

Before or After the Bell?
School Context and Neighborhood
Effects on Achievement

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Concern about student achievement

- Low income students don't do as well.
- Low income kids often concentrated in inner city schools.
- For that reason alone, inner city schools would look bad.
- Reason enough to try programs in Jacob and Ludwig paper.

But the situation may be much worse than that...

- School context effects
 - School characteristics
 - Classmates and classroom dynamics
- Neighborhood effects
 - “concentration effects” (Wilson 1987)
 - Role models, value formation, parenting styles
- The downward spiral

School Peer Effects on Educational Achievement

- After accounting for individual, family, and school variables, *peer scores affect student outcomes* (Argys et al. 1996; Hanushek et al. 2003; Summers and Wolfe 1977; Zimmer and Toma 2000; etc.)
- Most studies find *the effect is greatest for lower achieving students*

Neighborhood Effects on Educational Achievement

- Years of schooling and/or probability of dropping out related to measures of
 - Income or poverty (Datcher 1982)
 - Family structure and welfare receipt (Corcoran et al. 1990)
 - Percent managerial/administrative occupations (Crane 1991)
 - Effect is increasing over time (Crowder and South 2003)

Is there a problem here?

- School and neighborhood characteristics are highly correlated.
- For school environment effects, we should take account of neighborhood effects so as not to “blame” the schools for outside influences.
- When studying *neighborhood* effects you should also control for school environment effects.
- Should we worry more about negative environments that children are exposed to *before or after the school bell rings?*

Is it Schools or Neighborhoods?

- Math Scores from 2000 Texas data public school data
 - Control for math and reading scores from 1999 to capture the student's family background and educational history (value-added models)
 - Student characteristics: race, gender, poverty, etc.
 - School/grade characteristics: turnover, average peer score (2 years ago), % low income in grade
- Neighborhood demographic characteristics from the 2000 Census Data matched to schools by geocoding
 - Neighborhood poverty rate
 - Percent of children in Married-Couple Families (parental supervision)
 - Percent of adults who are college graduates (role models, attitude toward education)

