

School segregation and the distribution of teachers

Helen F. Ladd

Sanford School

Duke University

hladd@duke.edu

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Sources:

- 1. Charles Clotfelter, Helen Ladd, Jacob Vigdor, “High Poverty Schools and the Distribution of Teachers and Principals” Sanford School working paper and UNC Law Review.***
- 2. Charles Clotfelter, Helen Ladd and Jacob Vigdor, “Teacher mobility, school segregation and pay-based policies to level the playing field.” Under revision for publication. Available from Helen Ladd.***

Two main points

- Segregation of schools by income or race generates an uneven distribution of teacher quality across schools
- Pay differentials can help, but the greater is the segregation the larger must be the salary differentials to level the playing field.

All the analysis is based on statewide NC data

Defining high poverty schools

- Relative – not absolute.
 - Schools divided into quartiles based on percent of students eligible for free lunch
 - High poverty schools are those in **quartile 1** – i.e. those with highest percentages of poor students
- Average poverty rates in the high poverty (Q 1) schools, 2004

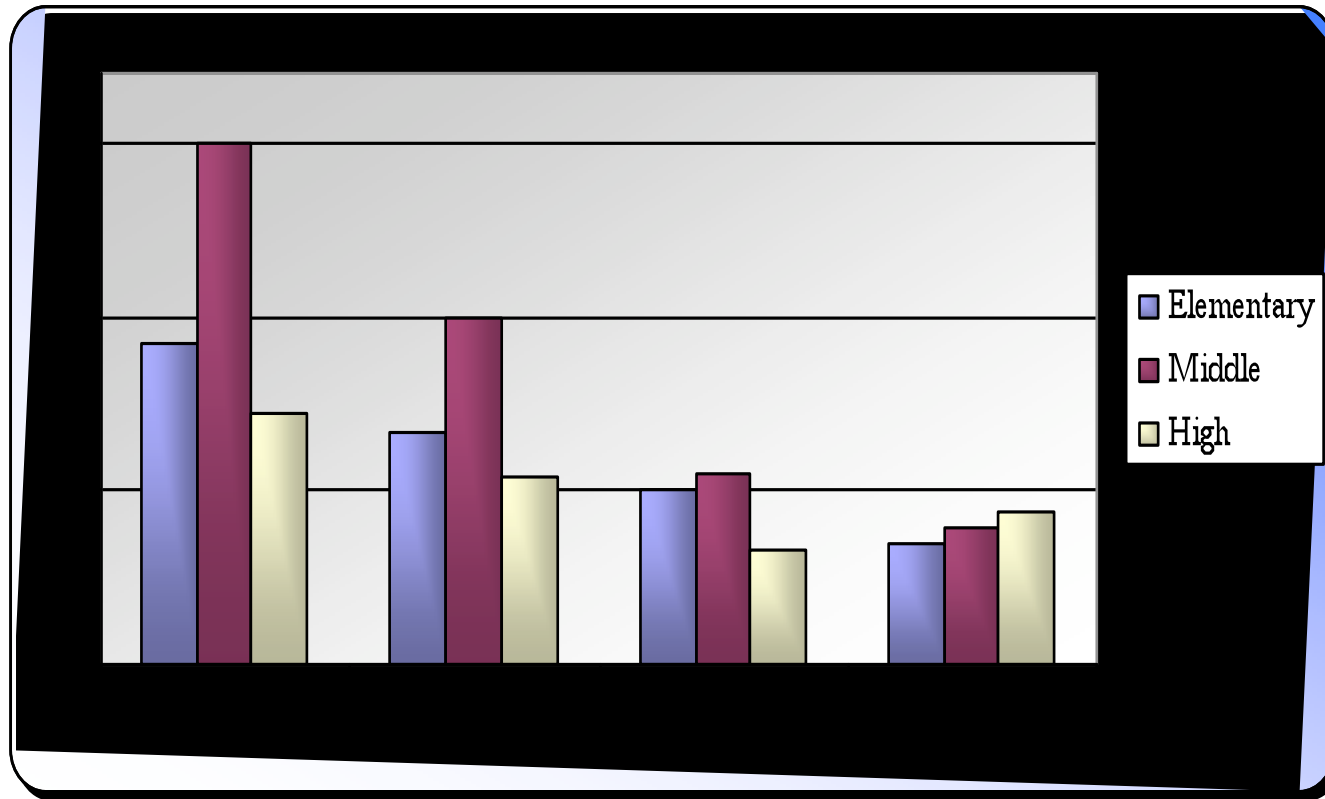
Elementary schools	74 %	(vs. 17 % in Q 4)
Middle schools	64 %	(vs. 16 % in Q 4)
High schools	51 %	(vs. 10 % in Q 4)

