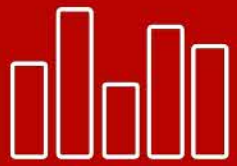
A. Delaware Educator Diagnostic: Analysis of the First State's Workforce

STRATEGIC DATA PROJECT

Delaware Educator Diagnostic:

An Analysis of The First State's Workforce

www.gse.harvard.edu/sdp



STRATEGIC DATA PROJECT

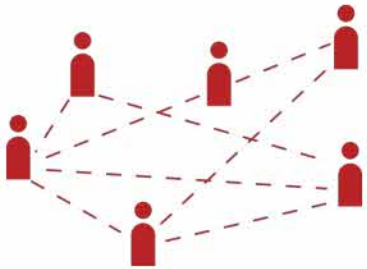
MISSION

Transform the use of data in education to improve student achievement.

Core Strategies

I. Fellows

Place and support **data strategists** in agencies



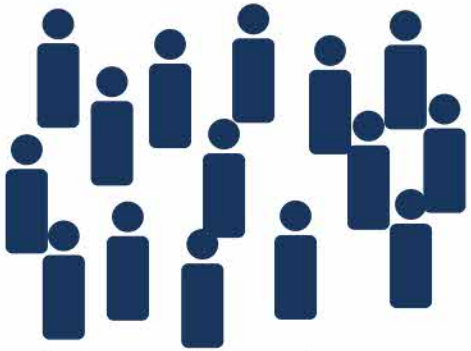
who will influence policy at the local, state, and national levels.

2. Diagnostic Analyses

Create **policy- and management-relevant standardized analyses** for districts and states.

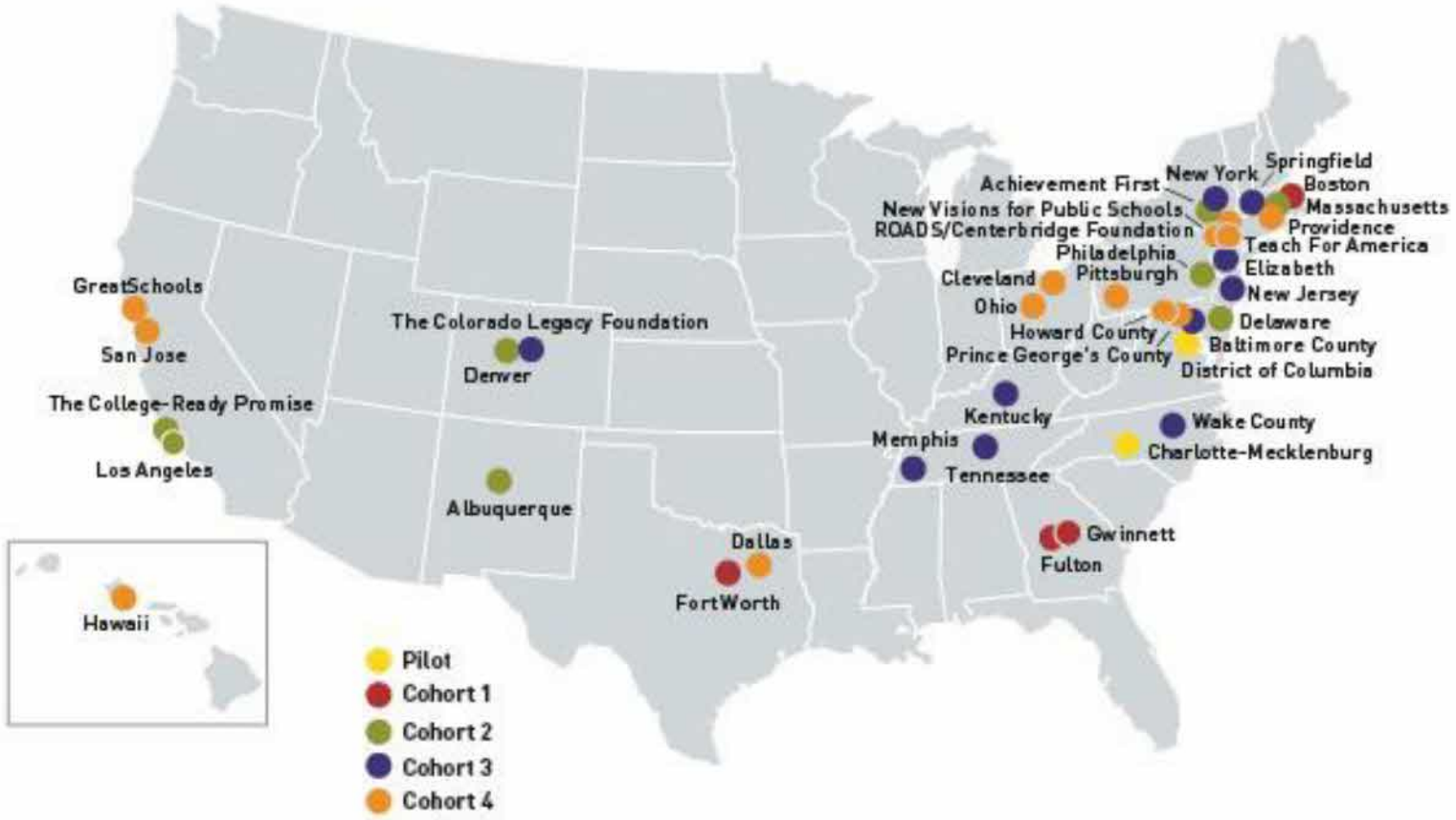
3. Scale

Improve the way data is used in the education sector.



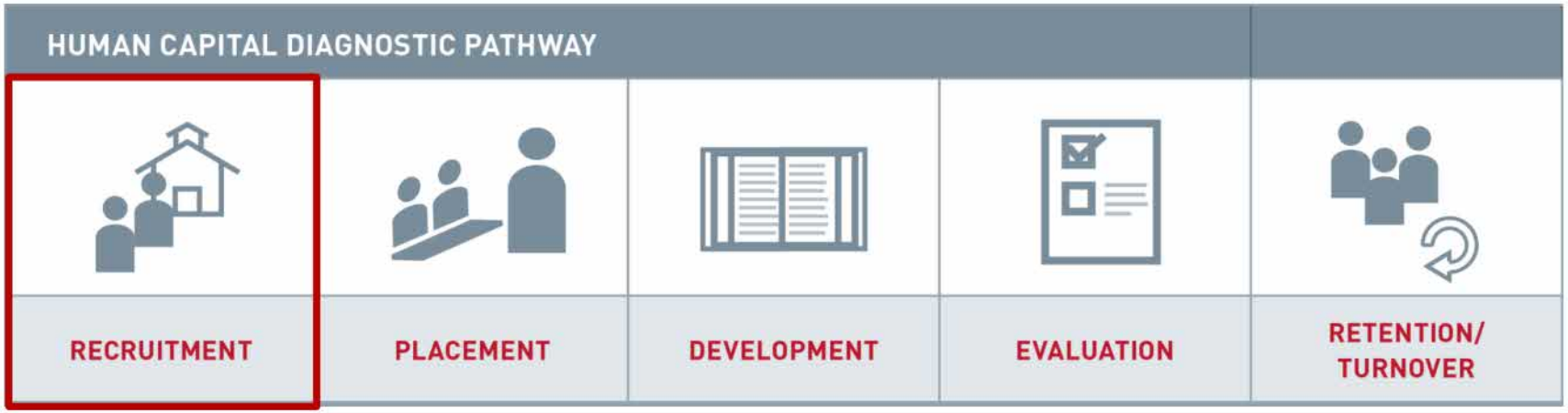
Achieve broad impact through wide dissemination of analytic tools, methods, and best practices.

