



Do Physically Active Students Perform Better in School?

Kiran Thapa¹, Ramesh Ghimire², Janani Rajbhandari-Thapa¹

¹ Department of Health Policy and Management, College of Public Health, University of Georgia

² Atlanta Regional Commission



Research background

- Physical activities and fitness are increasingly perceived an important factor for one's professional success.
- Three-fourths of executives believed that physical activity and fitness are critical for career success (Neck et al. 2016).
- Physical activities improve mental and physical wellness by improving physical fitness, cardiovascular and metabolic function, and bone health (American Heart Association 2015; U.S. Department of Health and Human Services 2008).
- According to the Centers for Disease Control and Prevention (2014), students who are physically active and healthy, in general, have better school-related outcomes, such as better academic performance, better school attendance, and better class room behavior.

Hypothesis

Students' achievement is higher in schools with more physically active students.

Purpose of the study

In this study, we empirically tested the relationship between self reported physical activity level of ninth graders and their academic achievement in Georgia public schools.

Indicator variables

- Dependent variable - Number of distinguished learners in grade nine (obtained from Governor's Office of Student Achievement, 2016)
- Independent variable – Number of physically active students in grade nine (obtained from Georgia Student Health Survey 2.0 – Georgia Department of Education, 2016)

Analysis method

- We use negative binomial regression approach to model the data points.
- The functional form as;

$$d_{G9,i,j} = f(p_{G9,i,j}; m_{G9,i,j}; s_{i,j}; a_j)$$

where,

d = No. of distinguished learners, p = No. of physically active students, m = Grade nine demographics, s = Other social-demographics at school level, a = School system fixed effects