Note: Differences between poverty rates in high poverty and low poverty schools have been growing over time

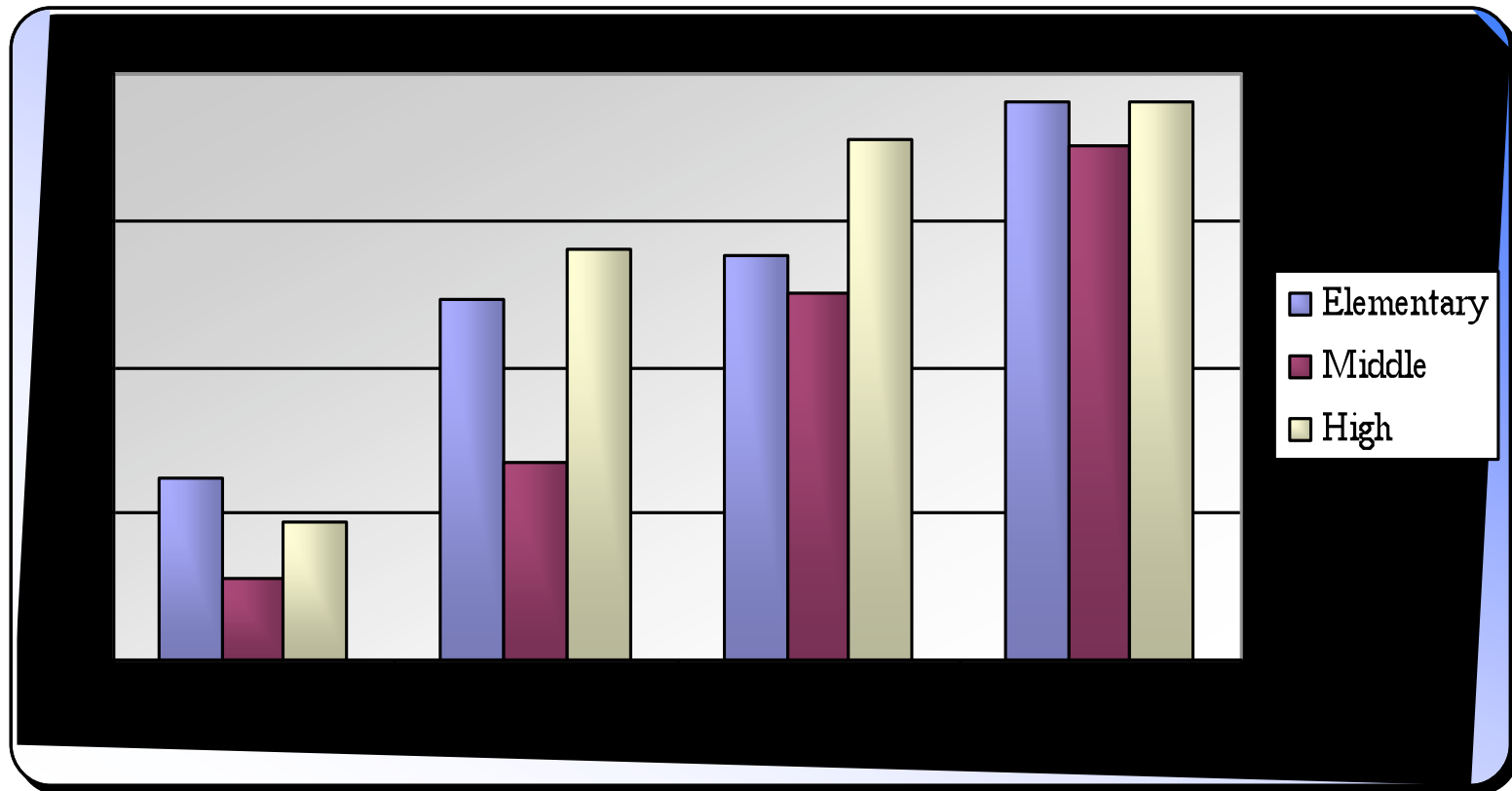
High poverty schools have teachers with weakest credentials