The SDP Family



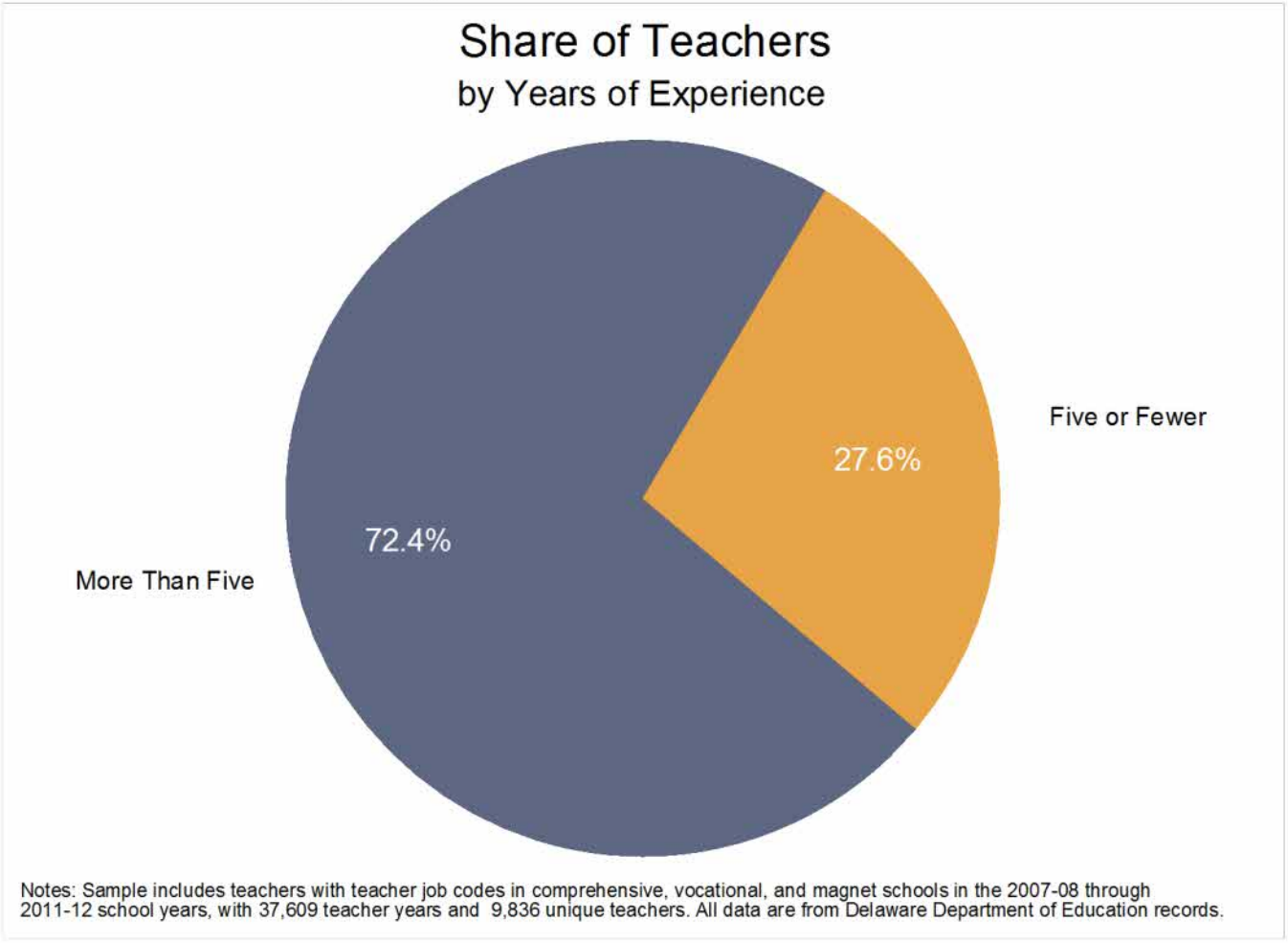
Educator Diagnostic Pathway

HUMAN CAPITAL DIAGNOSTIC PATHWAY				
				
RECRUITMENT	PLACEMENT	DEVELOPMENT	EVALUATION	RETENTION/ TURNOVER



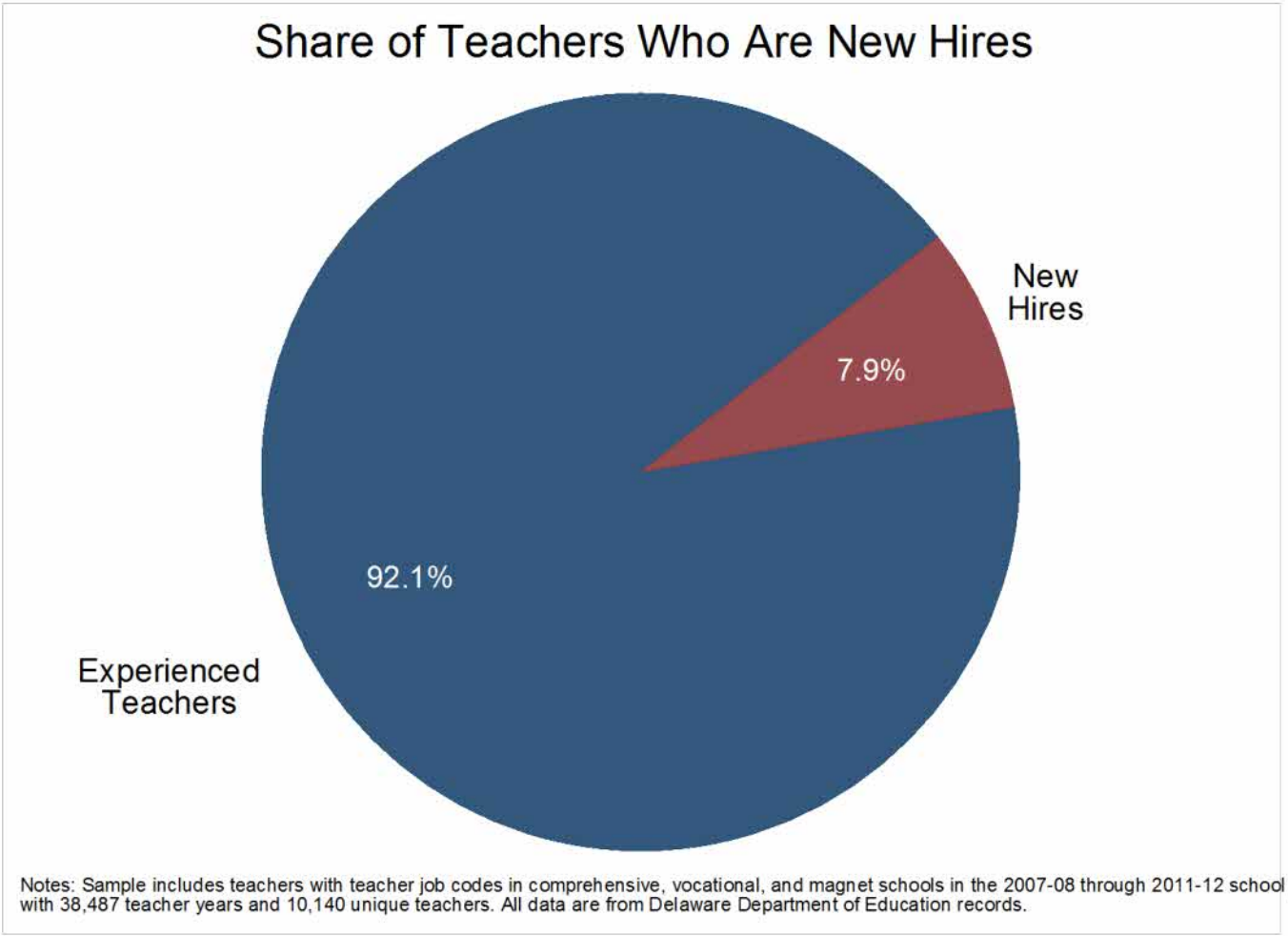
RECRUITMENT

More than a quarter of teachers have five or fewer years of teaching experience



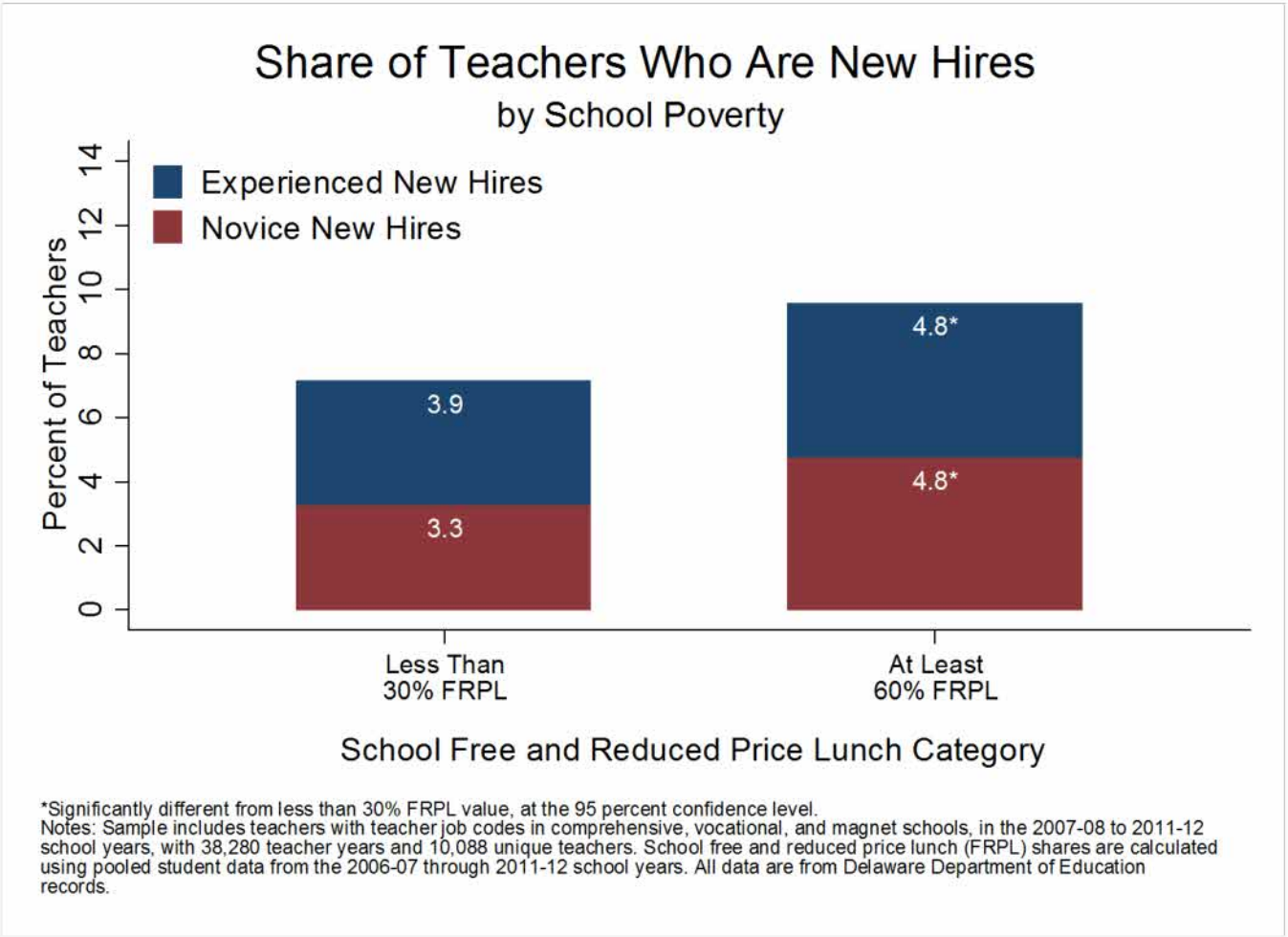
Notes: Sample includes teachers with teacher job codes in comprehensive, vocational, and magnet schools in the 2007-08 through 2011-12 school years, with 37,609 teacher years and 9,836 unique teachers. All data are from Delaware Department of Education records.

Fewer than one in twelve teachers are new hires each year



Notes: Sample includes teachers with teacher job codes in comprehensive, vocational, and magnet schools in the 2007-08 through 2011-12 school years, with 38,487 teacher years and 10,140 unique teachers. All data are from Delaware Department of Education records.

High-poverty schools have larger shares of new hires than low-poverty schools



*Significantly different from less than 30% FRPL value, at the 95 percent confidence level.
Notes: Sample includes teachers with teacher job codes in comprehensive, vocational, and magnet schools, in the 2007-08 to 2011-12 school years, with 38,280 teacher years and 10,088 unique teachers. School free and reduced price lunch (FRPL) shares are calculated using pooled student data from the 2006-07 through 2011-12 school years. All data are from Delaware Department of Education records.

