high schools. Because this study examines how high school factors impact attainment, the high school units

- Multilevel logistic regression models are used to estimate the school effects on student attainment in each of the 3 sequential outcomes.

- These models are ideal for analyzing data of this structure and addressing research question of this nature.

Three Classes of Independent Variables

- Students Controls: Ethnicity, SES, Achievement, grades, family composition

- School Controls: Compositional controls (e.g., mean achievement, Ethnic composition), school resources, and Structures

- School Practices: Moderating factors under the schools control including Academic Press, Learning Climate, Discipline Policy, etc.

- Note that Social Class Composition (SCC) is the primary independent variable of interest in this study.

Model specification: Four hierarchical steps for each of three sequential outcome models

Model building steps correspond to variable classes outlined previously. At each step the model is fit and reduced as needed. The four hierarchical models include:

- Social Class Composition Only Model
- Student (Input) Controls model
- School (Input) Controls Model
- School Practice Model

Results: Social Class Composition Only Model

Variable Name	HS Graduation	College Matriculation	College Persistence
Student SES	2.21**	2.74**	1.94**
SCC (Mean School SES)	**2.44****	**2.77****	**2.90****

Coefficients are change in odds of success per unit increase in predictor. Values greater than 1 indicate an increase in the odds, while values less than 1 indicate a decrease in the odds.

Note for all statistical results: $\dagger$ = $p < 0.10$; * = $p < 0.05$; ** = $p < 0.01$

Results: Student Controls Models

Variable Name	HS Graduation	College Matriculation	College Persistence
SCC	**1.55†**	**2.00****	**2.87****
Misbehavior at School	0.81**	0.86**	0.83**
SES	1.34**	1.94**	1.52**
Family Composition	1.65**	1.39**	1.17†
Cumulative Academic GPA 12th grade	6.61**	3.17**	2.94**
Math/Reading Achievement (10th)	1.03**	1.05**	1.02**
College Prep Track	1.20*	1.44**	1.31**
Asian	1.64**	2.09**	1.76**
Black	1.69**	1.79**	1.35*
Hispanic	1.01	1.04	1.13
American Indian	1.08	1.02	1.20
Pacific Islander	3.22	1.95	1.65

Results: School Controls (Inputs) Models

Variable Name	HS Graduation	College Matriculation	College Persistence
SCC	**1.04**	**1.66****	**2.54****
Mean Family Composition	5.31**	1.23	0.99
Student-Teacher Ratio	0.96**	0.97**	0.99
Small	0.85	0.88	0.96
Large	0.90	1.07	1.08
Extra Large	0.77[†]	1.28**	1.35*

Results: Social Class Composition and School Practice Models

Variable Name	HS Graduation	College Matriculation	College Persistence
SCC	**1.05**	**1.96****	**1.94****
Mean Family Composition	8.44**	0.97	1.21
Student-Teacher Ratio	0.96**	0.97**	0.99
Small	0.86	0.87	0.90
Large	0.91	1.12	1.10
Extra Large	0.69*	1.30†	1.19
Academic Press	1.11†	1.03	1.19**
Fair Discipline	0.70†	1.10	0.88
Disorder	0.86†	1.18	0.89

Summary

- More than 40 years ago Coleman noted that the SCC of the school one attends is as strongly associated with achievement as one's own social class background. The results of this study suggest that SCC is also as strongly associated with attainment as one's own social class background.

- High School social class composition (SCC) is associated with each stage of educational attainment – graduation, matriculation, persistence. In fact, the association becomes progressively stronger even though low SES students dropped out of the attainment pipeline at higher rates at each stage.

Summary (cont.)

- Student Background moderates the association between SCC and attainment measured at each sequential stage, but particularly the rate of graduation and less so for matriculation and persistence.

- School (input) Control Factors moderate the association between SCC and attainment measured at each sequential stage. After controlling for school inputs SCC is no longer association graduation.

- Academic Press is an important school practice for moderating the effect of SCC on college persistence. That is likely because a strong Academic Press prepares students for the rigors of college study.

Thank you!

Any questions?