- Highest percentage of teachers
 - with less than 3 years experience
 - who graduated from an uncompetitive undergraduate college
 - with a non-regular license
- Lowest average teacher test scores
- Lowest percentage of teachers who are National Board Certified.

Percent of teachers with less than 3 years of experience, by poverty quartile and school level



Percent of teachers who are
National Board Certified
by poverty quartile and school level



Remarkably consistent story

By every measure, high poverty schools have teachers (and also principals) with weaker credentials than other schools

Also, the differentials in credentials between high poverty and more affluent schools have been growing over time.

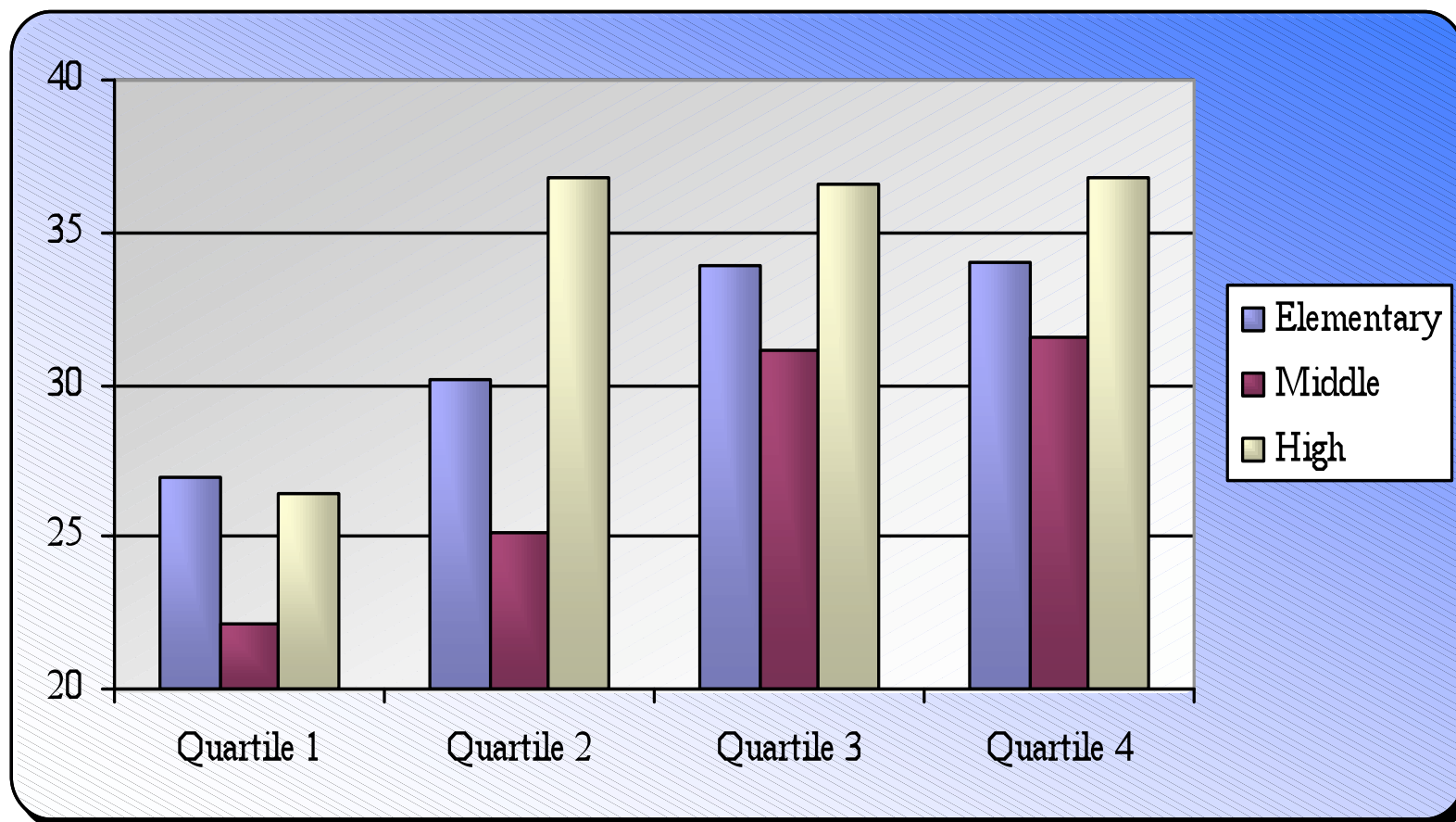
Explanation: teachers

Difficult working conditions in high poverty schools, not compensated for by higher salaries

- Teachers **move away** from schools with high poverty rates to schools with lower poverty rates
- Result is **higher turnover** in high poverty schools
- Higher percentages of **new hires have no experience**
- Movement exacerbated by accountability

Percent of teachers in 1999 who were in the same school in 2004

(For teachers who had 0-5 years of experience in 1999)



These patterns matter for student achievement

Weak credentials of teachers have adverse effects on student achievement (Confirmed by our other research studies using North Carolina data.)

Policy question: How big would salary differentials have to be to attract and retain strong teachers in segregated schools?

Salary differences (as a percent of salary)
 required to level the hiring playing field
 for teachers with strong qualifications

Difference in nonwhite share (percentage points) in school			
	10	30	50
