Pandas-challenge

Written Report

Summary:

This analysis reviewed standardized test data as well as school budget data across the district. The goal of the analysis was to provide the school board and mayor with information from which they could make strategic decisions for future budgets and priorities. The analysis included district area schools as well as charter school and targeted student size, budget size, as well as reading and math scores. Through data analysis, data was also generated for math, reading, and overall pass rates. These measures were able to help identify a few surprising trends and recommendations.

Findings and Conclusions:

1. The first observation involves differences in pass rates between the district and charter schools. After computing average math and reading scores by school and comparing this information to pass requirements, I was able to generate overall passing rates per school and a list of the top 5 and bottom 5 performing schools by this measure. We can see a clear pattern right away in these figures, charter schools making up 100% of the top 5 performers and district schools making up 100% of the lowest performers:

A screenshot of a graph

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A screenshot of a graph

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These figures would note a recommendation for targeting of district schools particularly, an emphasis on their support vs charter school support. It is worth noting as well that math appears to be a noticeable deficit. While overall scores for district schools were generally in the low 50% range, math passing rates were overall lower than reading passing rates. In fact, reading passing rates for the lowest 5 performers were all above 80%. Math passing percentages in 60% range appear responsible for the low overall passing rates. We can see these observations confirmed with another summary table, comparing all district and all charter schools:

A screenshot of a score

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Math scores in the above figure confirm a large discrepancy between passing math rates of charter and district school types. There is also a discrepancy for passing reading rates but not as large as the math discrepancy. This discrepancy in math is large enough to result in an overall passing rate difference 90.43% to 53.67%.

1. The second notable find is the pattern discovered between passing rates and budget sizes. It was noted that this analysis reviewed budget data as well as test data. This allowed an analysis between scores and budget sizes. While initial thought would be more budget, better results, this was not the case. We see in the figure below that as budget size per student increased, overall passing rate decreased. This was true for both reading and math categories. This is a very important finding as it suggests adding budget money alone may not be an appropriate solution for the needed district school intervention noted above.

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This report suggests further analysis should be conducted within the use and application of the budget money utilized by district and charter schools. This data suggests charter schools can generate better results on a lesser budget and this may be due to the allocation of the budget, compared the allocation of the district budget.

It’s also possible school size may play a crucial role here as well. Just like with the budget pattern, as school size increases from medium to large, overall passing rate drops from 90.62% of students to 58.28%, a 32.34% difference. It should also be noted that district schools well more often to have larger school sizes than charter schools. This is another variable to be further explored. Differences between small and medium schools were similar at 1% between them.

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In summary, this analysis reviewed school data for district and charter schools, including data on school size, budget size, and individualized student reading and math scores. This data revealed several patterns that will help to inform the mayor and school board of school performance and areas for target and intervention.

The first pattern noted was the sharp difference in passing rates between district and charter schools. Charter schools made up the top 5 performers while district schools made up the lowest performers. Even compared in whole, the charter schools outperformed the district schools, suggesting a need for intervention on district schools. As another important note, math was the noted deficit and would suggest a target of focus for improvement. The second pattern was that as budget size increased, overall passing rate decreased. This is important as it suggests simply adding budget does not necessarily result in greater passing rates. It was also noted that overall passing rates decreased by 20%. Rates between small and medium sized schools were similar within 1%.