

Teacher Merit Pay and Student Achievement in U.S. School Districts

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García and Han (2022)

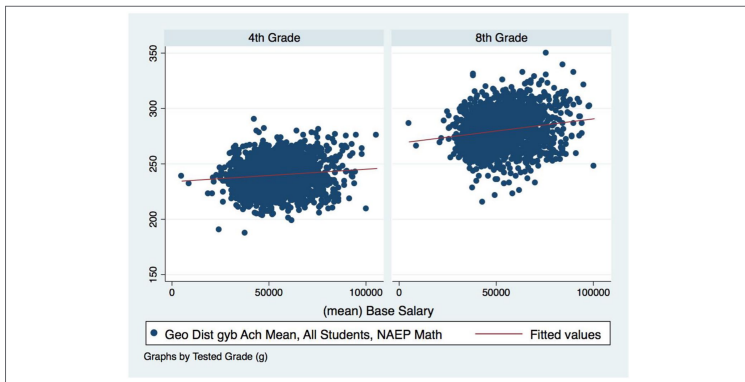


Figure 1. Teacher base salary and districts' mathematics performance.

Source. Authors' calculation based on 2014 to 2015 *Stanford Education Data Archive* (SEDA, v. 2.1) combined with 2015 to 2016 *National Teacher and Principal Survey* (NTPS).

- ▶ Positive association between teacher salaries and student test scores across 10,000 school districts

García and Han (2022)

Table 1. Estimated Relationship Between Teacher Pay and Districts' Math Performance.

Variables	(1)	(2)	(3)	(4)
Log (Base salary)	10.525*** (0.836)	3.910*** (0.461)	1.737*** (0.419)	1.827*** (0.478)
District characteristics				
% Hispanic students		-2.883*** (1.020)	-4.593*** (0.923)	-4.559*** (0.922)
% Black students		-14.00*** (0.609)	-16.94*** (0.710)	-16.93*** (0.710)
% Asian students		38.16*** (2.227)	18.67*** (1.887)	18.68*** (1.885)
% Native Americans		-12.90*** (1.475)	-14.54*** (1.359)	-14.50*** (1.359)
Total enrollment, grades 3–8 (in 1,000)		-0.00342 (0.0288)	0.0176 (0.0257)	0.0174 (0.0257)
% ELL students		-3.759** (1.795)	-6.108*** (1.672)	-6.203*** (1.676)
% special education students		-7.150*** (2.211)	-4.286** (1.735)	-4.332** (1.735)
Total teachers (in 1,000)		0.179 (0.184)	-0.0334 (0.174)	-0.0327 (0.174)
Total instructional aides (in 1,000)		-0.423 (0.327)	-1.086** (0.442)	-1.087** (0.445)
% reduced lunch		-33.28*** (2.256)	-12.14*** (2.237)	-12.24*** (2.228)
% free lunch		-30.16*** (0.687)	-15.81*** (0.864)	-15.81*** (0.862)
Community characteristics				
Log(Median household income)			1.627** (0.646)	1.593** (0.648)
% Adults with bachelor's degree and above			24.52*** (1.001)	24.50*** (1.000)
% 5–17 year olds in poverty			5.105*** (1.814)	5.121*** (1.814)
% Household with children and female head			-4.640*** (1.429)	-4.660*** (1.429)
% Unemployed			-20.17*** (4.991)	-20.48*** (5.002)
% Living in same house as last year			2.491* (1.343)	2.563* (1.344)
Gini coefficient			-2.758 (2.470)	-2.780 (2.472)
City/urban locale			0.133 (0.282)	0.105 (0.283)
Suburban locale			0.817*** (0.218)	0.791*** (0.218)
Town locale			0.679*** (0.190)	0.671*** (0.191)
Constant	154.7*** (7.737)	201.3*** (5.104)	196.0*** (8.565)	194.5*** (8.711)
Year dummies	X	X	X	X
State dummies	X	X	X	X
Observations	57,010	56,650	55,710	55,710
R ²	.009	.860	.874	.874

Source. Authors' calculation based on 2008 to 2009, 2011 to 2012, and 2014 to 2015 *Stanford Education Data Archive* (SEDA, v. 2.1) combined with 2007 to 2008 and 2011 to 2012 *School and Staffing Survey* (SASS) and 2015 to 2016 *National Teacher and Principal Survey* (NTPS).

