



# Identifying Areas for Change: NC School Performance

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## North Carolina Public Schools

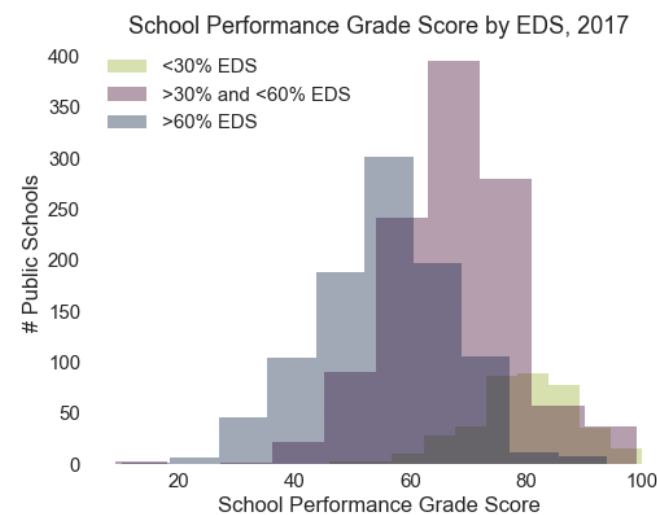
School Years: 2013/14 – 2016/17

- **34%** of 2,620 public schools were classified as low performing for at least 1 of the 4 school years<sup>1</sup>
- **61%** of the student body on average in schools receiving a performance grade of **C or below** are economically disadvantaged<sup>1</sup>
- **78%** of the student body on average in schools receiving a performance grade of **D or below** are a racial minority.<sup>1</sup>

**School Achievement Score + EVAAS Growth Score**

=

**School Performance Grade Score**



The difference in performance between low performing and well performing public schools is most heavily attributed to factors outside school administrators' control

## What Can be Done?

- Model School Performance Grade (SPG) Score leaving out Student Body Demographics
- Discover the factors within school administrators' control that most heavily influence SPG Score
- Estimate how changing important school-level factors may increase SPG Score

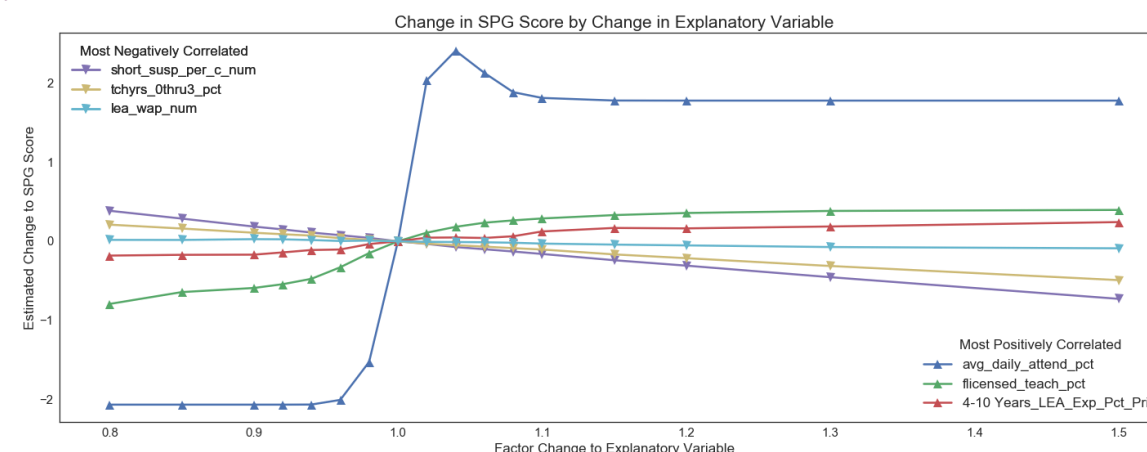
<sup>1</sup>Data collected from: NC School Report Cards. [Online]. <http://www.ncpublicschools.org/src/researchers/>.