Teacher characteristics differ markedly between high- and low-poverty schools

Teacher Characteristics by School Poverty Level

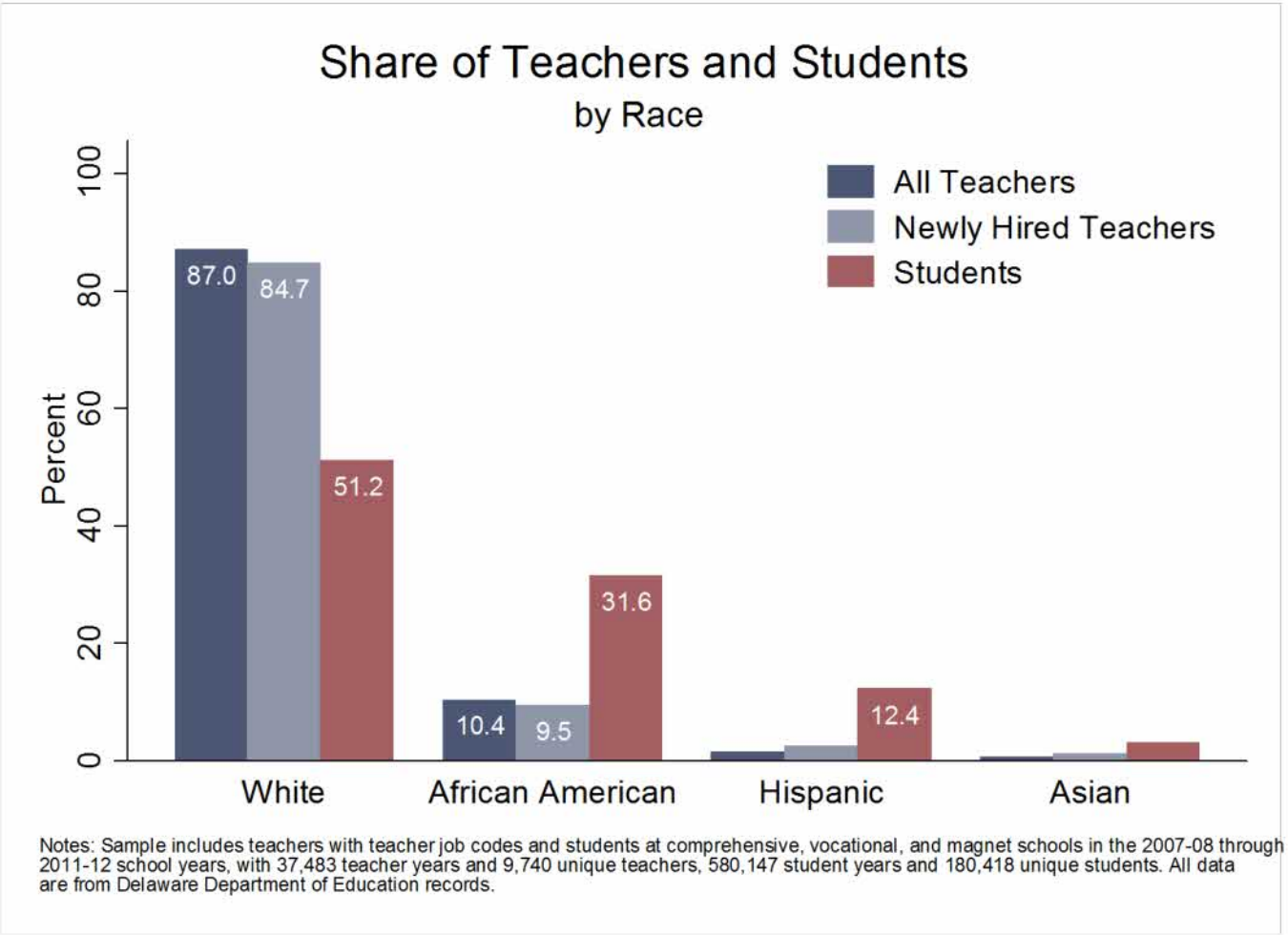
	State Average	Average for High-Poverty Schools (≥60% FRPL)	Average for Middle-Poverty Schools (30-59% FRPL)	Average for Low-Poverty Schools (<30% FRPL)	Difference between High- and Low-Poverty Schools
Percent Male	23.9	13.8	26.8	24.7	-11.0*
Percent African American	10.4	13.1	10.4	7.9	5.2*
Percent Hispanic	1.6	2.4	1.4	1.3	1.1*
Percent White	87.0	83.9	87.1	89.9	-6.0*
Percent Novice	3.9	4.9	3.8	3.3	1.6*
Average Years Experience	12.4	11.2	12.7	12.9	-1.7*

*Difference is statistically significant at the 95 percent confidence level.

Notes: Sample includes teachers with teacher job codes in comprehensive, vocational, and magnet schools in the 2007-08 through 2011-12 school years, with 38,280 teacher years and 10,088 unique teachers. High-/middle-/low-poverty schools category includes 44/104/33 unique schools. School free and reduced price lunch (FRPL) shares are calculated using pooled student data from the 2006-07 through 2011-12 school years. All data are from Delaware Department of Education records.

RECRUITMENT

Teachers are less likely to be minority than students



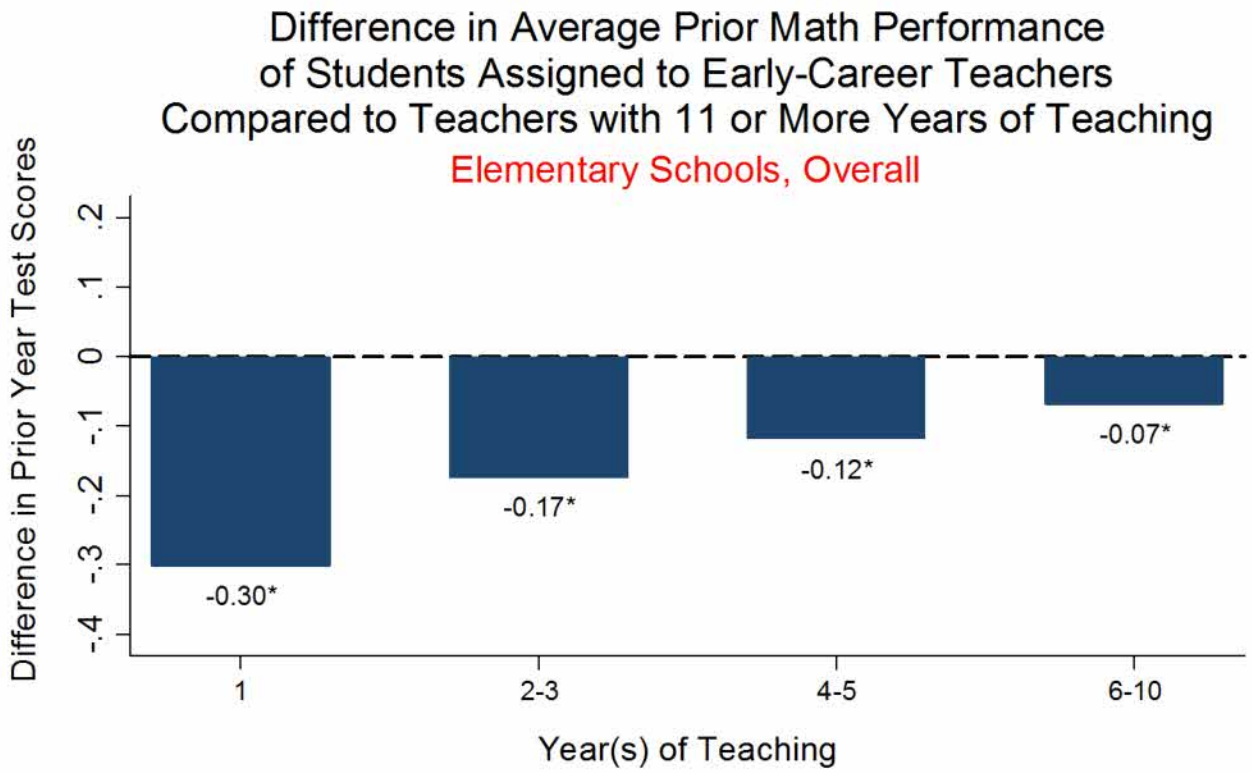
Notes: Sample includes teachers with teacher job codes and students at comprehensive, vocational, and magnet schools in the 2007-08 through 2011-12 school years, with 37,483 teacher years and 9,740 unique teachers, 580,147 student years and 180,418 unique students. All data are from Delaware Department of Education records.

RECRUITMENT


HUMAN CAPITAL DIAGNOSTIC PATHWAY
RECRUITMENT
PLACEMENT
DEVELOPMENT
EVALUATION
RETENTION/
TURNOVER

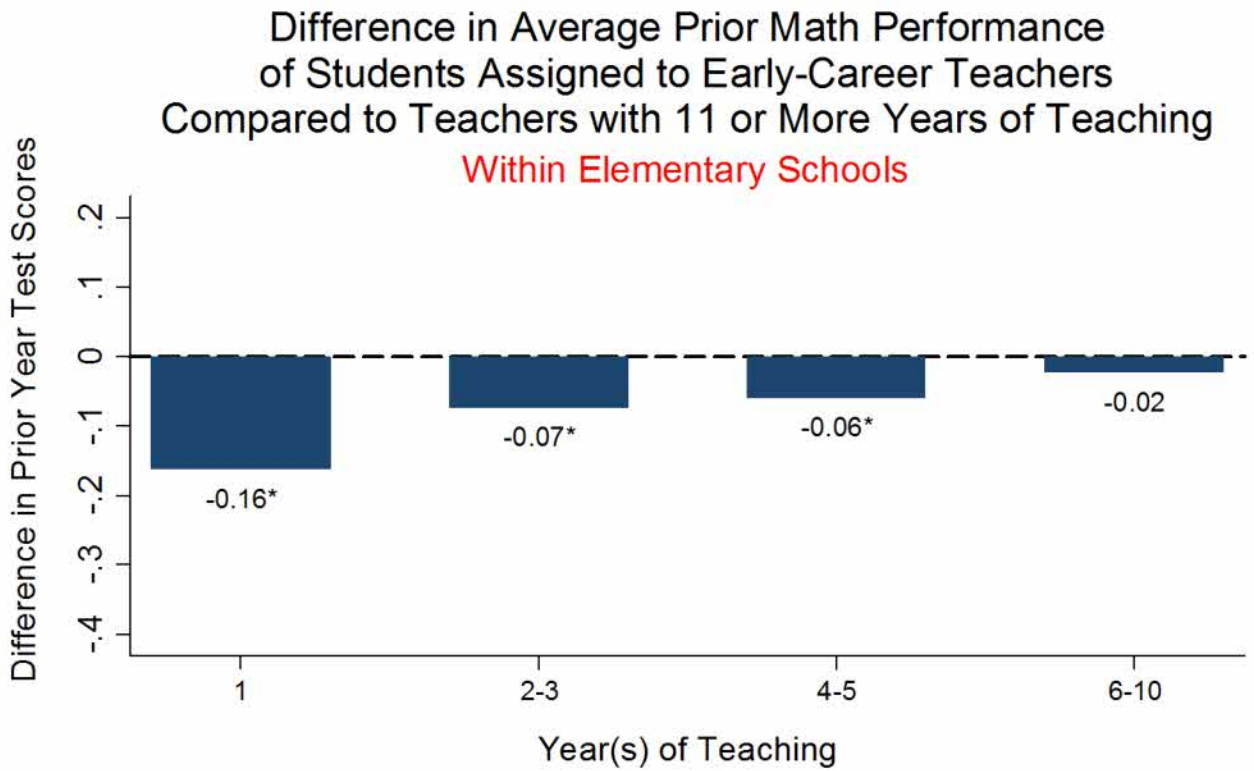
PLACEMENT

The least academically prepared elementary students are more likely to be placed with the most inexperienced teachers



*Significantly different from zero, at the 95 percent confidence level.
Notes: Sample includes comprehensive and magnet school teachers with teacher job codes and their students in grades 4 and 5 with prior year test scores in the 2006-07 through 2011-12 school years, with 3,576 teacher years, 76,169 student years, 1,162 unique teachers, and 50,712 unique students. Test scores are normalized to have an average of zero and a standard deviation of one, and are shown in standard deviation units. All data are from Delaware Department of Education records.

