

# Racial Peer Effects in The Classroom

## Evidence From A Randomized Experiment

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# Outline

- 1 Motivation
- 2 Data
  - Tennessee STAR Experimental Design
  - Outcomes
- 3 Results
  - Main Results
  - Effect from Other Races
- 4 Conclusion

# Motivation

- Previous research on gender and ability based peer effects
- Previous economic research on racial peer effects in schools
  - Did not have randomization
  - Different grades and settings
- Psychologists have found that children as young as 3 years old are conscious of race
- I find that black students perform better when in classes with a higher share of black students (lower share of other races)
- I also find that white students perform better when in classes with a higher share of white students (lower share of other races)

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# Setting

- Took place in from 1985-1989 in 79 Tennessee public schools
- Measured the effects of class size on educational outcomes
- Students and teachers were randomly assigned to 3 different class types
  - Small
  - Large
  - Large with teacher aide
- Students were randomly assigned to a classroom type starting in kindergarten
  - That assignment was intended to be maintained through third grade
  - Forty-five percent of STAR students entered in first grade (kindergarten not mandatory in Tennessee)

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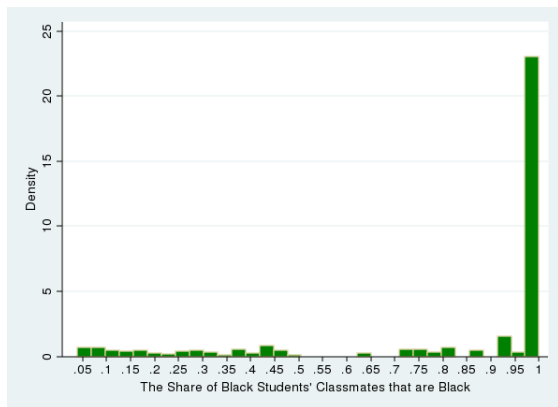
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# Racial Composition of The Kindergarten Sample

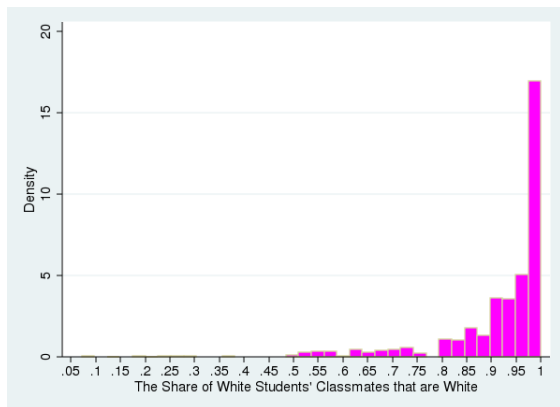
Table: Overall Racial Composition of STAR Kindergarten Students

| Race            | Freq. | Percent |
|-----------------|-------|---------|
| White           | 4,234 | 66.97   |
| Black           | 2,058 | 32.55   |
| Asian           | 14    | 0.22    |
| Hispanic        | 5     | 0.08    |
| Native American | 2     | 0.03    |
| other           | 9     | 0.14    |
| Total           | 6,322 | 100     |

# Histogram of Share of Classroom that is Black



# Histogram of Share of Classroom that is White



# Sample Variation

**Table:** Within School Means and Standard Deviations of Share Race For the Average School

|                | Share Black* |         | Share White** |         |
|----------------|--------------|---------|---------------|---------|
| Average School | Mean         | Std Dev | Mean          | Std Dev |
| Kindergarten   | 38.17%       | 2.42%   | 86.01%        | 3.68%   |

\*For schools that had at least one black student

\*\*For schools that had at least one white student



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# Percentile Rank of Test Scores By Race

Percentile Rank:

|         | Black |         | White |         |
|---------|-------|---------|-------|---------|
|         | Mean  | Std Dev | Mean  | Std Dev |
| Math    | 42.27 | 29.25   | 53.73 | 27.89   |
| Reading | 42.17 | 28.54   | 53.70 | 28.25   |

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# Effect on Black Students' Math Scores