Data Sources

Neighborhood data from the
U.S. Census, April 15, 2000
Income Data from 1999

1998-1999 School Year
Grade 4,5,6,7

Prior test scores,
Gifted, Special
Education, Limited
English Proficiency

1999

1999-2000 School Year
Grade 5,6,7,8

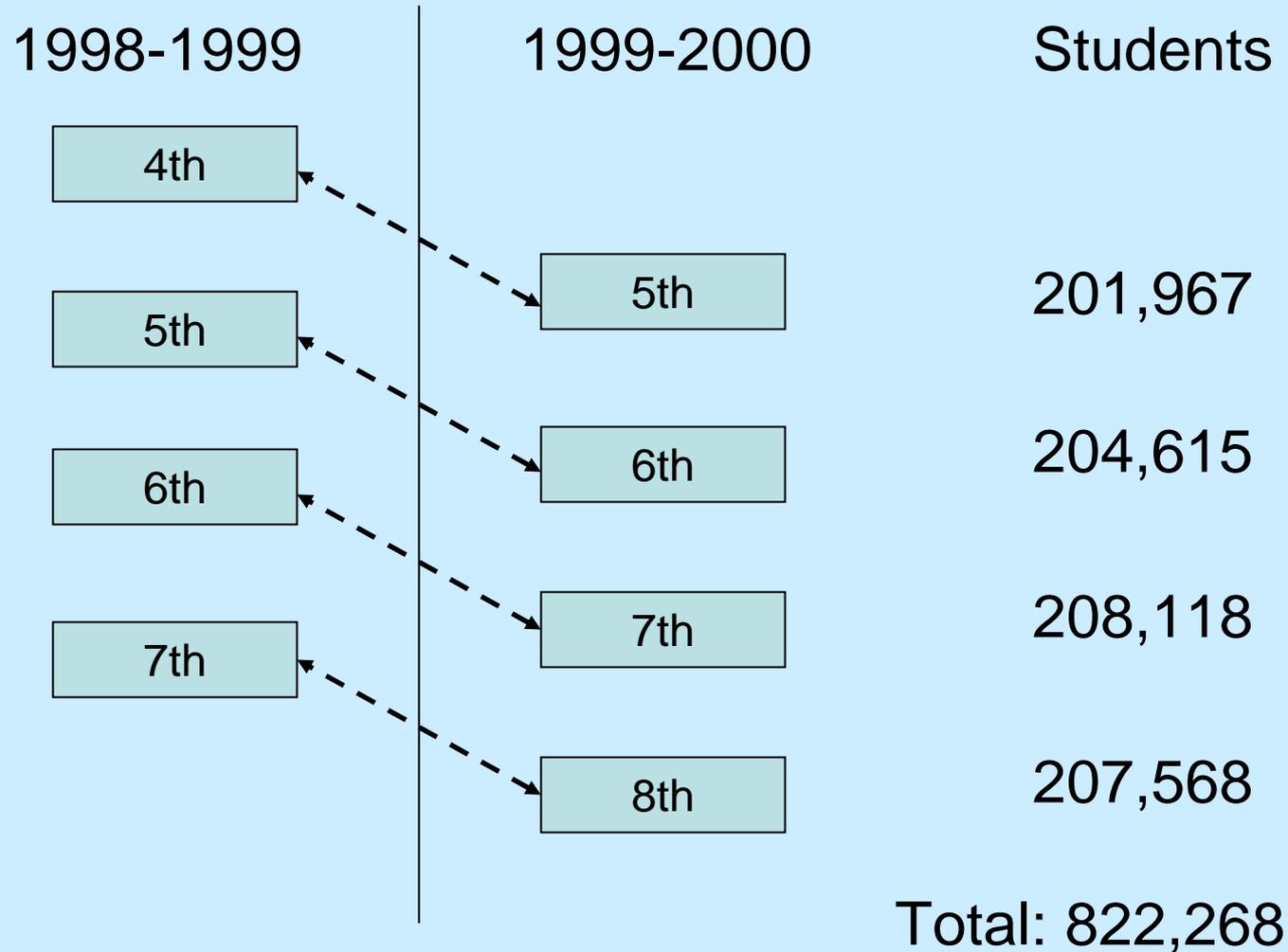
TAAS math, reading
Race/Ethnicity, Gender,
School Lunch Eligibility

