



Strengthening the Teacher Pipeline

Bob Pianta and Jim Wyckoff
Curry School of Education, University of Virginia



Policy Challenge

How can public schools:

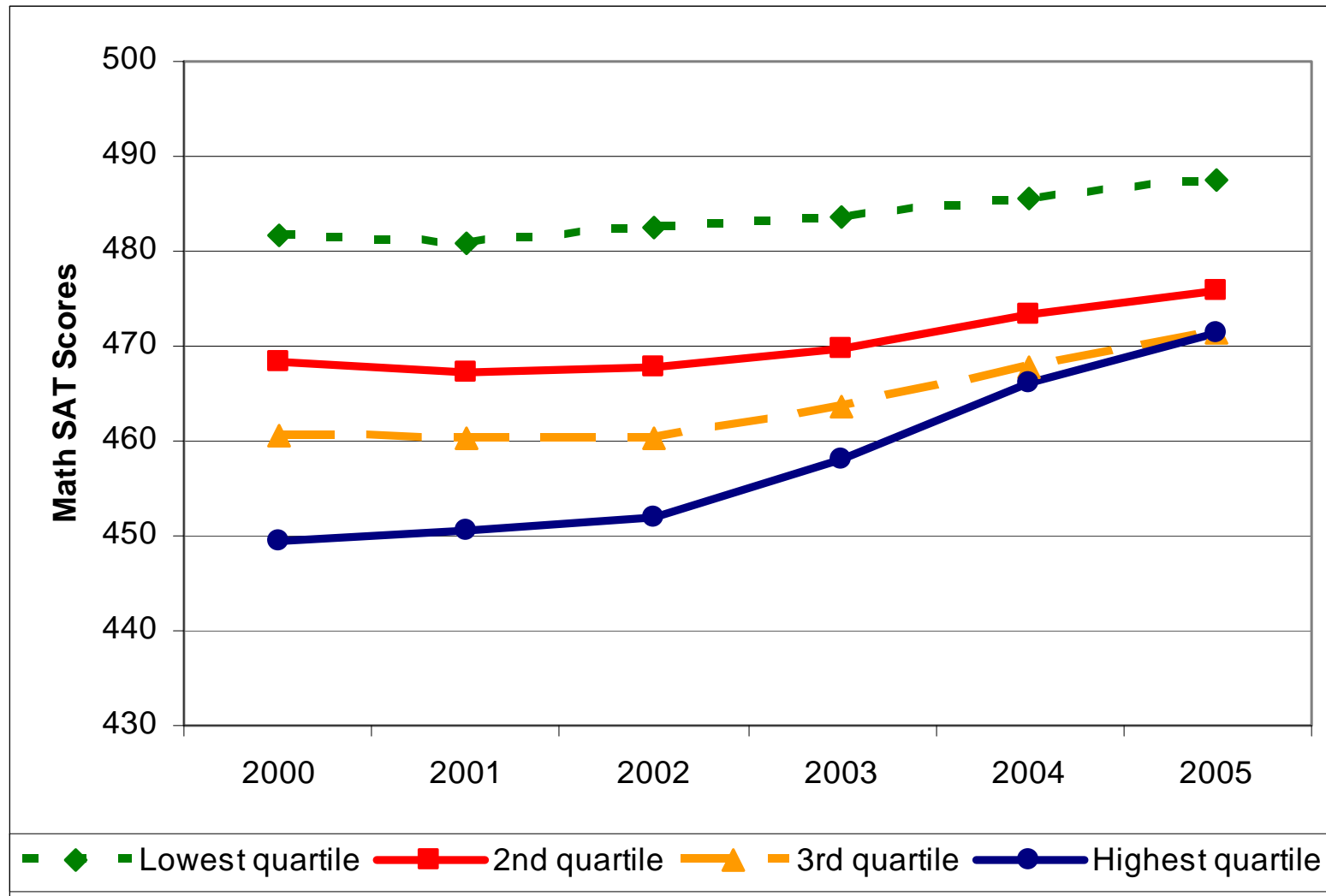
- Attract potentially excellent teachers to teaching, especially in traditionally difficult-to-staff schools?
- Provide the skills and experiences that help potentially excellent teachers develop into excellent teachers in those schools?
- Retain strong teachers, especially in traditionally difficult-to-staff schools?