Regression of Black Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level

|                    | (1)                          | (2)                          | (3)                          |
|--------------------|------------------------------|------------------------------|------------------------------|
| VARIABLES          | Percentile Rank on Math Test | Percentile Rank on Math Test | Percentile Rank on Math Test |
| Share Black        | 39.64*<br>(22.84)            | 30.63<br>(23.47)             | 33.92<br>(24.05)             |
| All Black Class    |                              | 10.43***<br>(4.005)          | 10.21**<br>(4.032)           |
| Only Black Student |                              |                              | 6.257<br>(6.225)             |
| Constant           | -10.12***<br>(3.229)         | -10.00***<br>(3.205)         | -16.48**<br>(7.480)          |
| Observations       | 1,890                        | 1,890                        | 1,890                        |
| R-squared          | 0.351                        | 0.353                        | 0.353                        |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for classroom type, gender, free lunch status and share female

## Effect on Black Students' Reading Scores

Regression of Black Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level

|                    | (1)                             | (2)                             | (3)                             |
|--------------------|---------------------------------|---------------------------------|---------------------------------|
| VARIABLES          | Percentile Rank on Reading Test | Percentile Rank on Reading Test | Percentile Rank on Reading Test |
| Share Black        | 9.684<br>(20.49)                | 3.417<br>(20.43)                | 5.535<br>(20.91)                |
| All Black Class    |                                 | 7.297<br>(9.372)                | 7.162<br>(9.398)                |
| Only Black Student |                                 |                                 | 4.178<br>(6.232)                |
| Constant           | -2.477<br>(3.424)               | -2.400<br>(3.401)               | -6.721<br>(7.541)               |
| Observations       | 1,853                           | 1,853                           | 1,853                           |
| R-squared          | 0.323                           | 0.325                           | 0.325                           |

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

All specifications control for classroom type, gender, free lunch status and share female

## Effect on White Students' Math Scores

Regression of White Kindergarten Students,  
With School Fixed Effects and Clustered at the  
Classroom Level

| VARIABLES       | (1)                                | (2)                                |
|-----------------|------------------------------------|------------------------------------|
|                 | Percentile<br>Rank on Math<br>Test | Percentile<br>Rank on Math<br>Test |
| Share White     | 15.42<br>(12.78)                   | 16.30<br>(15.02)                   |
| All White Class |                                    | -0.257<br>(1.844)                  |
| Constant        | 74.42***<br>(4.982)                | 74.28***<br>(5.057)                |
| Observations    | 3,935                              | 3,935                              |
| R-squared       | 0.209                              | 0.209                              |

Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for classroom type,  
gender, free lunch status and share female

# Effect on White Students' Reading Scores

| Regression of White Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level |                                 |                                 |
|---|---------------------------------|---------------------------------|
|   | (1)                             | (2)                             |
| VARIABLES   | Percentile Rank on Reading Test | Percentile Rank on Reading Test |
| Share White   | 27.40**<br>(11.30)              | 30.76**<br>(13.00)              |
| All White Class   |                                 | -0.982<br>(1.769)               |
| Constant  | 63.89***<br>(7.587)             | 63.32***<br>(7.667)             |
| Observations  | 3,890                           | 3,890                           |
| R-squared   | 0.290                           | 0.290                           |

Robust standard errors in parentheses  
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All specifications control for classroom type, gender, free lunch status and share female

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# Effect on Black Students' Scores by Each Race

Regression of Black Kindergarten Students, Ommitting Schools Large Enough to Have Non-Random Assignment, With School Fixed Effects and Clustered at the Classroom Level

| VARIABLES             | (1)                          | (2)                             |
|-----------------------|------------------------------|---------------------------------|
|                       | Percentile Rank on Math Test | Percentile Rank on Reading Test |
| Share White           | -32.11<br>(24.82)            | -4.924<br>(22.30)               |
| Share Asian           | -255.4***<br>(68.20)         | -127.5***<br>(36.06)            |
| Share Hispanic        | -264.4***<br>(72.35)         | -61.23<br>(170.7)               |
| Share Native American | -363.3**<br>(164.4)          | -128.7<br>(145.1)               |
| Constant              | 67.66***<br>(22.54)          | 46.90**<br>(20.85)              |
| Observations          | 1,890                        | 1,853                           |
| R-squared             | 0.354                        | 0.325                           |

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

All specifications control for classroom type, gender, free lunch status, and share female

## Effect on White Students' Scores by Each Race

Regression of White Kindergarten Students, Ommitting Schools Large Enough to Have Non-Random Assignment, With School Fixed Effects and Clustered at the Classroom Level

|                       | (1)                          | (2)                             |
|-----------------------|------------------------------|---------------------------------|
| VARIABLES             | Percentile Rank on Math Test | Percentile Rank on Reading Test |
| Share Black           | -8.883<br>(15.20)            | -26.41*<br>(13.52)              |
| Share Asian           | -66.16<br>(49.50)            | -35.05<br>(43.82)               |
| Share Hispanic        | -127.2***<br>(33.04)         | -59.21*<br>(33.59)              |
| Share Native American | -129.1**<br>(54.46)          | -78.02<br>(62.13)               |
| Constant              | 82.22***<br>(15.80)          | 90.26***<br>(14.19)             |
| Observations          | 3,935                        | 3,890                           |
| R-squared             | 0.210                        | 0.290                           |

