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Teacher Unionization and the Level and Distribution of Student Academic Performance

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Prepared for the “Great Polarization” conference,
University of Utah, Sept. 27-29, 2018



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Teachers' Unions and Rising Inequality

- The “Great Polarization” has coincided with declining unionization.
- Public sector unions have been the stronghold of unions for decades, though they are under threat due to the Janus decision (and other regulatory/legal changes).
- Declining unionization among teachers may affect their pay and working conditions.
- It might also affect the level of student performance and differences in student performance across groups and neighborhoods.



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How do teachers unions affect student performance?

- Negatively, through limitations on the ability to move or fire teachers, or through inflating education costs.
- Positively, by improving pay and working conditions of teachers, retaining effective teachers, raising morale and engagement, providing a “voice” through which they can enhance classroom practices.



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What are we adding to this discussion?

- We merge School and Staffing Survey (SASS) data and Stanford Education Data Archive (SEDA) data to produce broad *national* evidence on the effect of teachers unions on student performance.
- We measure the strength of teacher unionization beyond collective bargaining agreements.
- We control for district and community conditions.



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The Stanford Education Data Archive

- Provides student performance outcomes – district-level means of achievement test scores for 3rd to 8th grade, disaggregated by race/ethnicity.
- Contains information on schools and communities derived from the National Center for Education Statistics (NCES) Common Core Data and the School Districts Demographic System.



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The School and Staffing Survey

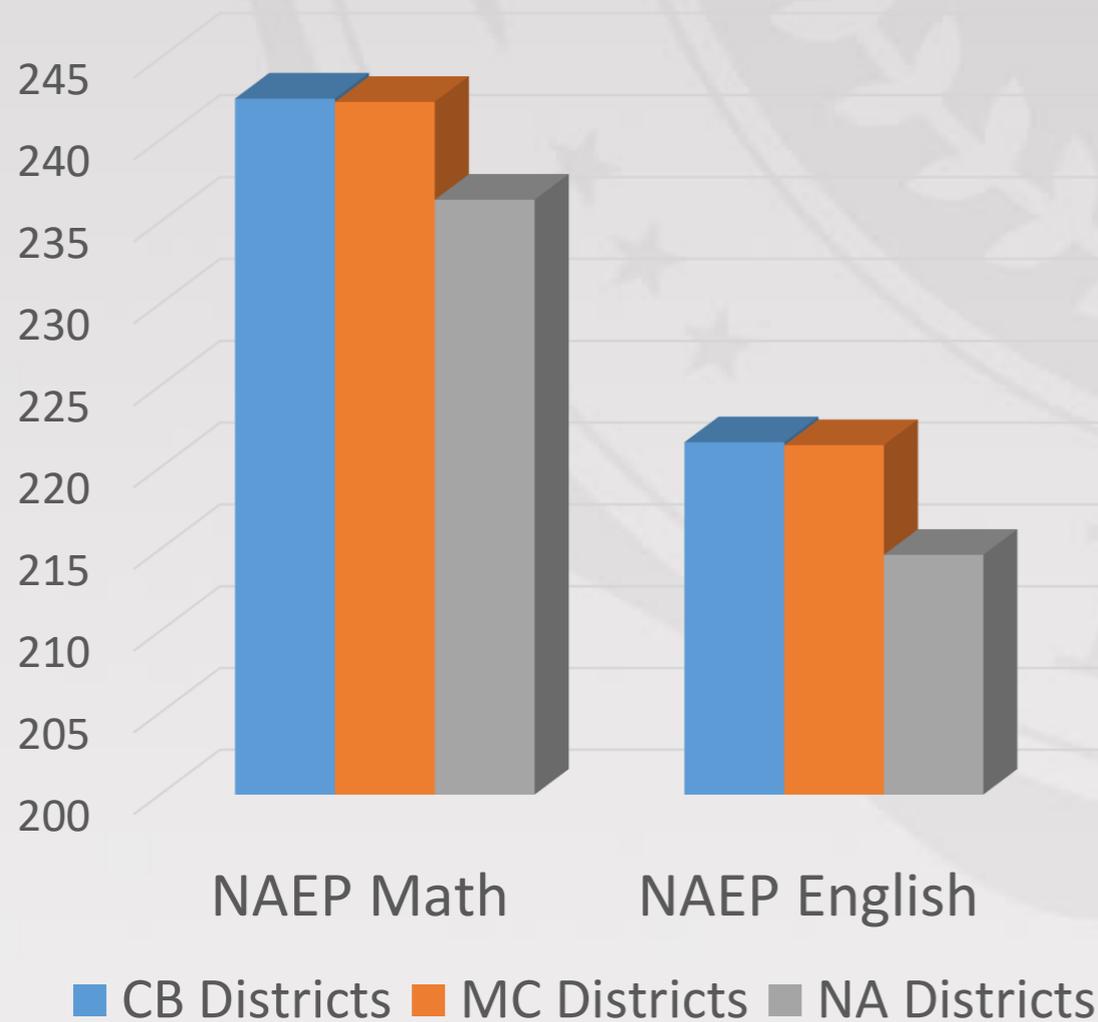
- Provides information on teacher unionization at the district level.
- Three kinds of unionization status:
 - (1) CB: District is covered by a collectively-bargained contract (56% of districts)
 - (2) MC: District administration and union “meet and confer” about practices and policies, though no formal contract is in place (13% of districts)
 - (3) NA: There is neither a CB contract nor a “meet-and-confer” agreement in place (31% of districts)