Data Collection-Administrative Database

	Universe	Elements	Years	Source
Personnel data	All public school teachers & staff	salary, grade, subject, class size, prior experience, level of education	1999 to present	NYSED, NYCDOE
Certification data	All applicants	certification areas, types, zipcode, degrees earned & institutions	1985 to present	NYSED
Certification exam data	All test takers	scores on NTE and NYSTCE exams, race, zipcode when taking exam	1985 to present	NYSED
College Board data	All students in NYS taking SAT	SAT scores, HS attended, courses and class rank, intended major	1980 to 2003	College Board
Student data	All NYC students in grades 3-8	Exam scores in math and ELA, race, attendance, special ed status, suspensions	1999 to present	NYCDOE
School and district data	All public schools and districts	student attributes & test results, expenditures by category, staff levels and attributes, district salary schedules, property wealth and income	1970 to present	NYSED, NYCDOE

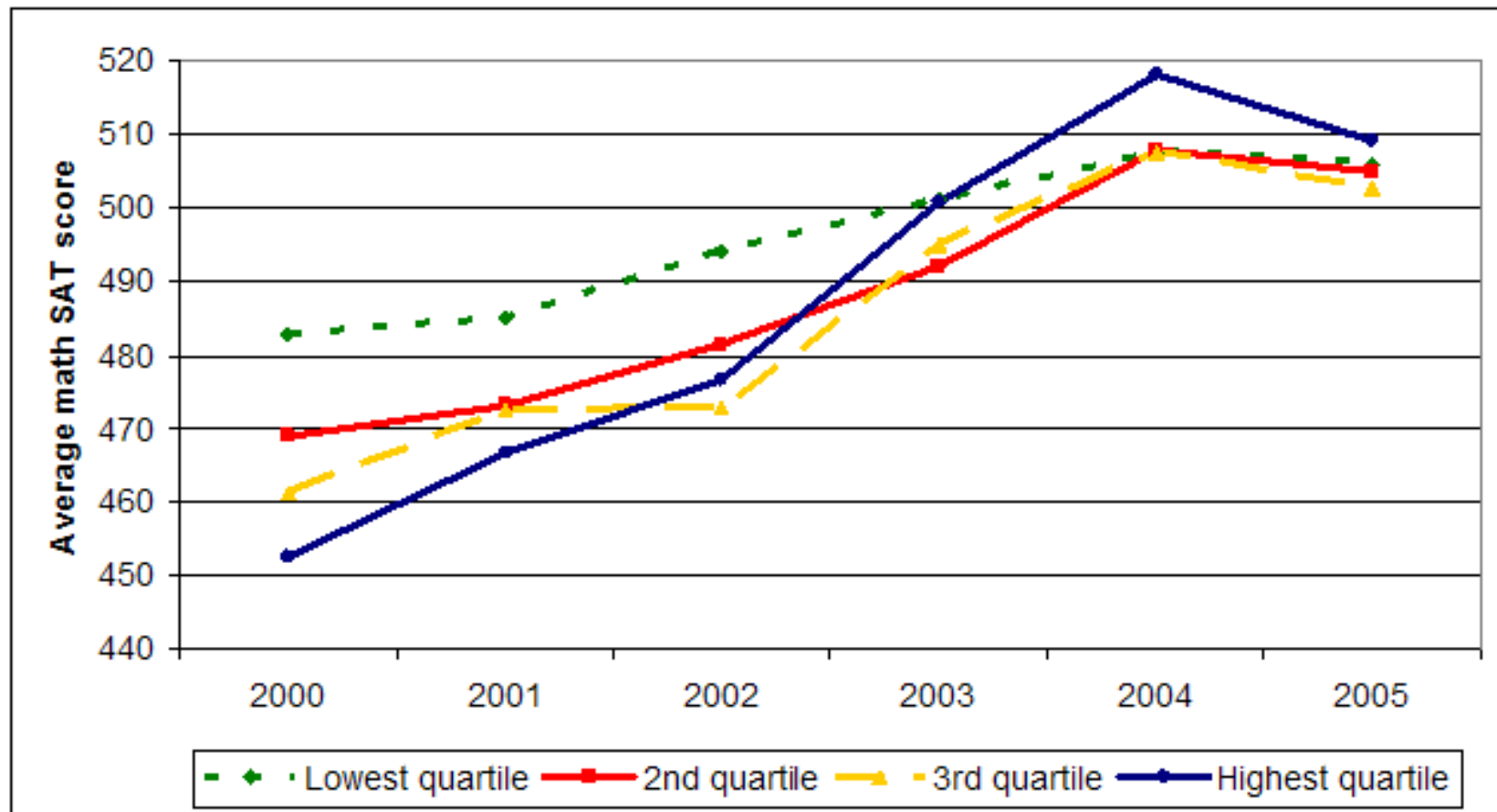
Math SAT scores of NYC Teachers by Poverty Quartile of Schools Students, 2000-2005