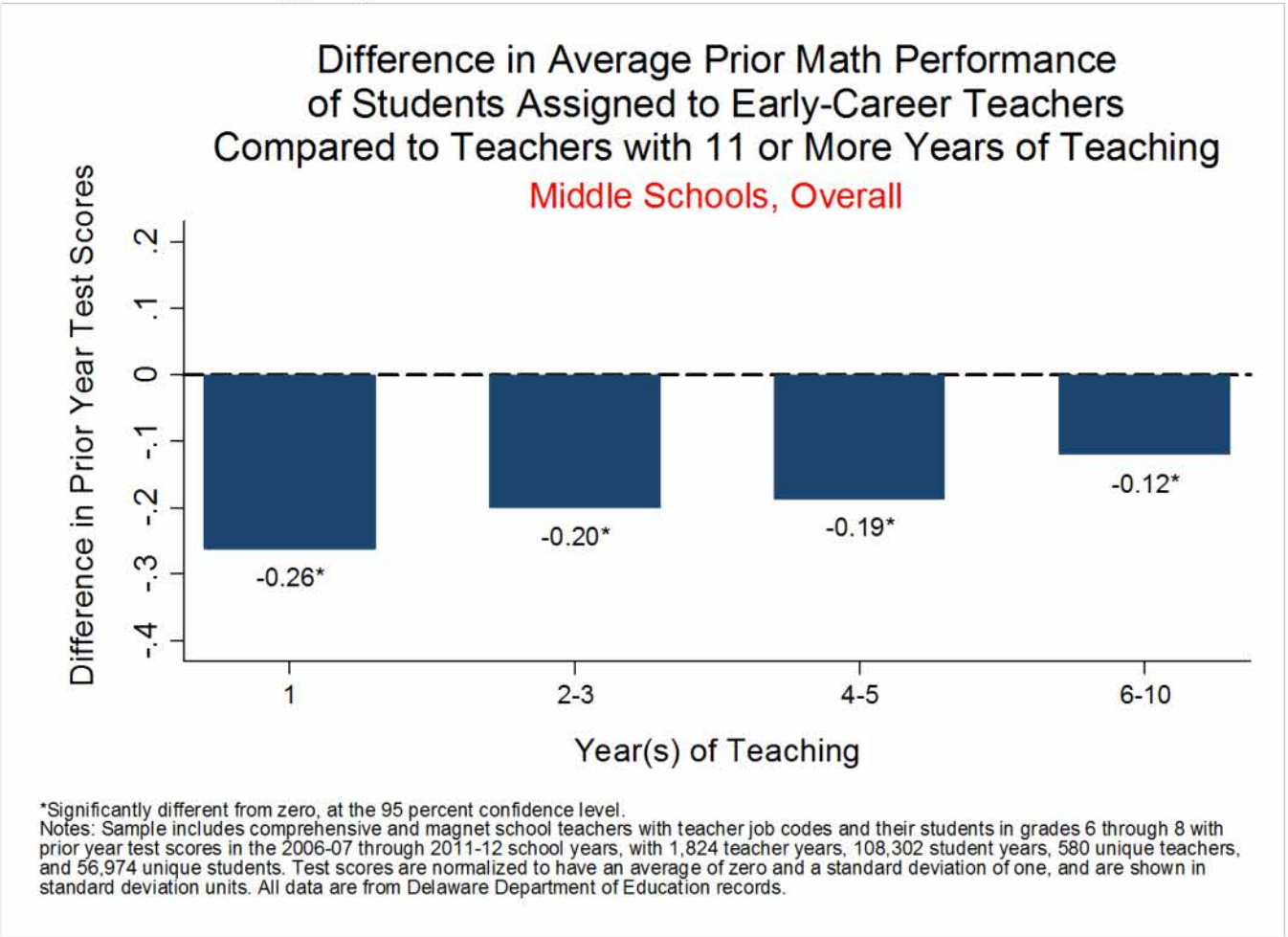
This is also true when we look at student placement within elementary schools



*Significantly different from zero, at the 95 percent confidence level.
Notes: Sample includes comprehensive and magnet school teachers with teacher job codes and their students in grades 4 and 5 with prior year test scores in the 2006-07 through 2011-12 school years, with 3,576 teacher years, 76,169 student years, 1,162 unique teachers, and 50,712 unique students. Test scores are normalized to have an average of zero and a standard deviation of one, and are shown in standard deviation units. All data are from Delaware Department of Education records.

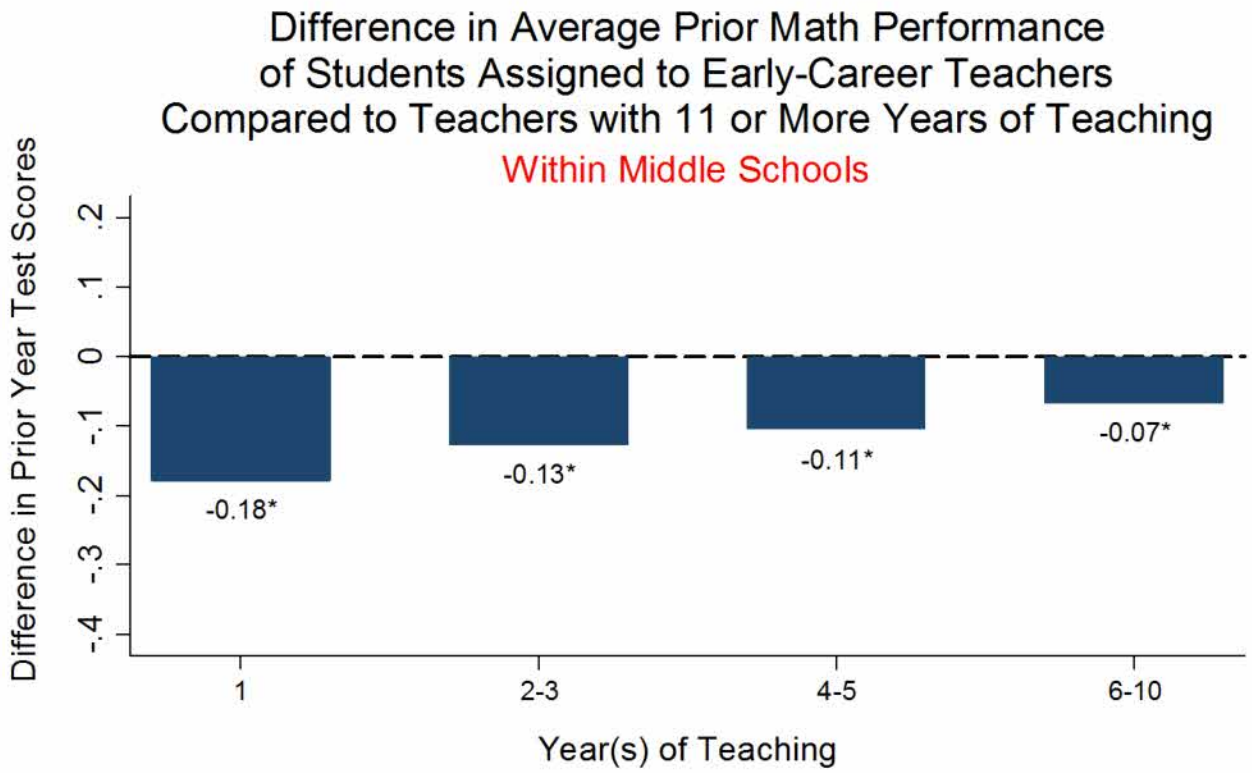
PLACEMENT

In middle schools, inexperienced teachers also have students with lower average prior test scores



*Significantly different from zero, at the 95 percent confidence level.
Notes: Sample includes comprehensive and magnet school teachers with teacher job codes and their students in grades 6 through 8 with prior year test scores in the 2006-07 through 2011-12 school years, with 1,824 teacher years, 108,302 student years, 580 unique teachers, and 56,974 unique students. Test scores are normalized to have an average of zero and a standard deviation of one, and are shown in standard deviation units. All data are from Delaware Department of Education records.

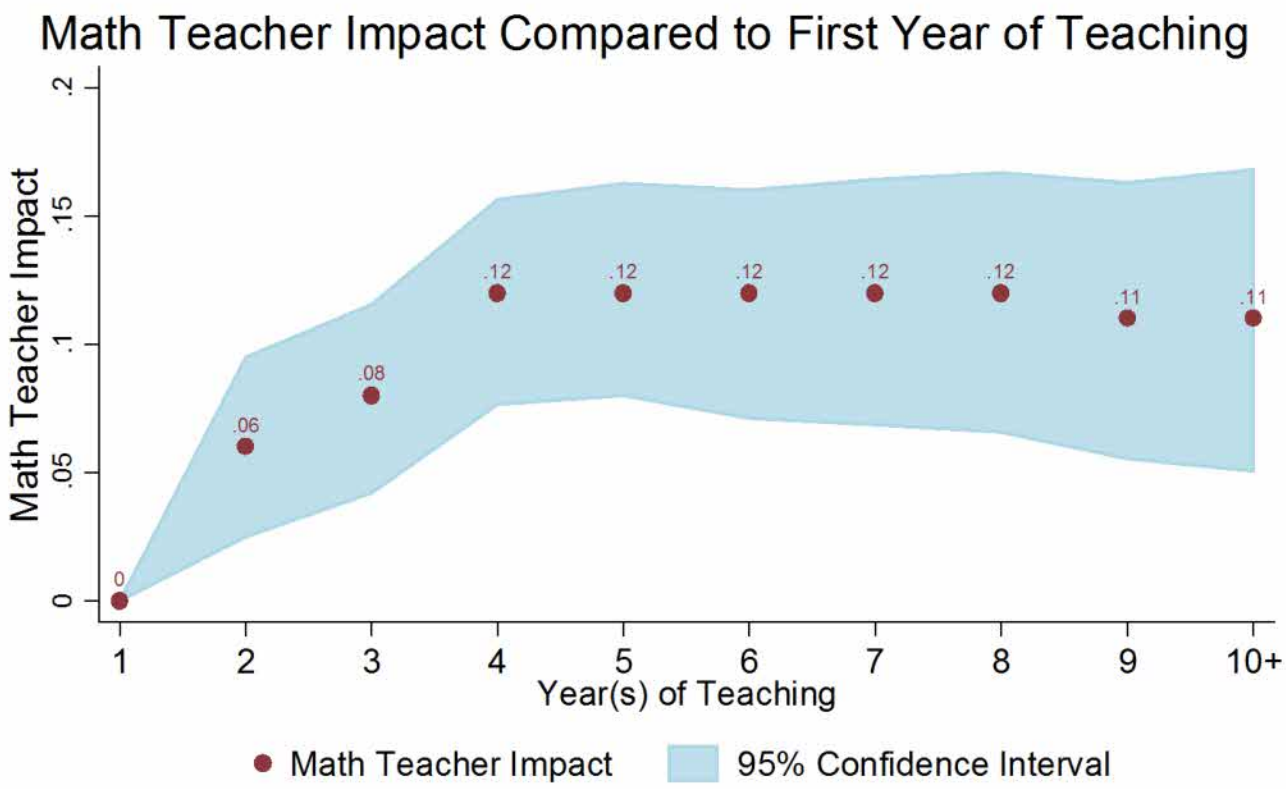
These differences also exist within middle schools



*Significantly different from zero, at the 95 percent confidence level.
Notes: Sample includes comprehensive and magnet school teachers with teacher job codes and their students in grades 6 through 8 with prior year test scores in the 2006-07 through 2011-12 school years, with 1,824 teacher years, 108,302 student years, 580 unique teachers, and 56,974 unique students. Test scores are normalized to have an average of zero and a standard deviation of one, and are shown in standard deviation units. All data are from Delaware Department of Education records.