2000

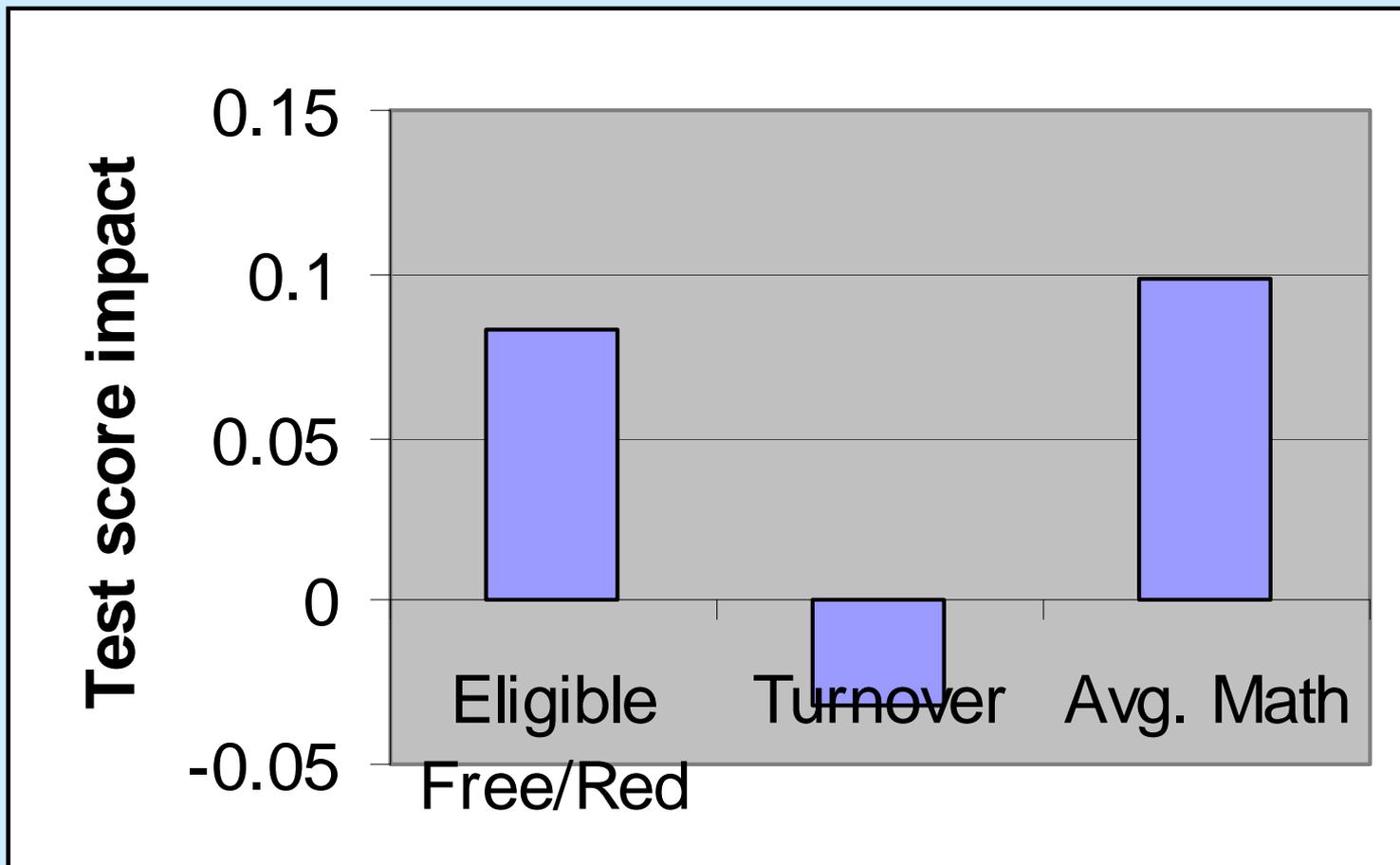
The Data

- Approximately 1.2 million 5th-8th graders enrolled in 4,755 schools in 2000
- We lose some students because:
 - Temporary IDs can't be matched to a prior year score
 - Student moved in from out of state, private school
 - Exempt, sick, absent on testing day
 - Problematic matches (wrong sex, race, etc.)
- Final count: 822,268 students

