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Data Bootcamp

Module 4

PyCity Schools Analysis

The data provided about school data and student data can help draw insights about school type, school size, and school spending. Charter school students outperformed district school students in math by an average of 6.5% and in reading by an average of 2.9%. When analyzing these numbers, there does not seem to be a huge gap between charter and district schools. However, when looking at the difference between overall passing percentage for charter students and district schools, the number is 36.8%, in favor of charter students. Using school spending and school size, this paper will hope to answer why the overall passing rate is much smaller for district schools.

Starting with spending, interestingly, the total budget for every district school was higher than every charter school. District schools total budgets range from $1,763,916 to $3,124,928 while charter schools total budget ranges from $248,087 to $1,319,574. Another metric that is important to analyze before drawing a conclusion about spending is per student budget. While the ranges are much closer when looking at per student budget compared to total budget, district schools have a higher per student budget than charter schools. District schools per student budget range from $628 to $655 while charter schools range from $578 to $638. Looking at the budget, there is no explanation for why the overall passing rate for district schools is so much lower than charter schools. District schools have a higher total budget and a higher per student budget than charter schools.

The other metric we can hope to use to answer our overall question is school size. The idea here being that the more students, the less attention the individual student will receive resulting in worse grades and a lower overall passing rate. The total number of students in district schools range from 2,739 to 4,976 students, while charter schools range from 427 to 2,283. After separating the data into school size categories of small (<1,000), medium (1,000 - 2,000), and large (2,000 - 5,000), the data shows that the overall passing rate for large schools is 58.3%, for medium it is 90.6%, and for small it is 89.9%. All district schools are a part of the large range and only one charter school is a part of that range. The overall passing rate for that charter school is 90.6%. This is an outlier when looking at the average of just large schools, but not when comparing it to the other charter schools which average around a 90% overall passing rate. It is interesting to consider the outlier because it may show that the size of the school does not determine the overall passing rate. The district school with the smallest student body has an overall passing rate of 54.3%. Having 456 more kids than the largest charter school does not explain the 36.3% gap in overall passing rate.

Unfortunately we can not draw any hard conclusion from the data about why charter schools have a much higher overall passing rate compared to district schools. The only evident factor is that type of school matters for overall passing rate. One would think that district schools being underfunded is a reason why their rate is so low but as discussed, it is not. district school budgets are higher than charter schools. As for size, there may be a link but it is hard to tell with the given data. Future research should look at the number of teachers and number of new teachers. Other factors to consider is background information of the student's parents. Potential factors to look into are income, race, and marital status. The data that was analyzed for this project only scratched the surface of answering any deeper question asked about why district schools underperform compared to charter schools.