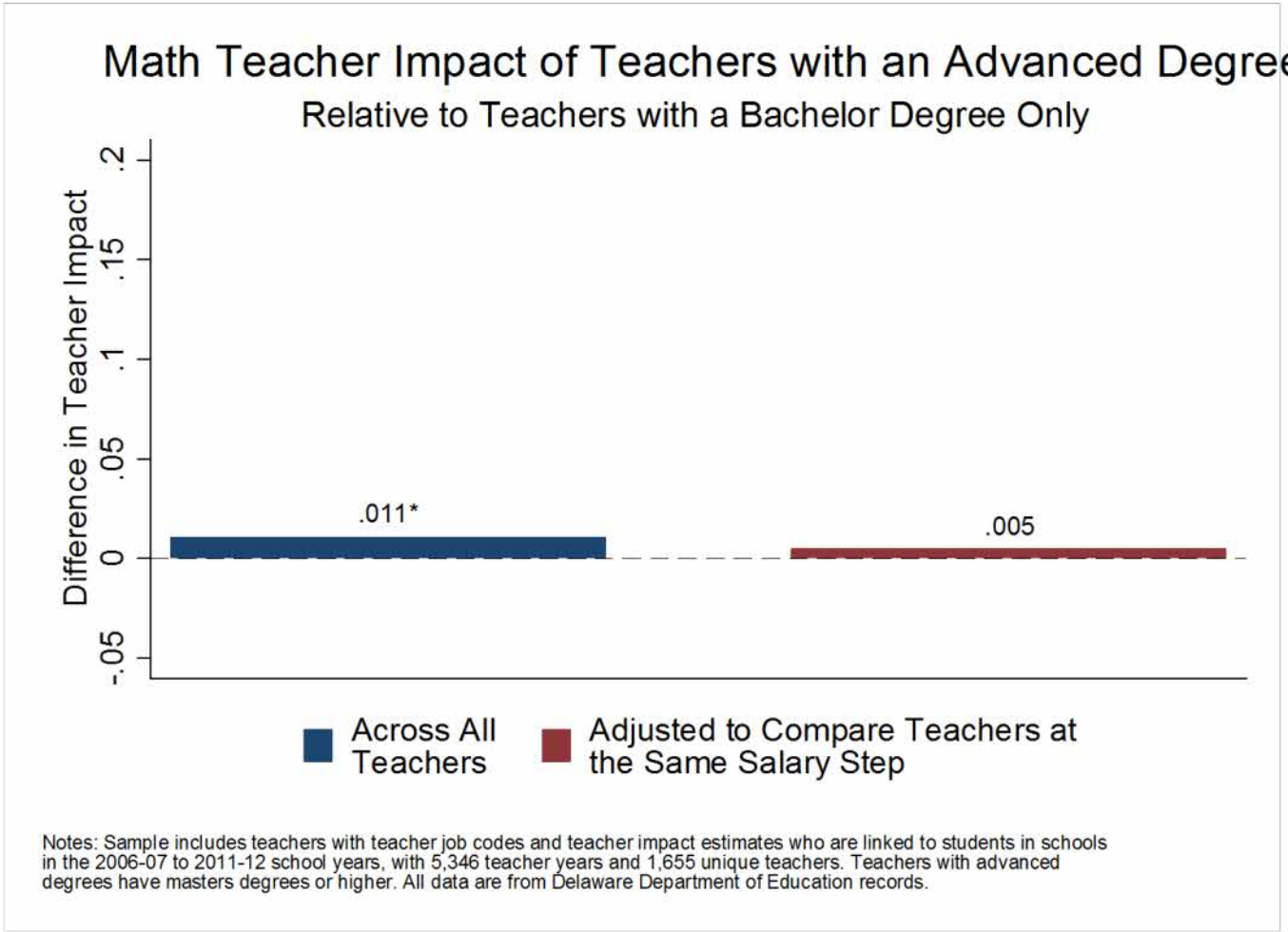
DEVELOPMENT

Teacher impact on student math achievement increases the most in the first few years of teaching



Notes: Sample includes comprehensive and magnet school teachers in the 2006-07 through 2011-12 school years with teacher job codes and teacher impact estimates who are linked to 4th through 8th grade students, with 5,448 teacher years and 1,721 unique teachers. Teacher impacts on student test scores are average within-teacher gains compared to novice teachers. All data are from Delaware Department of Education records.

There is little difference in impact on student achievement between teachers with and without masters degrees

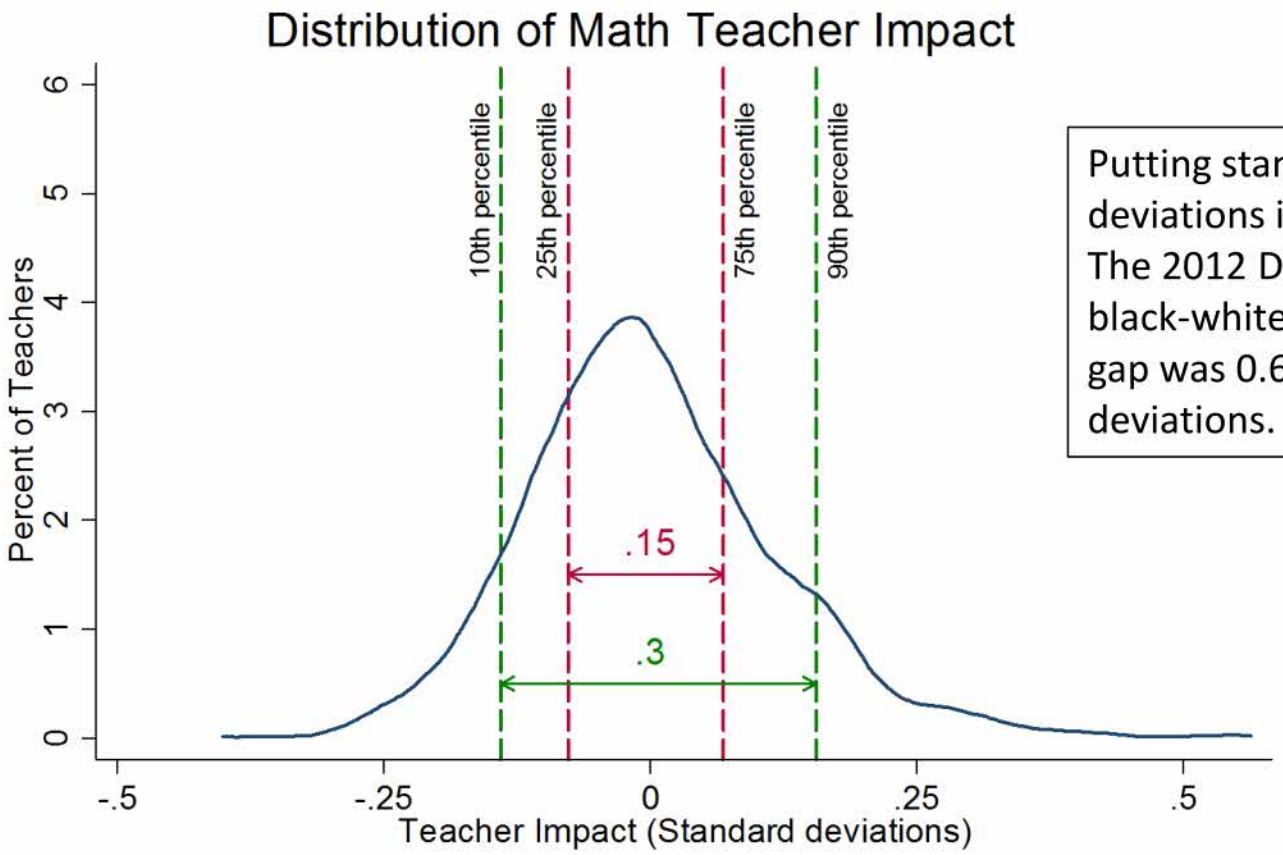


Notes: Sample includes teachers with teacher job codes and teacher impact estimates who are linked to students in schools in the 2006-07 to 2011-12 school years, with 5,346 teacher years and 1,655 unique teachers. Teachers with advanced degrees have masters degrees or higher. All data are from Delaware Department of Education records.


HUMAN CAPITAL DIAGNOSTIC PATHWAY
RECRUITMENT
PLACEMENT
DEVELOPMENT
EVALUATION
RETENTION/
TURNOVER

EVALUATION

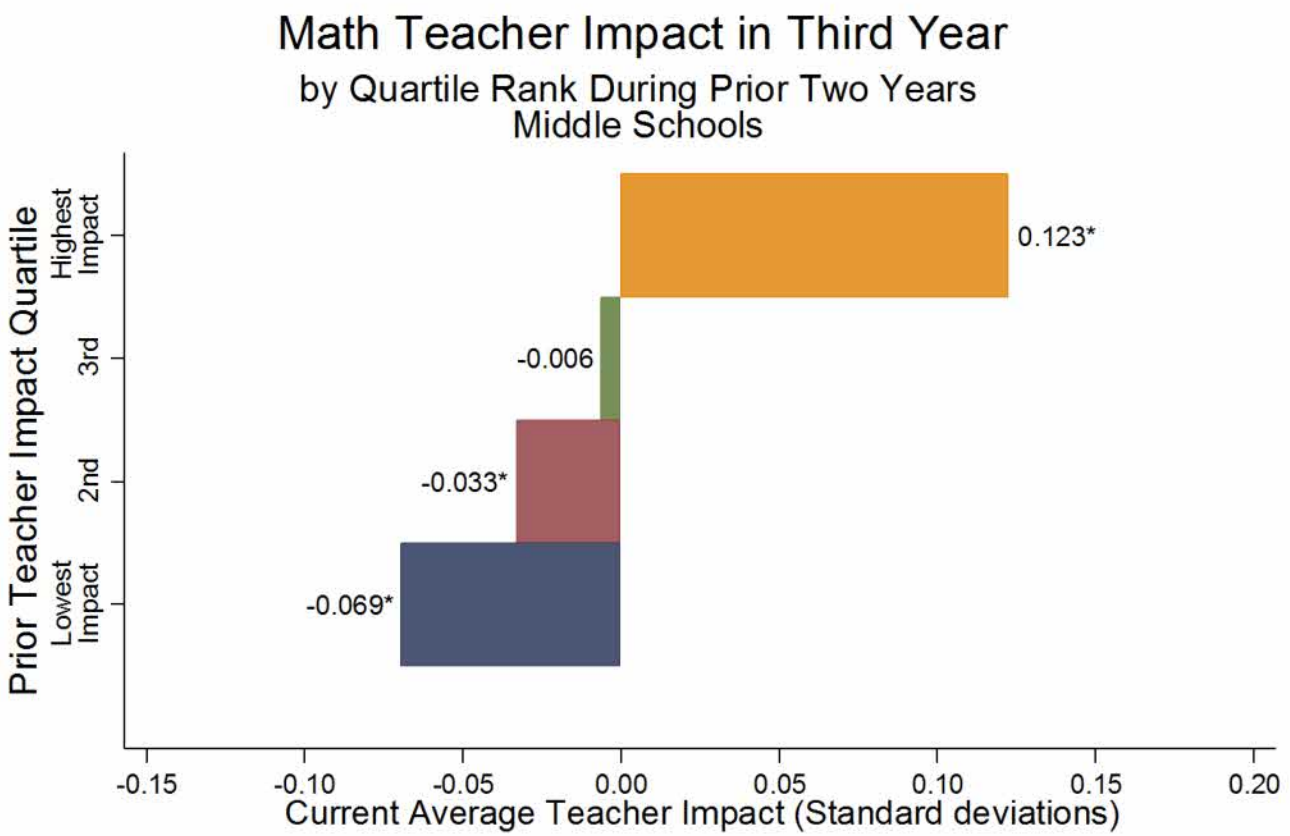
Teacher impact on student achievement varies widely across the state