Pooling Data Across Grades

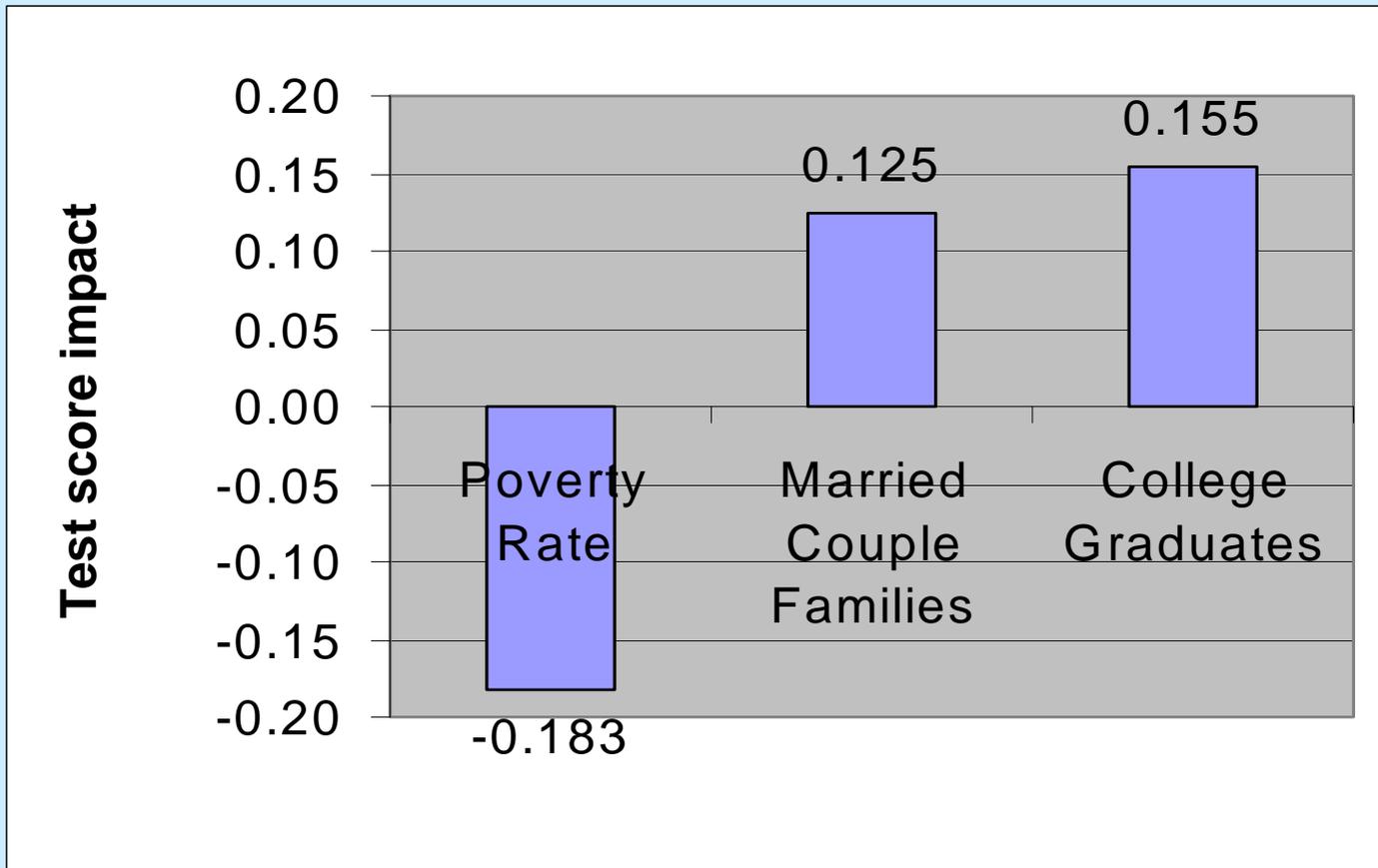


Impact of Peer Characteristics (within school by grade)



From OLS Model including individual and neighborhood variables.