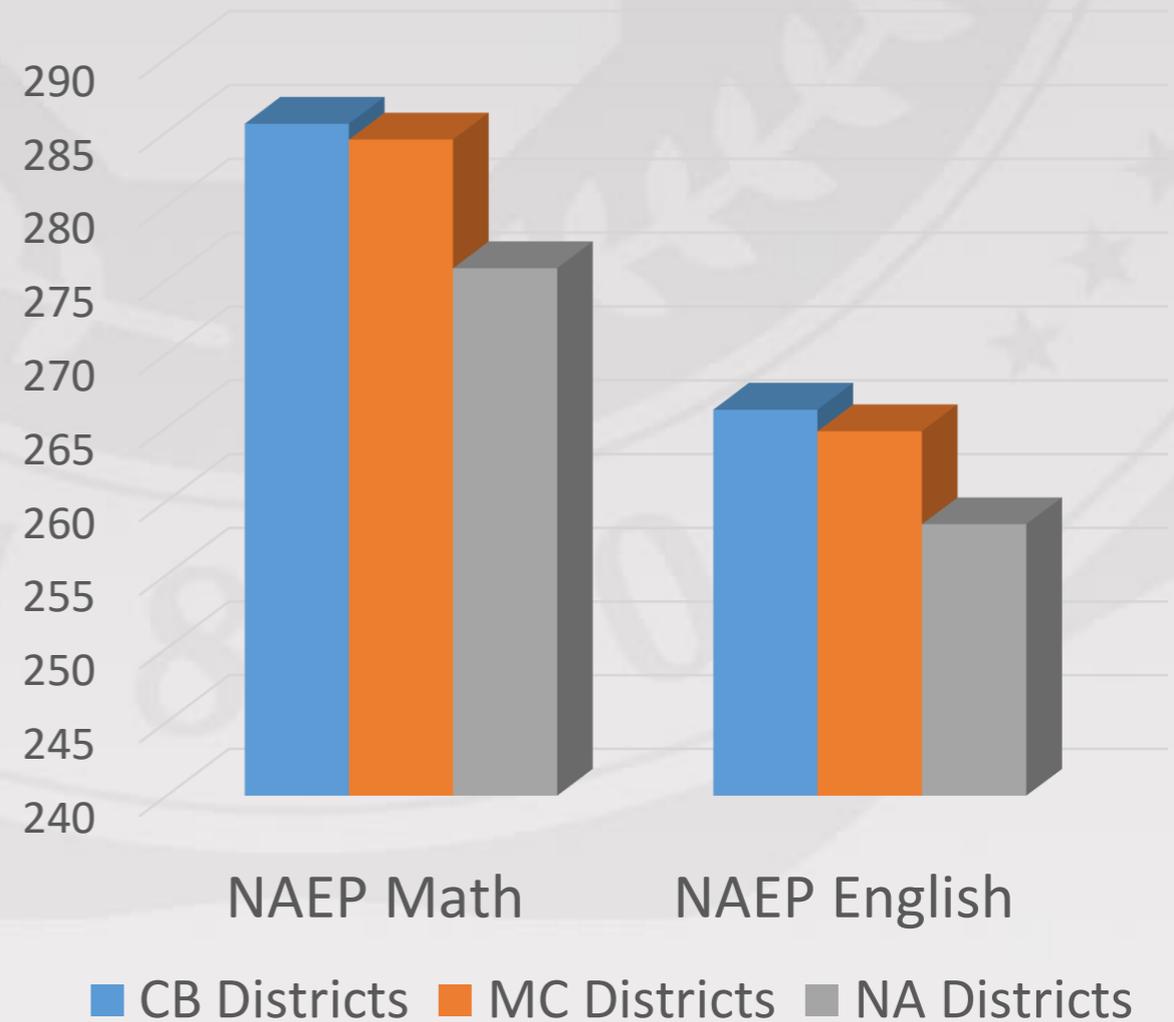
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- On average, students have higher scores for Math and English in CB and MC districts than in NA districts:

4th Grade Scores



8th Grade NAEP Scores





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Our empirical approach I

- We link the 2007-08 SASS to the 2008-09 SEDDA and the 2011-12 SASS to the 2012-13 SEDDA. We treat these as pooled cross-sections.
- We regress test scores, separately by grade and subject (math, English), on CB and MC status and a set of controls to identify unionization effects on student performance.
- We conduct both OLS and Propensity Score Matching (PSM) analyses.



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Our empirical approach II

- We run these analyses separately by race/ethnicity.
- We also run separate analyses for very poor, mid-range poor, and less poor districts as well, to identify differences in unionization effects across these kinds of neighborhoods.



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School District Characteristics Vary by Unionization Status

	CB	MC	NA
Percent White Students	77	77	62
Percent Black Students	8	8	21
Percent Hispanic Students	10	9	13
Revenue Per Pupil	\$12,868	\$11,942	\$10,562
Percent on Free/ Reduced Price Lunch	43	46	60



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Community Characteristics Vary by Unionization Status

	CB	MC	NA
Percent Suburban	34	23	15
Percent Rural	33	42	50
Percent Single Mother Households	23	23	29
Poverty Rate (Ages 5-17)	13	14	21
Median Household Income	\$65,331	\$60,956	\$48,953



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Results – Pooled

- OLS:
 - Math scores are about 1 point higher in CB districts and 1.5 points higher in MC districts, in grades 3-7.
 - English scores are about 1 to 1.5 points higher in MC districts in all grades.
- PSM (CB vs. NA only):
 - Math effects persist only through 6th grade.
 - No English effects found.



Results – Race/Ethnicity Disaggregated

- OLS:
 - White students: Math scores higher in CB and MC districts in all grades. English scores higher in MC districts in all grades.
 - Black students: Math scores higher in CB districts through 4th grade and in MC districts through 6th. English scores higher in MC districts through 6th grade.
 - No effects found for Hispanic and Asian students.
- PSM (CB vs. NA only):
 - White: Math effects persist through 6th grade (no English effects).
 - Black: Math effects persist through 4th grade (no English effects).
 - No effects found for Hispanic and Asian students.



Results – By Extent of Poverty, OLS

	Math	ELA
High Poverty (Top quartile)	Positive MC effects for grades 3 to 5	Positive MC effects for grades 3 to 5; Positive CB effects for grade 6
Mid-Poverty (Middle 50%)	Positive MC effects for grades 4 to 7; Positive CB effects for grades 3 to 7	Positive MC effects for grades 3 to 8; Positive CB effects for grades 7 and 8
Low Poverty (Bottom quartile)	Positive CB effects for grade 4	Negative MC effects for grade 6; Negative CB effects for grades 3 and 5



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Results – By Extent of Poverty, PSM

- High Poverty: Positive CB effects for grade 4 English
- Mid-Poverty: Positive CB effects for grades 3-6 math and grade 4 English
- Low Poverty: Positive CB effects for grade 4 math



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Summary

- The effects of teacher unionization on student performance are generally positive.
- They are somewhat stronger for black students than for white students for 3rd and 4th grades, but effects more persistent in higher grades for whites.
- They are stronger in high-poverty and mid-poverty districts than in low poverty districts.
- They are often manifest in “meet and confer” districts.



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Implications and Next Steps

- Studies of teachers' union effects that focus only on the presence of a CB contract may understate such effects.
- Declining unionization among teachers may have negative impacts on student achievement, especially in high and mid-poverty neighborhoods, suggesting that inequality in education outcomes may increase.
- Variation in these effects (by subject, grade) needs some consideration. More refined characterization of SES status of districts can be examined.