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

All specifications control for classroom type, gender, free lunch status, and share female

# Non-Cognitive Effects on Black Students

Regression of Black Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level

| VARIABLES    | (1)<br>Days Absent | (2)<br>Motivation<br>Percentile<br>Rank | (3)<br>Listening<br>Percentile<br>Rank | (4)<br>Repeat<br>Kindergarten | (5)<br>Self Concept<br>Percentile<br>Rank |
|--------------|--------------------|---|--|-------------------------------|---|
| Share Black  | 7.717**<br>(3.051) | 19.21<br>(22.74)                        | 35.18*<br>(18.51)                      | -0.221**<br>(0.112)           | 23.52<br>(24.58)                          |
| Constant     | -0.962<br>(1.263)  | 12.97<br>(9.113)                        | -4.109<br>(3.331)                      | 0.00824<br>(0.0215)           | 17.30**<br>(8.683)                        |
| Observations | 2,029              | 1,659                                   | 1,882                                  | 2,051                         | 1,659                                     |
| R-squared    | 0.073              | 0.042                                   | 0.242                                  | 0.112                         | 0.062                                     |

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for classroom type, gender, free lunch

# Non-Cognitive Effects on White Students

Regression of White Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level

|   | (1)                 | (2)                              | (3)                             | (4)                    | (5)                                |
|---|---------------------|----------------------------------|---------------------------------|------------------------|------------------------------------|
| VARIABLES   | Days Absent         | Motivation<br>Percentile<br>Rank | Listening<br>Percentile<br>Rank | Repeat<br>Kindergarten | Self Concept<br>Percentile<br>Rank |
| Share White   | -0.709<br>(2.995)   | 8.559<br>(11.30)                 | 18.01**<br>(7.632)              | 0.0915*<br>(0.0544)    | 1.701<br>(13.06)                   |
| Constant  | 9.481***<br>(2.917) | 62.50***<br>(5.035)              | 43.63***<br>(3.551)             | 0.00436<br>(0.0204)    | 55.69***<br>(5.416)                |
| Observations  | 4,186               | 3,336                            | 3,908                           | 4,215                  | 3,336                              |
| R-squared   | 0.085               | 0.035                            | 0.153                           | 0.057                  | 0.065                              |
| Robust standard errors in parentheses                             |                     |                                  |                                 |                        |                                    |
| *** p<0.01, ** p<0.05, * p<0.1                                    |                     |                                  |                                 |                        |                                    |
| All specifications control for classroom type, gender, free lunch |                     |                                  |                                 |                        |                                    |

# Implications

- Are these effects driven by changes in student behavior or teacher behavior?
  - Teachers may give more attention to a race, when more of that race is present
  - Students may be bullied more when they are in the minority
  - Students may view themselves differently when they are in the minority
- There are benefits to keeping schools and classrooms homogenous with regard to race
- Programs that alter the racial composition of a student's school should take racial peer effects into account
  - Charter Schools
  - Magnet Schools

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# Effect on Black Students' Math Scores Controlling for Teacher Characteristics

Regression of Black Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level

|                    | (1)                          | (2)                          | (3)                          |
|--------------------|------------------------------|------------------------------|------------------------------|
| VARIABLES          | Percentile Rank on Math Test | Percentile Rank on Math Test | Percentile Rank on Math Test |
| Share Black        | 40.54*<br>(22.94)            | 25.13<br>(22.74)             | 25.76<br>(23.78)             |
| All Black Class    |                              | 16.56***<br>(4.047)          | 16.54***<br>(4.057)          |
| Only Black Student |                              |                              | 0.797<br>(5.329)             |
| Constant           | 34.65**<br>(16.93)           | 36.53**<br>(16.12)           | 35.90**<br>(17.00)           |
| Observations       | 1,622                        | 1,622                        | 1,622                        |
| R-squared          | 0.399                        | 0.403                        | 0.403                        |

Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

All specifications control for classroom type, gender, free lunch status, share female, teacher gender, teacher career level, teacher education, teacher experience and teacher race