Results: Impact of Alternative Neighborhood Measures on Student Value Added

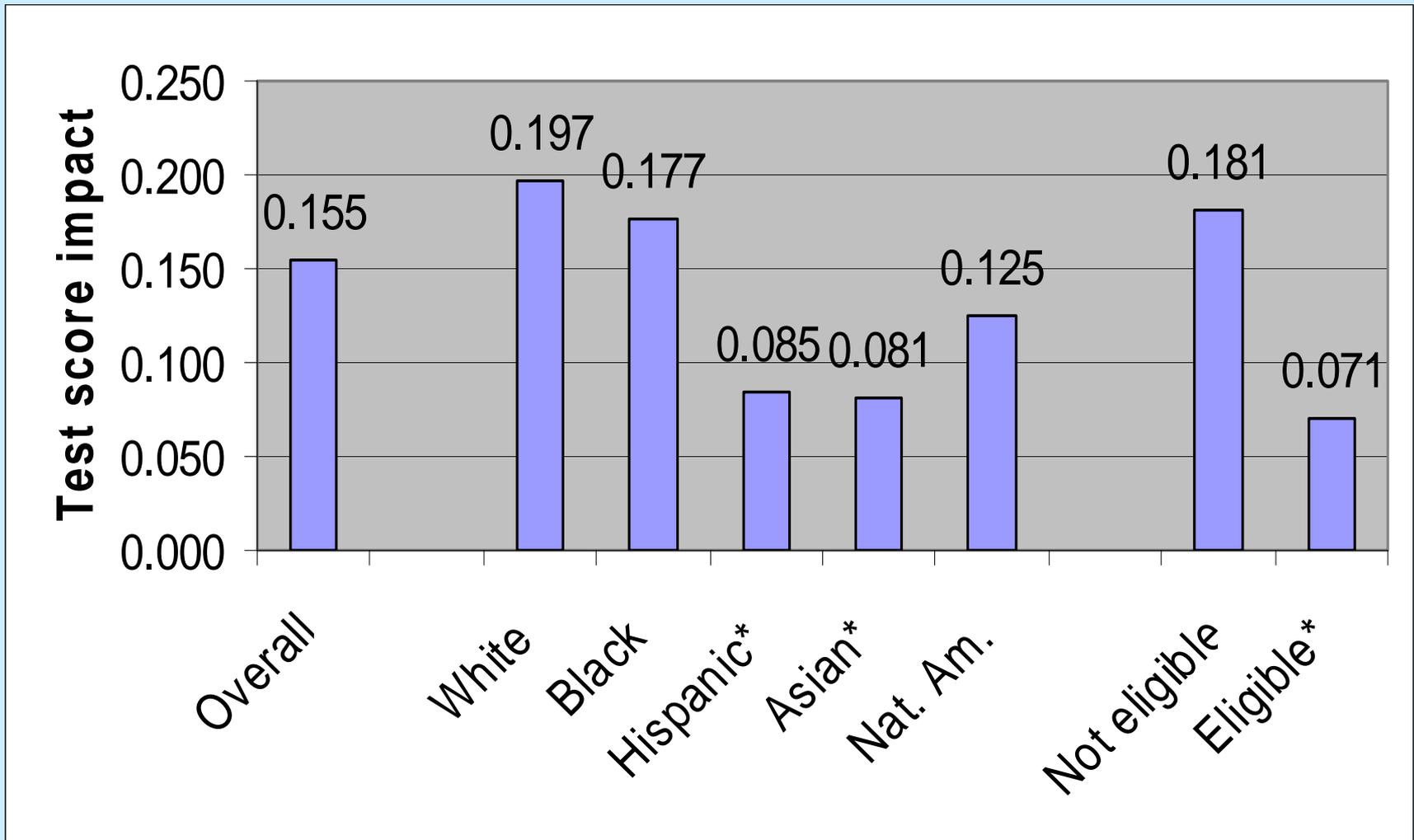


Note: from separate models with student characteristics and school fixed effects.

Annual Change in Percentile Rank

	Neighborhood Score	Student Percentile	Difference
Poverty Rate			
Mean	15%	50.00	
High Poverty	45%	47.81	-2.19
Percent Children in MCF			
Mean	75%	50.00	
Few MCF	25%	47.56	-2.44
Percent College Graduates			
Mean	27%	50.00	
Few Graduates	9%	48.89	-1.11

Impact of Neighborhood % College Graduates by Race/Ethnicity and Eligibility for Free/Reduced Price Lunch



Conclusions

- Peer and school characteristics do matter.
- Even after accounting for school/peer influence, neighborhood characteristics affect student achievement.
- Unequal communities produce unequal schools and can undermine good programs.
- Students are penalized *twice* by economic segregation.
- Reducing economic segregation is a housing policy, but with important implications for education.