Note. Errors are clustered within states (presented in parentheses).

*p < .1. **p < .05. ***p < .01. N is rounded to nearest 10.

What about merit pay?

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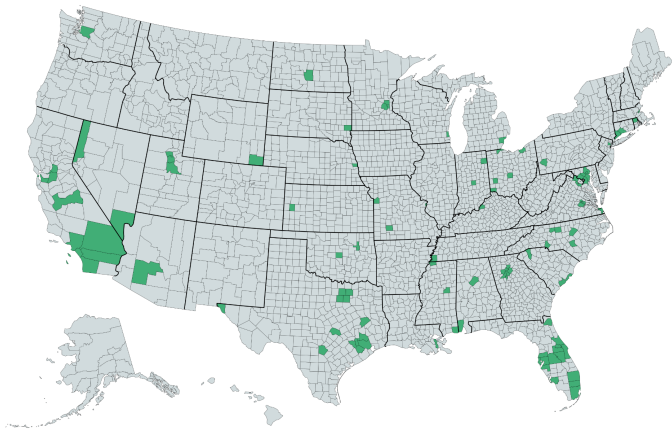
Mitchell Hoffman
Christopher T. Stanton

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Preliminary chapter in preparation for the Handbook of Labor Economics. We are extremely grateful to Kathryn Shaw for guidance, insights, and immense contributions to this handbook chapter, as well as her mentorship to us and many personnel economists. We are also incredibly grateful to Eddie Lazear for his mentorship, insights, and shaping of the field. We also thank Alan Benson, Kevin Bryan, Christian Dustmann, Guido Friebel, Peter Kuhn, Fabian Lange, Thomas Lemieux, and Paul Oyer for helpful comments. We thank **Cameron Greene**, Shira Aronson, Jessica Arp, and Kazuma Wells for excellent research assistance. Comments are very welcome. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

- ▶ Hanushek et al. (2023) and Biasi (2021): teacher merit pay in Texas and Wisconsin school districts increased teacher recruitment and improved student standardized test scores
- ▶ Pham et al. (2021): 26 studies suggest positive effect of teacher merit pay on student test scores

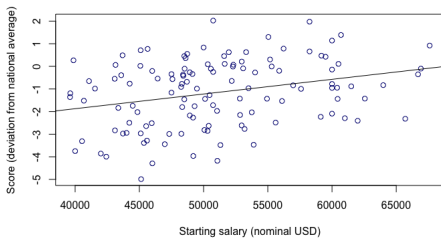
Sample



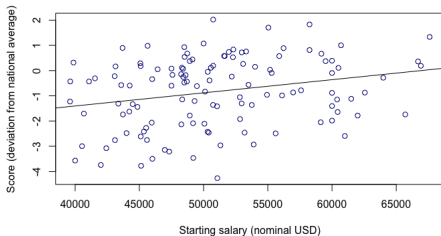
- ▶ 122 school districts (45 with merit pay); 34 states
- ▶ Math and reading score averages of 4th and 8th grade students

Data

Math scores by teacher salary across U.S. school districts, 2022



Reading scores by teacher salary across U.S. school districts, 2022



Preliminary Results: Math Scores

	(i)	(ii)	(iii)
<i>starting_salary</i>	0.0649** (0.0197)	0.0566** (0.0198)	0.0452*** (0.0129)
<i>merit_pay</i>		0.601* (0.268)	0.622*** (0.173)
<i>free_reduced_lunch</i>			-0.0458*** (0.0037)
<i>constant</i>	-4.469*** (1.014)	-4.266*** (1.002)	-0.977 (0.700)
R-squared	0.083	0.120	0.632
F-statistic	10.83**	8.105***	64.02***
Observations	122	122	122

Preliminary Results: Reading Scores

	(i)	(ii)	(iii)
<i>starting_salary</i>	0.0522** (0.0186)	0.0466* (0.0188)	0.0353** (0.0125)
<i>merit_pay</i>		0.402 (0.256)	0.426* (0.168)
<i>free_reduced_lunch</i>			-0.0436*** (0.0036)
<i>constant</i>	-3.490*** (0.957)	-3.353*** (0.955)	-0.201 (0.677)
R-squared	0.061	0.081	0.606
F-statistic	7.853	5.215	57.48***
Observations	122	122	122

Thank you!