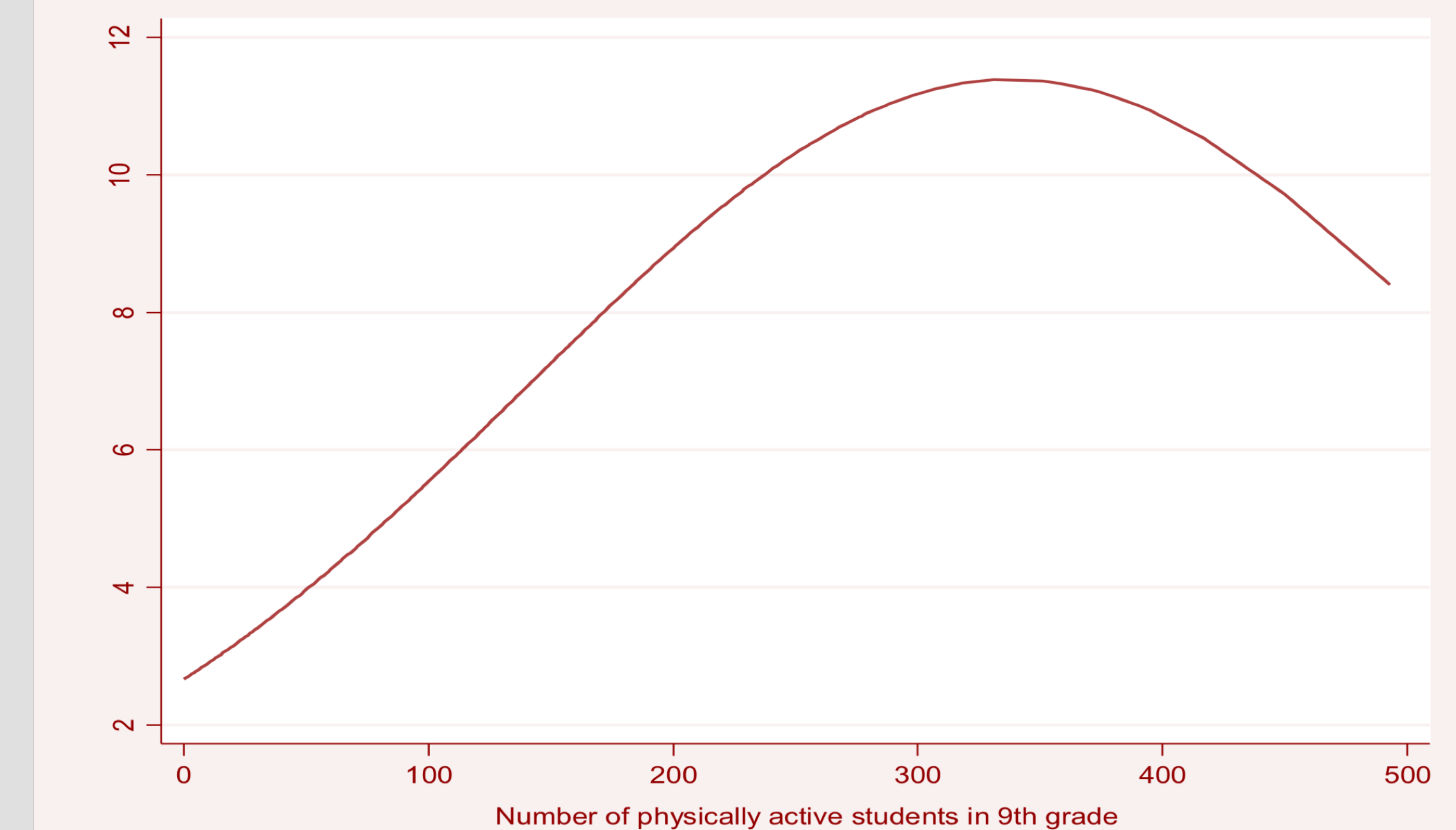
Results

Summary statistics (N= 1,399; 200 Schools and 7 Tests)

Variables	Mean	Std. Dev.	Min	Max
No. of distinguished learners in 9 th grade	18	33	0	268
Physically active, 4-5 days a week in 9 th grade	152	83	1	493
Male-female ratio in 9 th grade	1.17	0.41	0	8
White in 9 th grade, %	39	28.6	0	97
Black in 9 th grade, %	44	30.3	0	100
Hispanic in 9 th grade, %	14	15.	0	90
Other race in 9 th grade, %	3	5.35	0	54
Total students in ninth grade	302	158	3	1124
Dropout rate in school, %	4	3.27	0.5	35
Direct certified students in school, %	30	15.85	2	100
Absent 15 days or more in school, %	17	7.51	0	50
School climate star rating	3	0.90	1	5

Physical Activeness and Ninth Graders' Achievement

Variables	Coefficients
Physically active	0.0086***
Physically active × physically active	-0.0000***
Male-female ratio in 9 th grade	0.1546
Black in 9 th grade, %	-0.0043
Hispanic in 9 th grade, %	0.0075
Other race in 9 th grade, %	0.0242***
Total students in 9 th grade	0.0010
Dropout rate in school, %	-0.1246***
Direct certified students in school, %	-0.0415***
Absent 15 days or more in school, %	-0.0233**
School climate star rating	0.1543**
Constant	2.9609***
School system fixed effects	Included
Observations	1,397



Key finding

We observed a positive and significant relationship between self reported physical activity levels and ninth graders' test scores in Georgia public schools.

Acknowledgement

References

- American Heart Association. 2015. *Physical activity improves quality of life* [Cited on April 4, 2017. Available from http://www.heart.org/HEARTORG/HealthyLiving/PhysicalActivity/FitnessBasics/Physical-activity-improves-quality-of-life_UCM_307977_Article.jsp#.WOP9-9LyuUk].
- Centers for Disease Control and Prevention. 2014. *Healthy Kids, successful Students, stronger Communities* [Cited on April 18, 2017. Available from https://www.cdc.gov/healthyschools/health_and_academics/pdf/2014_8_29_health-academics_508tagged.pdf].
- Neck, C. P., C. C. Manz, and J. D. Houghton. 2016. *Self-leadership: The definitive guide to personal excellence*: SAGE Publications.
- U.S. Department of Health and Human Services. 2008. *Physical activity guidelines advisory committee report*. Washington, DC: U.S. Department of Health and Human Services.