# Effect on Black Students' Reading Score Controlling for Teacher Characteristics

Regression of Black Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level

|                    | (1)                             | (2)                             | (3)                             |
|--------------------|---------------------------------|---------------------------------|---------------------------------|
| VARIABLES          | Percentile Rank on Reading Test | Percentile Rank on Reading Test | Percentile Rank on Reading Test |
| Share Black        | 17.57<br>(26.86)                | 10.10<br>(26.27)                | 13.03<br>(27.05)                |
| All Black Class    |                                 | 8.112<br>(11.77)                | 8.024<br>(11.76)                |
| Only Black Student |                                 |                                 | 3.889<br>(6.833)                |
| Constant           | 22.08<br>(18.44)                | 50.56***<br>(16.91)             | 48.72***<br>(18.28)             |
| Observations       | 1,589                           | 1,589                           | 1,589                           |
| R-squared          | 0.381                           | 0.382                           | 0.382                           |

Robust standard errors in parentheses  
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# Effect on White Students' Math Scores Controlling for Teacher Characteristics

| Regression of White Kindergarten Students,<br>With School Fixed Effects and Clustered at the<br>Classroom Level   |                                    |                                    |
|---|------------------------------------|------------------------------------|
|   | (1)                                | (2)                                |
| VARIABLES   | Percentile<br>Rank on Math<br>Test | Percentile<br>Rank on Math<br>Test |
| Share White   | 11.65                              | 3.911                              |
|   | -14.53                             | -17.42                             |
| All White Class   |                                    | 1.953                              |
|   |                                    | -2.048                             |
| Constant  | 88.48***                           | 87.82***                           |
|   | -10.38                             | -10.56                             |
| Observations  | 3,643                              | 3,643                              |
| R-squared   | 0.244                              | 0.244                              |
| Robust standard errors in parentheses   |                                    |                                    |
| *** p<0.01, ** p<0.05, * p<0.1  |                                    |                                    |
| All specifications control for classroom type, gender, free lunch status, share female, teacher gender, teacher career level, teacher education, teacher experience and teacher |                                    |                                    |

# Effect on Black Students' Math Scores

Excluding Schools That had the Opportunity to Assign to Classrooms Non-Randomly

Regression of Black Kindergarten Students Omitting Schools Large Enough to Have Non-Random Classroom Assignment, With School Fixed Effects and Clustered at the Classroom Level

|                    | (1)                          | (2)                          | (3)                          |
|--------------------|------------------------------|------------------------------|------------------------------|
| VARIABLES          | Percentile Rank on Math Test | Percentile Rank on Math Test | Percentile Rank on Math Test |
| Share Black        | 34.91<br>(47.40)             | -109.6**<br>(42.51)          | -120.7**<br>(51.37)          |
| All Black Class    |                              | 34.99***<br>(6.095)          | 35.78***<br>(5.801)          |
| Only Black Student |                              |                              | -2.593<br>(10.21)            |
| Constant           | 78.84***<br>(8.984)          | 81.05***<br>(8.107)          | 97.78***<br>(14.45)          |
| Observations       | 567                          | 567                          | 567                          |
| R-squared          | 0.523                        | 0.533                        | 0.533                        |

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

All specifications control for classroom type, gender, free lunch status, share female, teacher gender, teacher career level, teacher education, teacher experience and teacher race

# Effect on Black Students' Reading Scores

## Excluding Schools That had the Opportunity to Assign to Classrooms Non-Randomly

Regression of Black Kindergarten Students, Omitting Schools Large Enough to Have Non-Random Assignment, With School Fixed Effects and Clustered at the Classroom Level

|                    | (1)                             | (2)                             | (3)                             |
|--------------------|---------------------------------|---------------------------------|---------------------------------|
| VARIABLES          | Percentile Rank on Reading Test | Percentile Rank on Reading Test | Percentile Rank on Reading Test |
| Share Black        | 190.5***<br>(50.00)             | 92.07<br>(69.83)                | 110.6<br>(77.50)                |
| All Black Class    |                                 | 23.82***<br>(7.478)             | 22.48***<br>(7.948)             |
| Only Black Student |                                 |                                 | 4.348<br>(9.372)                |
| Constant           | 26.60<br>(22.03)                | 39.23**<br>(19.38)              | 27.88<br>(25.55)                |
| Observations       | 565                             | 565                             | 565                             |
| R-squared          | 0.460                           | 0.465                           | 0.465                           |

