Pandas Challenge Written Report

By Christopher Hornung

Summarizes the analysis:

The highest performing schools by test scores are all charter schools, and the lowest performing schools are all district schools. Grouping test scores by their originating school type, the average overall passing % differs by approximately 37% with Charter Schools outputting an average overall passing score of 90.432244% and District Schools outputting 53.672208% respectively.

The overall score performance does not seem to significantly differ by grade across the entire district, so we can conclude that a student’s grade year has a minimal impact on performance. However, what does seem to have a major impact on overall score performance is the size of the school with schools over a 2000 student body count significantly performing worse than their smaller student body counterparts by an almost 30-percentage point drop in the average overall passing %.

According to the results of the data, a higher per capita spending rate results in a consistently lower student performance on the school’s average test scores. Our lower bin category of a per capita spending rate of less than $585 per student results in an average overall passing rate of approximately 90% and our highest bin category of $645 - $680 per student results in an overall passing rate of approximately 54%. The middle bins support this downward trend in performance as well.

Finally, no matter the differences in school type, student body size, student grade, or per capita spending, the average math scores are consistently lower than the average reading scores for schools across the entire district.

Draws two correct conclusions or comparisons from the calculations:

District schools are consistently larger, spend more per capita, and have lower performance on their student test scores than their charter school counterparts in this district. It’s not intuitive that spending more money would result in a decrease in student performance, so the logical conclusion would be that the district schools are not spending their money as effectively as the charter schools. This ineffective overspending is likely a result of district schools having a larger class size than charter schools. We could expect to see a higher performance out of the district schools as well as a reduction in spending if they were able to reduce their class size. One possible method of executing this is by building additional district schools in this district.

It should be noted that the data indicates that charter schools have a smaller class size and better student performance than the district schools, so, if charter schools are able to curate what students they admit, their performance could be a result of the ability of the students they admit rather than the charter schools more effective spending. However, if this supposition is true, charter teacher schools could give more individual attention to students capable of higher performance because of the charter schools smaller class size. We could expect those factors to combine to result in the higher performance that we see those charter schools output.