Teacher Qualifications NYC Elementary Schools 2000 & 2005 by School Poverty Decile

Teacher Qualifications	2000			2005		
	Lowest 10%	Highest 10%	Gap	Lowest 10%	Highest 10%	Gap
% with less than 3 years of NYC teaching experience	0.147	0.254	0.107	0.151	0.217	0.066
% who failed LAST exam on first attempt	0.122	0.342	0.220	0.134	0.247	0.113
% attended least competitive BA institutions	0.235	0.274	0.039	0.267	0.243	-0.024
SAT verbal score	506	461	-45	503	485	-18
SAT math score	490	447	-43	495	471	-23

Average Math SAT Scores of New Teachers by Poverty Quartile of School's Students, 2000-2005

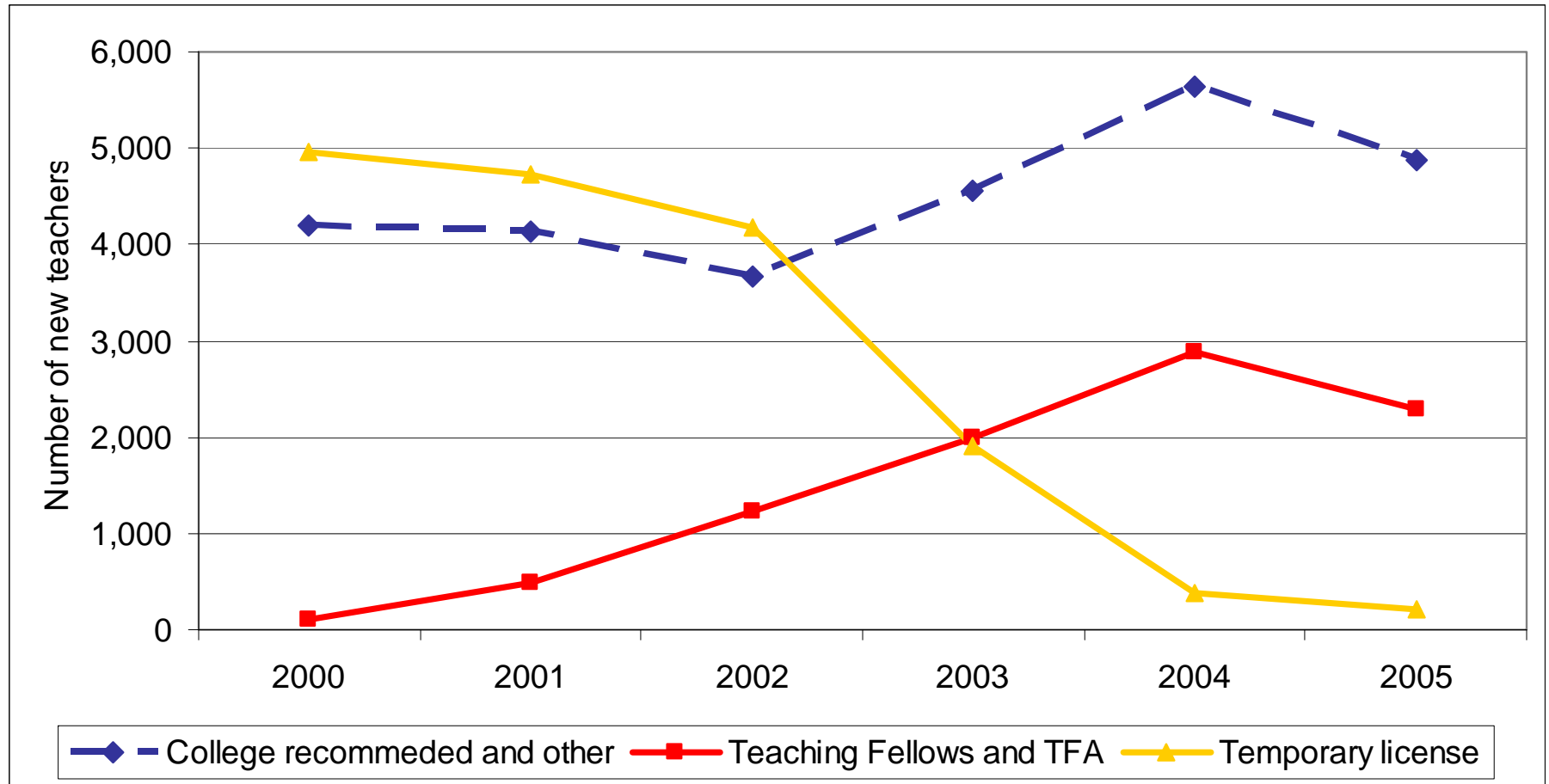





Policies Contributing to Change

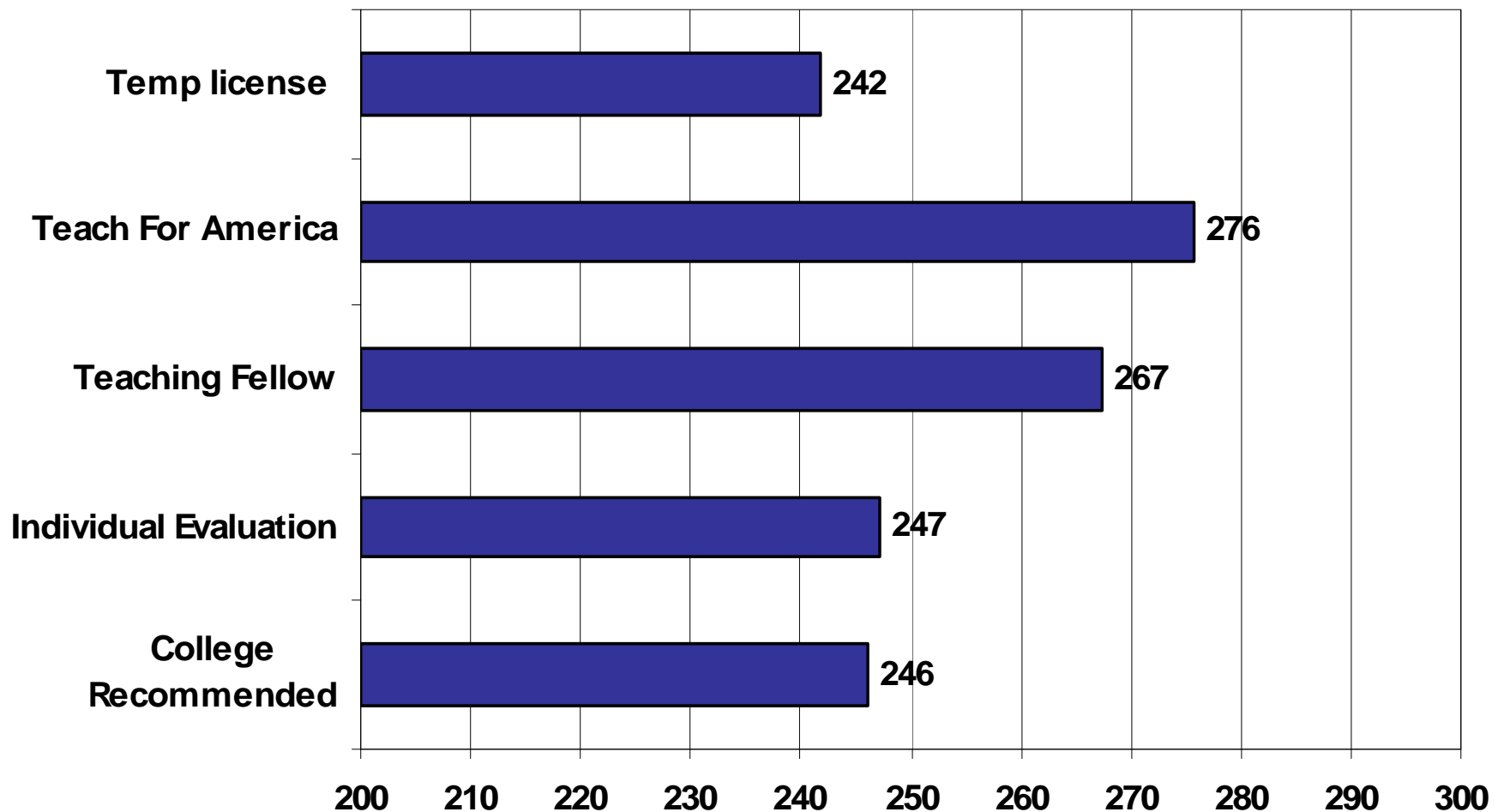
- In 2000 the NYS Regents created alternative certification routes
- In 2000 the NYC Department of Education created its first cohort of NYC Teaching Fellows
- Effective September 2003, NYS Regents eliminated temporary licenses for uncertified teachers with very limited exceptions
- Between 2000 and 2003 starting salaries in NYC increased from \$33,186 to \$39,000

New NYC Teachers by Pathway, 2000-2005





Average Certification Exam Scores, First Taking (2004; Passing= 220,SD=~30)



Estimating Effects of Teacher Attributes

$$A_{isgty} - A_{is'g(g-1)t'(y-1)} = \beta_0 + S_{iy} \beta_1 + C_{ty} \beta_2 + T_{ty} \beta_3 \\ + \pi_i + \pi_g + \pi_y + \varepsilon_{isgty}$$