High test score	0.9	2.6	4.4
Experienced	0.8	2.4	4.1
Difference in nonwhite share (percentage points) in district			
High test score	1.7	5.2	8.9
Experienced	0.8	2.3	3.9

Responses to salary and school demographics

(initial spells only, hazard ratios)

Point: Strong teachers are less responsive to salary and more responsive to the percent of nonwhite students than are regular teachers

	All exit routes	Leave teaching	Switch districts	Change schools
Predicted response to a 10 percent increase in district salary				
Regular teacher	0.861**	0.761**	0.831**	0.985
Strong teacher	0.944*	0.935*	0.814**	1.037
Predicted response to a 10 percentage point increase in the nonwhite percentage of students				
Regular teacher	1.023**	1.022**	1.060**	1.005
Strong teacher	1.069**	1.067**	1.096**	1.067**

Salary differentials (as a percent of salary) required to offset the fraction of nonwhite students at the school level on the probability a teacher will leave the school

	Difference in nonwhite share (percentage points)		
	10	30	50
Regular teacher	1.5	4.5	7.5
Strong teacher	10.2	34.7	58.3

Conclusions

- Positive finding: salary differentials have some role to play in helping hard-to-staff schools attract teachers with strong qualifications.
 - The greater the segregation of the schools, however, the higher are the required salary differentials needed to level the playing field.
- But salary differentials are a far less effective tool for changing the school departure behavior of teachers with strong qualifications or who are no longer in their first teaching spells.

Bottom line

Even with a judicious use of salary differentials specifically designed to promote equity, the more segregated are the schools, the more unequal is likely to be the quality of teachers across schools.