## Dataset

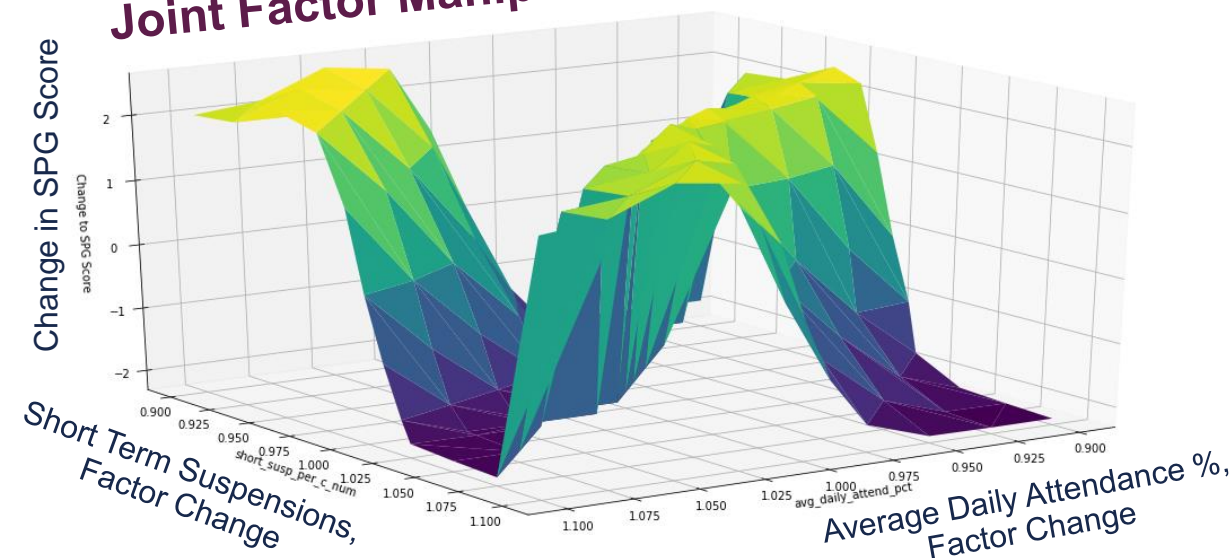
2016/17: 2,313 Schools, 165 Features



## Synthesized Data Predictions

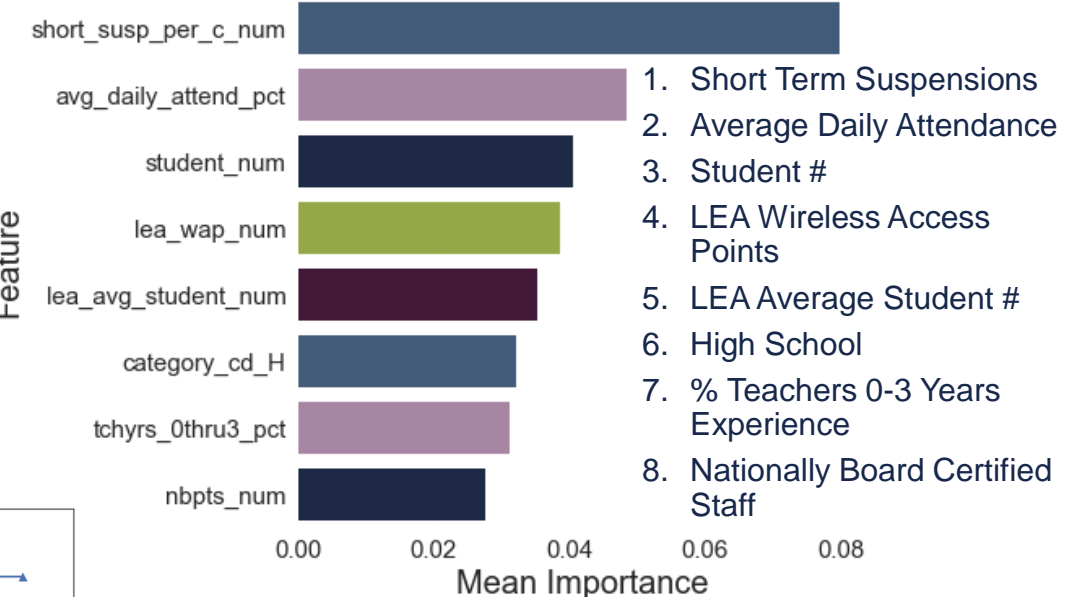


## Joint Factor Manipulation

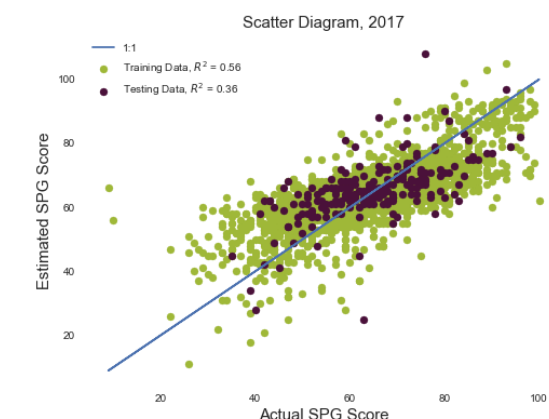


## XGBoost Feature Importance

Feature Importance - All Features



## Performance



- Model built using only environment, school profile, personnel, and educator tables
- Testing data indicates model explains 65% of variance in SPG score
- Model produces some outlying predictions

## Conclusion

School-level factors that can be influenced by school administrators have a negligible effect on SPG Score, but point to important areas for potential improvement.

**We find the following to likely positively impact performance:**

- Exploring suspension policy to reduce the number of short-term suspensions in schools
- Reviewing daily attendance requirements to increase average daily attendance
- Investing in teachers with more than 3 years of experience