Note: Sample includes 1,759 comprehensive and magnet school teachers with teacher job codes and math students in grades 4 through 8 in school years 2006-07 to 2011-12. All data are from Delaware Department of Education records.

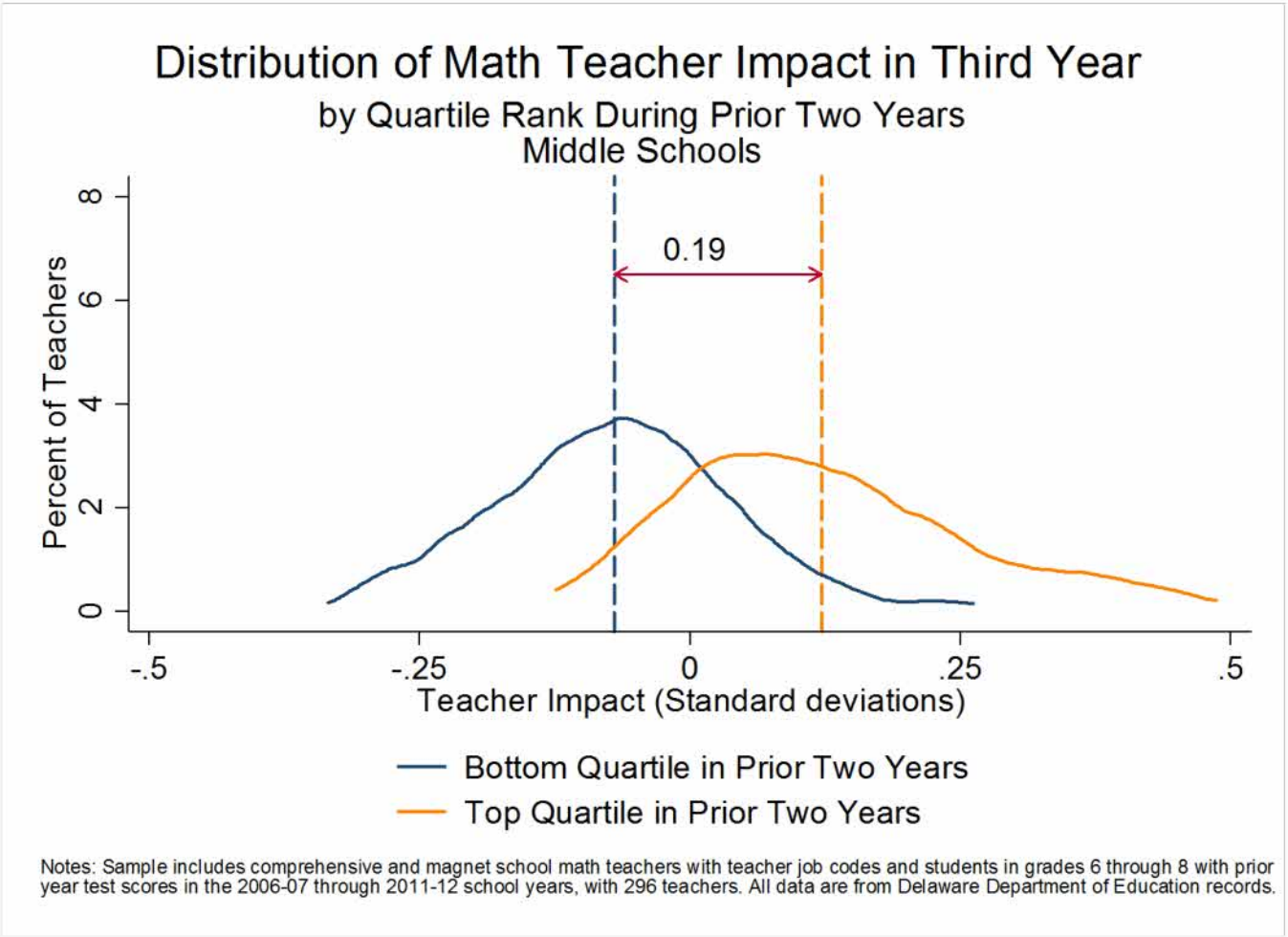
Putting standard deviations in context: The 2012 Delaware black-white test score gap was 0.6 standard deviations.

On average, a math teacher's impact on student achievement is predictive of future impact



*Significantly different from zero at the 95 percent confidence level.
Notes: Sample includes comprehensive and magnet school math teachers with teacher job codes and students in grades 6 through 8 with prior year test scores in the 2006-07 through 2011-12 school years, with 296 teachers. All data are from Delaware Department of Education records.

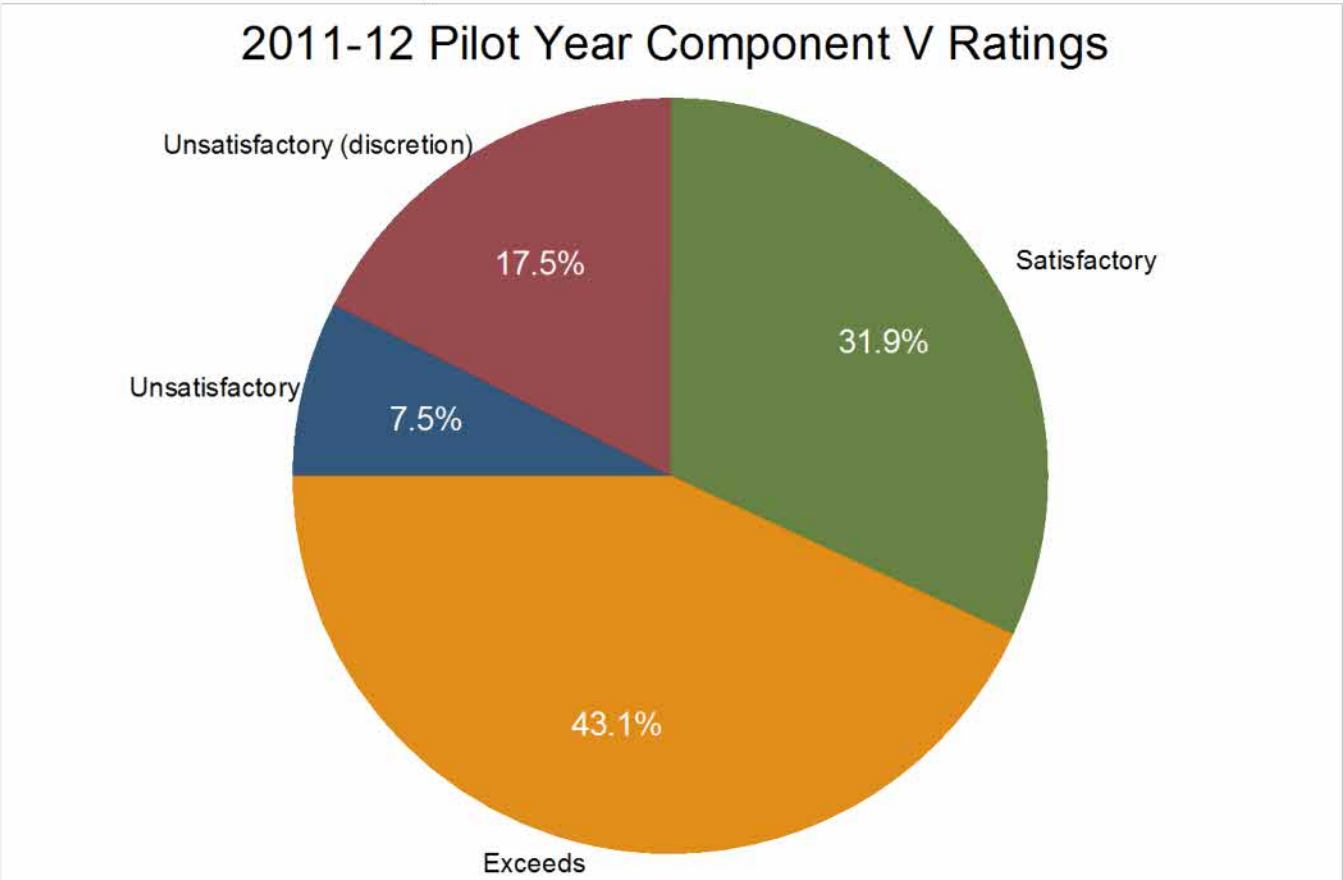
Nonetheless, there is movement between impact groups



Notes: Sample includes comprehensive and magnet school math teachers with teacher job codes and students in grades 6 through 8 with prior year test scores in the 2006-07 through 2011-12 school years, with 296 teachers. All data are from Delaware Department of Education records.