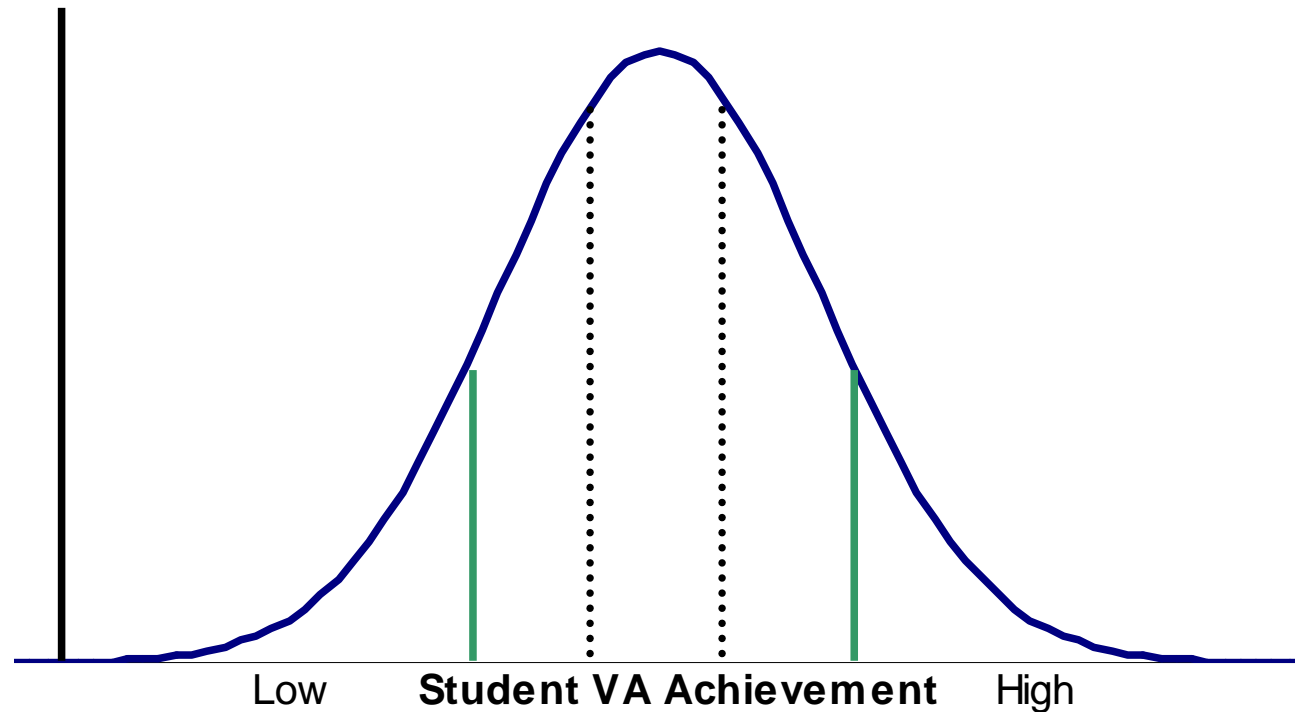
- Change in student achievement is a function of:
 - ☐ student, grade and year fixed effects,
 - ☐ time varying student characteristics,
 - ☐ time varying classroom characteristics, and
 - ☐ teacher characteristics.
- Specification checks
 - ☐ achievement levels with school fixed effects
 - ☐ only those with fewer than 3 years of experience
 - ☐ alternatives for missing teacher test scores