Robust standard errors in parentheses

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

All specifications control for classroom type, gender, free lunch status, share female, teacher gender, teacher career level, teacher education, teacher experience and teacher race

# Effect on White Students' Math Scores

Excluding Schools That had the Opportunity to Assign to Classrooms Non-Randomly

| Regression of White Kindergarten Students,<br>Omitting Schools Large Enough to Have Non-<br>Random Assignment, With School Fixed Effects<br>and Clustered at the Classroom Level |                                    |                                    |
|--|------------------------------------|------------------------------------|
|  | (1)                                | (2)                                |
| VARIABLES  | Percentile<br>Rank on Math<br>Test | Percentile<br>Rank on Math<br>Test |
| Share White  | 29.10<br>(29.43)                   | -6.055<br>(25.05)                  |
| All White Class  |                                    | 10.10***<br>(3.391)                |
| Constant   | 75.45***<br>(20.18)                | 97.94***<br>(18.91)                |
| Observations   | 1,453                              | 1,453                              |
| R-squared  | 0.275                              | 0.280                              |
| Robust standard errors in parentheses  |                                    |                                    |
| *** p<0.01, ** p<0.05, * p<0.1   |                                    |                                    |
| All specifications control for classroom type, gender, free lunch status, share female, teacher gender, teacher career level, teacher education, teacher experience and teacher  |                                    |                                    |

# Effect on White Students' Reading Scores

## Excluding Schools That had the Opportunity to Assign to Classrooms Non-Randomly

| Regression of White Kindergarten Students, Omitting Schools Large Enough to Have Non-Random Assignment, With School Fixed Effects and Clustered at the Classroom Level               |                                 |                                 |
|--|---------------------------------|---------------------------------|
|  | (1)                             | (2)                             |
| VARIABLES  | Percentile Rank on Reading Test | Percentile Rank on Reading Test |
| Share White  | 45.68<br>(27.54)                | 38.76<br>(25.44)                |
| All White Class  |                                 | 1.993<br>(3.366)                |
| Constant   | 14.96<br>(15.90)                | 30.13**<br>(15.04)              |
| Observations   | 1,441                           | 1,441                           |
| R-squared  | 0.365                           | 0.365                           |
| Robust standard errors in parentheses  |                                 |                                 |
| *** p<0.01, ** p<0.05, * p<0.1   |                                 |                                 |
| All specifications control for classroom type, gender, free lunch status, share female, teacher gender, teacher career level, teacher education, teacher experience and teacher race |                                 |                                 |

# Effect on White Students' Reading Scores Controlling for Teacher Characteristics

| Regression of White Kindergarten Students, With School Fixed Effects and Clustered at the Classroom Level  |                                 |                                 |
|--|---------------------------------|---------------------------------|
|  | (1)                             | (2)                             |
| VARIABLES  | Percentile Rank on Reading Test | Percentile Rank on Reading Test |
| Share White  | 26.13**                         | 30.38**                         |
|  | -12.04                          | -13.57                          |
| All White Class  |                                 | -1.078                          |
|  |                                 | -2.033                          |
| Constant   | 50.65***                        | 50.73***                        |
|  | -8.885                          | -10.34                          |
| Observations   | 3,614                           | 3,614                           |
| R-squared  | 0.315                           | 0.315                           |
| Robust standard errors in parentheses  |                                 |                                 |
| *** p<0.01, ** p<0.05, * p<0.1   |                                 |                                 |
| All specifications control for classroom type, gender, free lunch status, share female, teacher gender, teacher career level, teacher education, teacher experience and teacher race |                                 |                                 |



# Black and White Students' Test Scores

## Math Test Score:

|              | Black  |         | White  |         |
|--------------|--------|---------|--------|---------|
|              | Mean   | Std Dev | Mean   | Std Dev |
| Kindergarten | 473.42 | 48.74   | 491.15 | 46.08   |
| First Grade  | 511.81 | 38.41   | 539.63 | 42.32   |

## Reading Test Score:

|              | Black  |         | White  |         |
|--------------|--------|---------|--------|---------|
|              | Mean   | Std Dev | Mean   | Std Dev |
| Kindergarten | 428.92 | 28.76   | 440.41 | 32.32   |
| First Grade  | 496.14 | 44.53   | 533.01 | 55.83   |