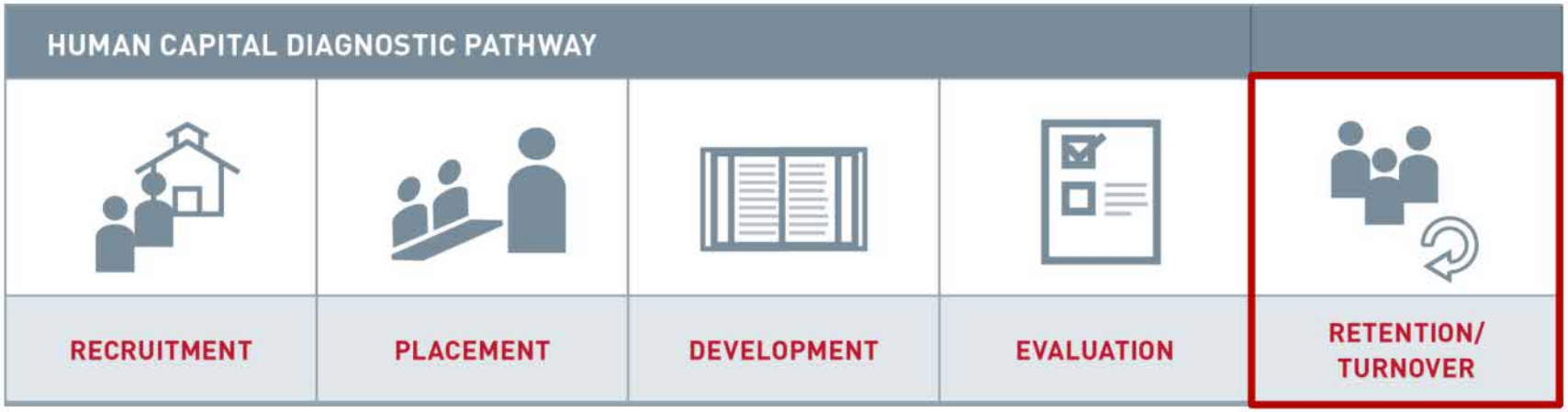
EVALUATION

In 2011-12, among teachers of tested subjects participating in Delaware's new teacher evaluation system, more than two in five were rated "Exceeds Expectations"



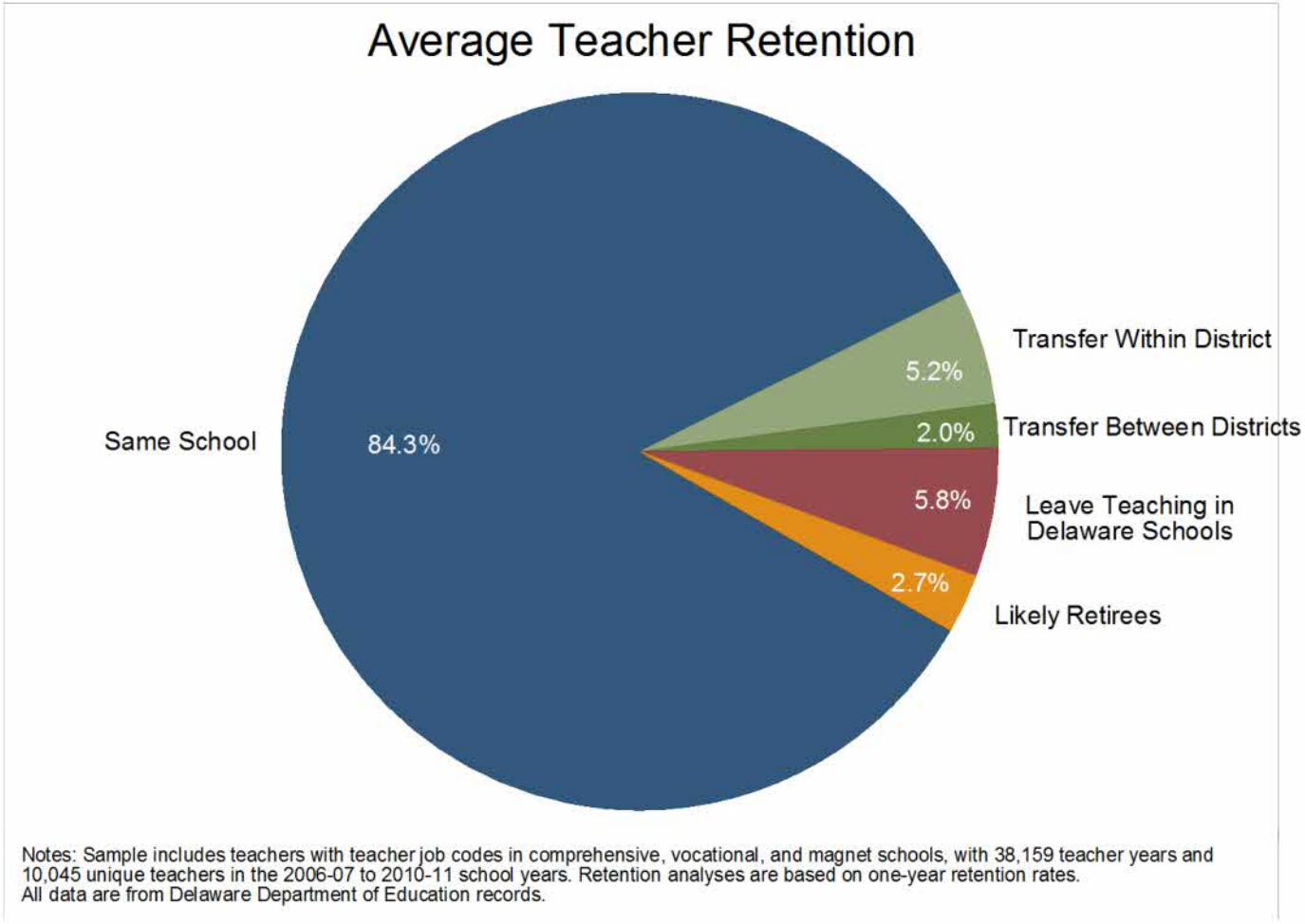
Notes: Sample includes 2,684 unique teachers with 2011-12 Delaware Department of Education Component V ratings and class sizes of 10 or more. Ratings are based on Delaware Department of Education Component V teacher-student links for Math and English/Language Arts. All data are from Delaware Department of Education records.

EVALUATION



RETENTION/TURNOVER

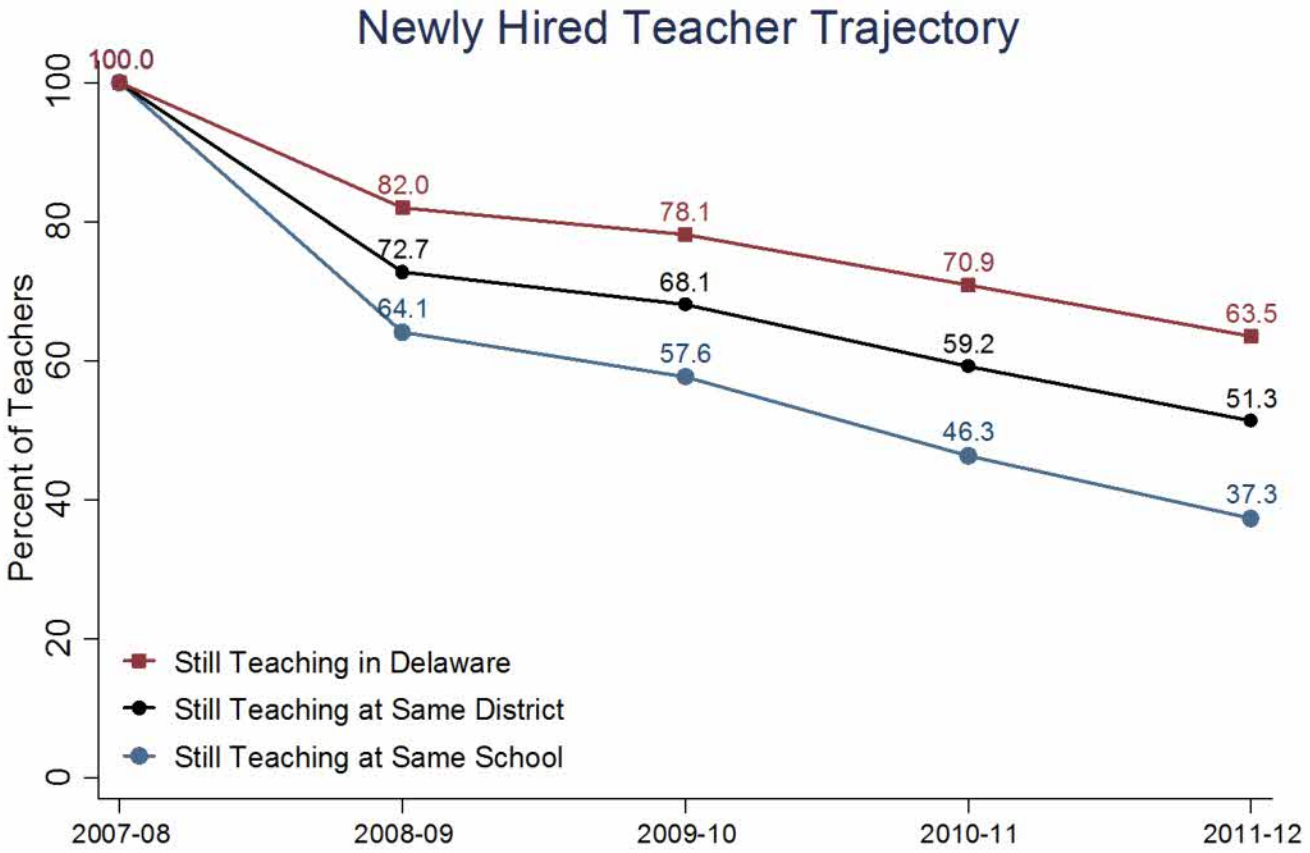
More than 15 percent of teachers do not continue teaching in the same school in the following year



Notes: Sample includes teachers with teacher job codes in comprehensive, vocational, and magnet schools, with 38,159 teacher years and 10,045 unique teachers in the 2006-07 to 2010-11 school years. Retention analyses are based on one-year retention rates.
All data are from Delaware Department of Education records.