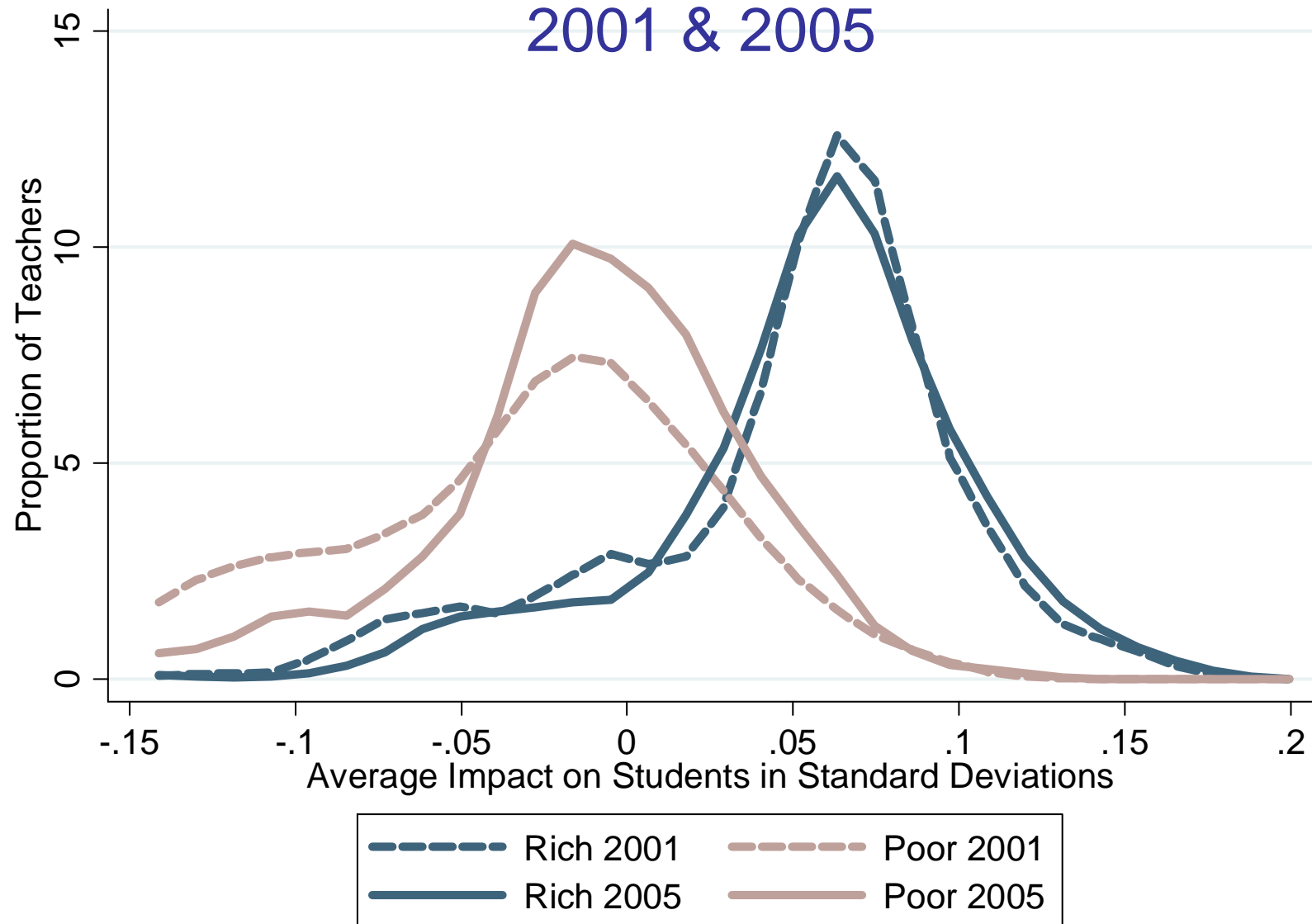
Measures of Teacher Qualifications

- teaching experience,
- quality of undergraduate institution,
- SAT math and verbal scores,
- scores on certification exams,
- area of certification,
- initial path to teaching (e.g., alternative certification, traditional preparation program)

Effective and Ineffective Teachers of High Poverty Students



NYC Grades 4 & 5 Math Achievement Attributable to Teacher Qualifications, Rich and Poor Deciles, 2001 & 2005





Characteristics of Teachers in Poorest Quartile of Schools by their Value Added Attributable to Observed Qualifications

VA Quintile	Mean VA	Years Experience	LAST Pass First	Not Certified	Math SAT	Verbal SAT
1	-0.103	2.054	0.653	0.626	423	478
2	-0.033	5.324	0.638	0.272	421	466
3	-0.003	6.867	0.715	0.063	433	469
4	0.021	6.546	0.777	0.022	446	461
5	0.059	5.944	0.872	0.007	489	459
Range	0.162	3.890	0.219	-0.619	66	-18



Summary: Teacher Recruitment

- NYC and NYS implemented policies that had an important effect on changing the qualifications of teachers in NYC's poorest schools
- These changes appear to have positive effects on student achievement among the poorest students
- Recruiting more teachers with strong qualifications could substantially improve student achievement