# Effect on Black Kindergarten Students' Raw Test Scores

**Table:** Regression of Black Kindergarten Students, With School Fixed Effects, Controlling for Classroom Type and Clustered at the Classroom Level

|              | (1)                       | (2)                          | (3)                 | (4)                 |
|--------------|---------------------------|------------------------------|---------------------|---------------------|
| VARIABLES    | Math Score<br>(Base Line) | Reading Score<br>(Base Line) | Math Score          | Reading Score       |
| Share Black  | 72.19*<br>(37.61)         | 2.295<br>(20.36)             | 88.47**<br>(37.19)  | 14.454<br>(27.52)   |
| Constant     | 475.0***<br>(1.567)       | 442.8***<br>(3.401)          | 441.1***<br>(26.18) | 397.2***<br>(19.71) |
| Observations | 1,895                     | 1,858                        | 1,622               | 1,589               |
| R-squared    | 0.320                     | 0.268                        | 0.404               | 0.369               |

Robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$   
 Specifications (3) and (4) control for: free lunch status, gender, teacher race, teacher's highest degree, teacher's career level, teacher's years of experience, teacher gender and share of females in the class.

# Effect on White Kindergarten Students' Raw Test Scores

**Table:** Regression of White Kindergarten Students, With School Fixed Effects, Controlling for Classroom Type and Clustered at the Classroom Level

|              | (1)                       | (2)                          | (3)                 | (4)                  |
|--------------|---------------------------|------------------------------|---------------------|----------------------|
| VARIABLES    | Math Score<br>(Base Line) | Reading Score<br>(Base Line) | Math Score          | Reading Score        |
| Share White  | 19.29<br>(21.99)          | 26.52*<br>(13.79)            | 6.427<br>(24.46)    | 20.87<br>(14.59)     |
| Constant     | 543.9***<br>(6.600)       | 454.1***<br>(0.985)          | 532.2***<br>(19.51) | 428.58***<br>(8.209) |
| Observations | 3,948                     | 3,903                        | 3,655               | 3,626                |
| R-squared    | 0.158                     | 0.187                        | 0.194               | 0.213                |

Robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Specifications (3) and (4) control for: free lunch status, gender, teacher race, teacher's highest degree, teacher's career level, teacher's years of experience, teacher gender and share of females in the class.

# Non-Cognitive Effects in Kindergarten (Raw)

**Table:** Regression of Black Kindergarten Students, With School Fixed Effects, Controlling for Kindergarten Classroom Type and Clustered at the Kindergarten Classroom Level

|              | (1)                 | (2)                 | (3)                  | (4)                    | (5)                   |
|--------------|---------------------|---------------------|----------------------|------------------------|-----------------------|
| VARIABLES    | Days Absent         | Motivation<br>Score | Listening<br>Score   | Repeat<br>Kindergarten | Self Concept<br>Score |
| Share Black  | 8.122**<br>(3.187)  | 1.827<br>(1.889)    | 36.49*<br>(22.03)    | -0.217*<br>(0.114)     | 4.215<br>(3.919)      |
| Constant     | 12.30***<br>(0.303) | 25.04**<br>(153.9)  | 470.70***<br>(1.912) | -0.014<br>(0.010)      | 59.31***<br>(0.339)   |
| Observations | 2,029               | 1,664               | 1,887                | 2,051                  | 1,664                 |
| R-squared    | 0.065               | 0.043               | 0.202                | 0.105                  | 0.047                 |

Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



# Non-Cognitive Effects in Kindergarten (Raw)

**Table:** Regression of White Kindergarten Students, With School Fixed Effects, Controlling for Kindergarten Classroom Type and Clustered at the Kindergarten Classroom Level

|              | (1)                 | (2)                 | (3)                  | (4)                    | (5)                   |
|--------------|---------------------|---------------------|----------------------|------------------------|-----------------------|
| VARIABLES    | Days Absent         | Motivation<br>Score | Listening<br>Score   | Repeat<br>Kindergarten | Self Concept<br>Score |
| Share White  | -0.750<br>(3.013)   | .2753<br>(0.888)    | 15.19<br>(10.963)    | 0.095*<br>(0.056)      | -0.600<br>(2.133)     |
| Constant     | 23.49***<br>(0.278) | 25.90**<br>(0.546)  | 536.02***<br>(1.123) | -0.005<br>(0.328)      | 57.33***<br>(1.049)   |
| Observations | 4,189               | 3,349               | 3,921                | 4,215                  | 3,349                 |
| R-squared    | 0.069               | 0.0297              | 0.094                | 0.035                  | 0.050                 |

Robust standard errors in parentheses, \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