RETENTION/ TURNOVER

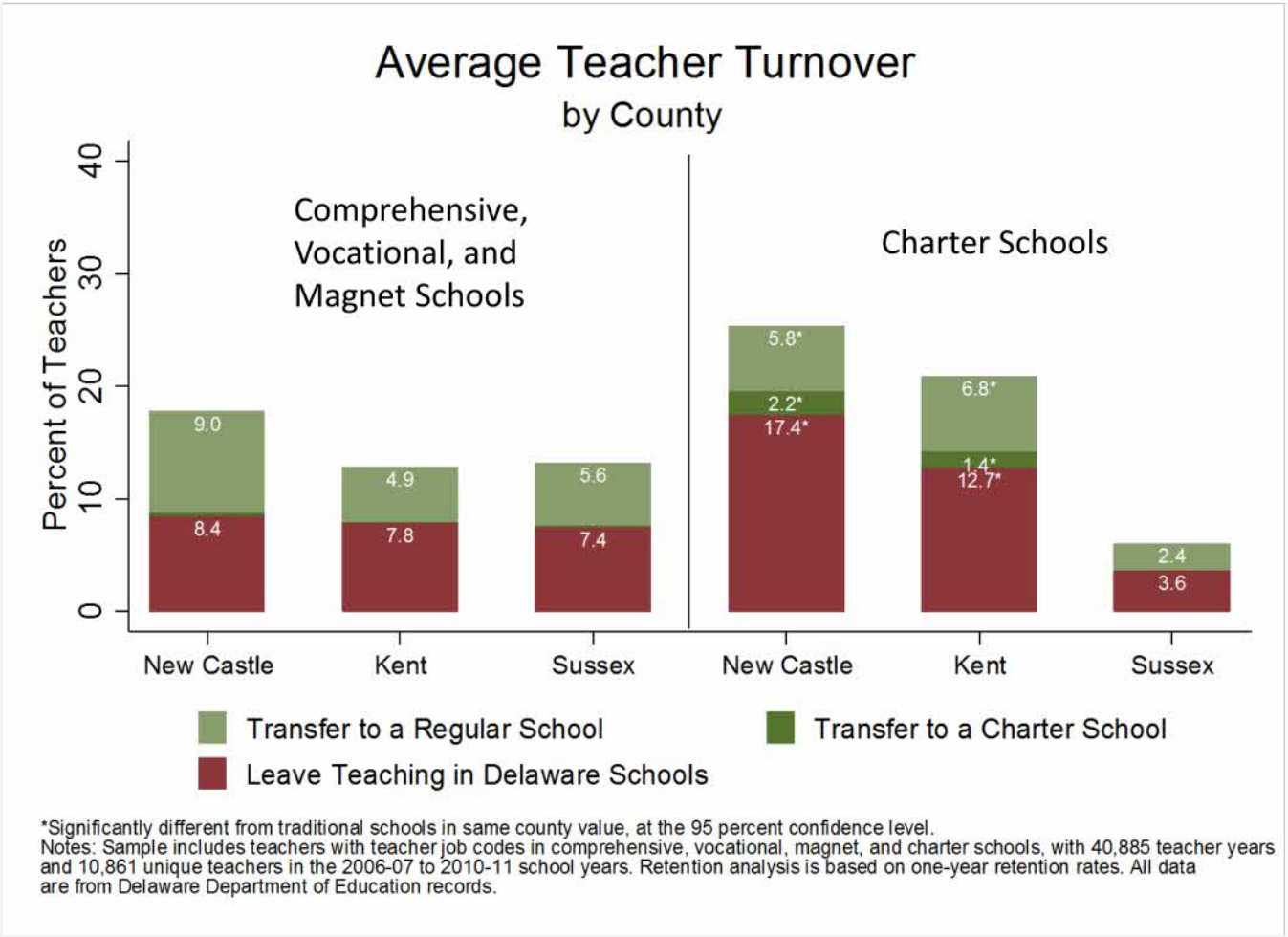
A large share of newly hired teachers leave teaching in Delaware within four years



Notes: Sample includes 821 comprehensive, vocational, charter, and magnet school teachers with teacher job codes in the 2007-08 school yea
All data are from Delaware Department of Education records.

RETENTION/ TURNOVER

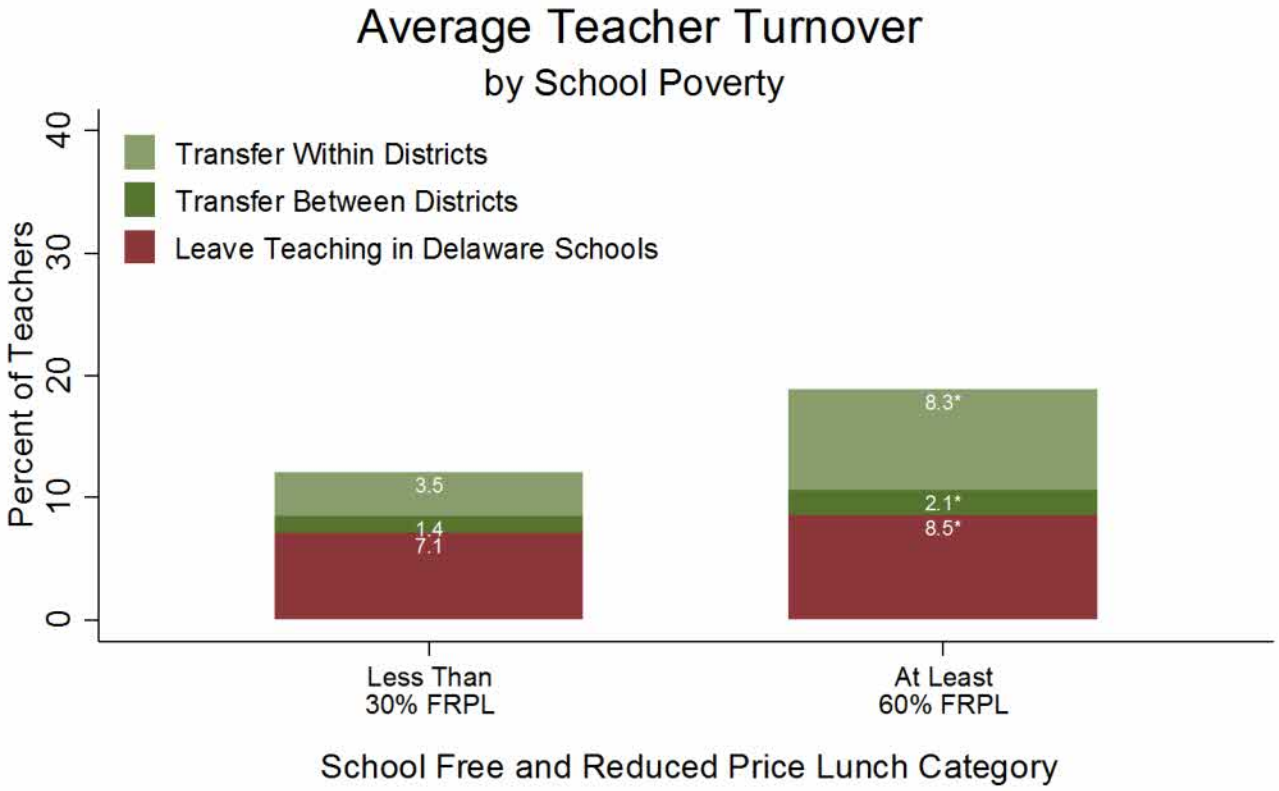
Charter schools tend to have higher turnover than traditional schools



*Significantly different from traditional schools in same county value, at the 95 percent confidence level.
Notes: Sample includes teachers with teacher job codes in comprehensive, vocational, magnet, and charter schools, with 40,885 teacher years and 10,861 unique teachers in the 2006-07 to 2010-11 school years. Retention analysis is based on one-year retention rates. All data are from Delaware Department of Education records.

RETENTION/ TURNOVER

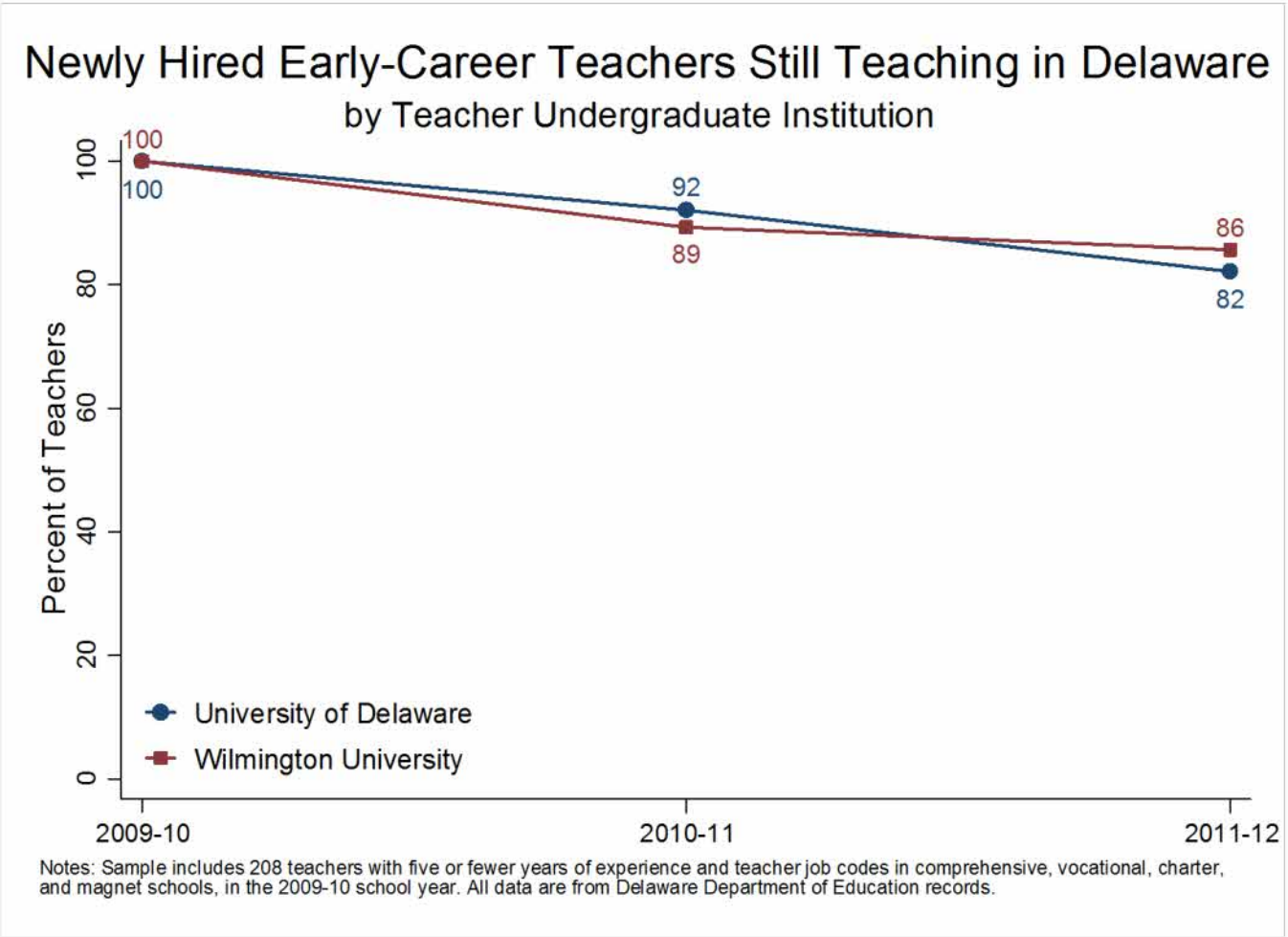
High-poverty schools have higher rates of teacher turnover



*Significantly different from less than 30% FRPL value, at the 95 percent confidence level.
Notes: Sample includes teachers with teacher job codes in comprehensive, vocational, and magnet schools, with 37,955 teacher years and 9,993 unique teachers in the 2006-07 to 2010-11 school years. Retention analysis is based on one-year retention rates. School free and reduced price lunch (FRPL) categories are calculated using pooled student data from the 2006-07 through 2011-12 school years. All data are from Delaware Department of Education records.

RETENTION/
TURNOVER

Retention trajectories are similar for newly hired teachers graduating from different programs



RETENTION/ TURNOVER