



Education Inequality Analysis

By Justin Ishida

Introduction

- The purpose of this notebook is to explore possible relationships between socioeconomic factors and average ACT scores to determine whether or not academic excellence is affected by socioeconomic conditions. If so, this notebook will also aim to determine the magnitude in which these factors affect standardized test scores.

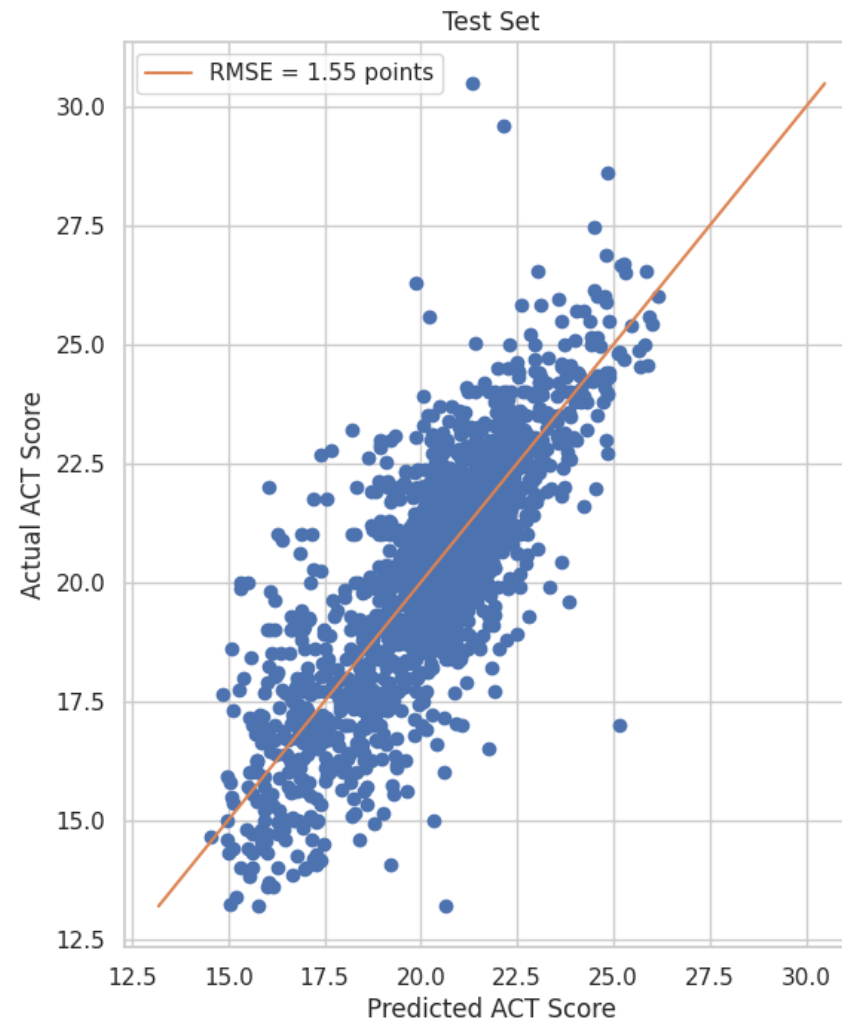
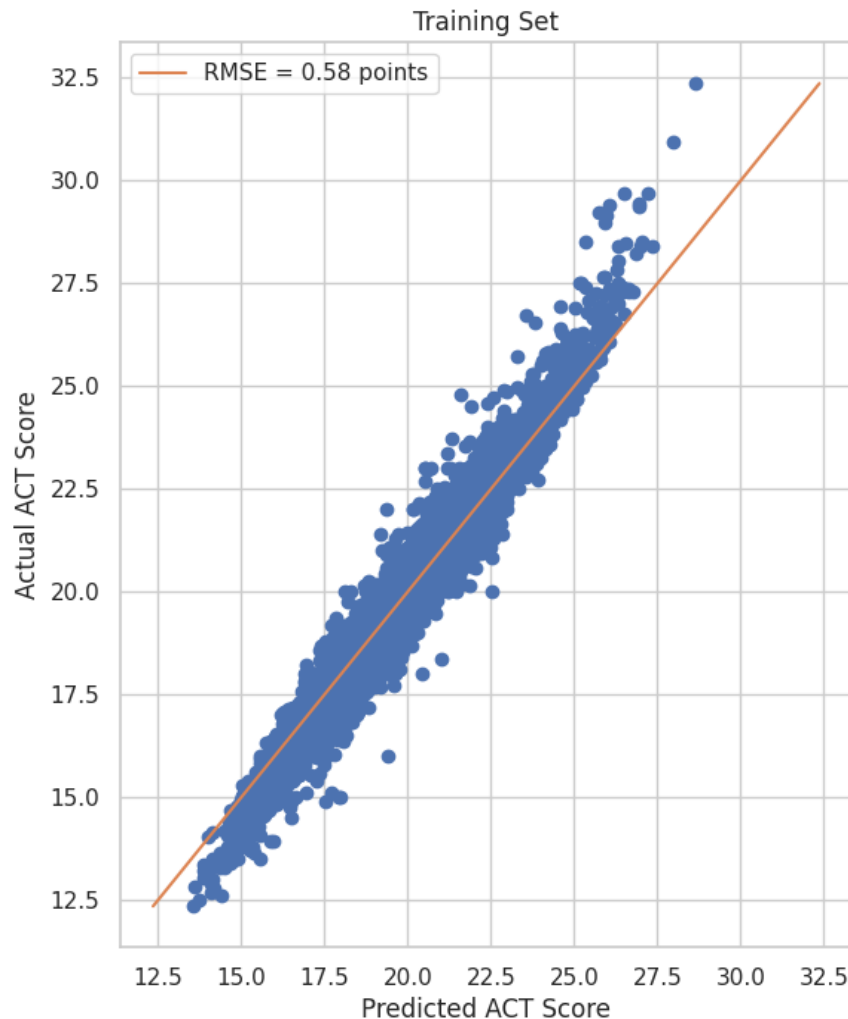
The Data

- All socioeconomic data (household income, unemployment, adult educational attainment, and family structure) are from the Census Bureau's American Community Survey.
- EdGap.org report that ACT and SAT score data is from each state's department of education or some other public data release. The nature of the other public data release is not known.
- The quality of the census data and the department of education data can be assumed to be reasonably high.

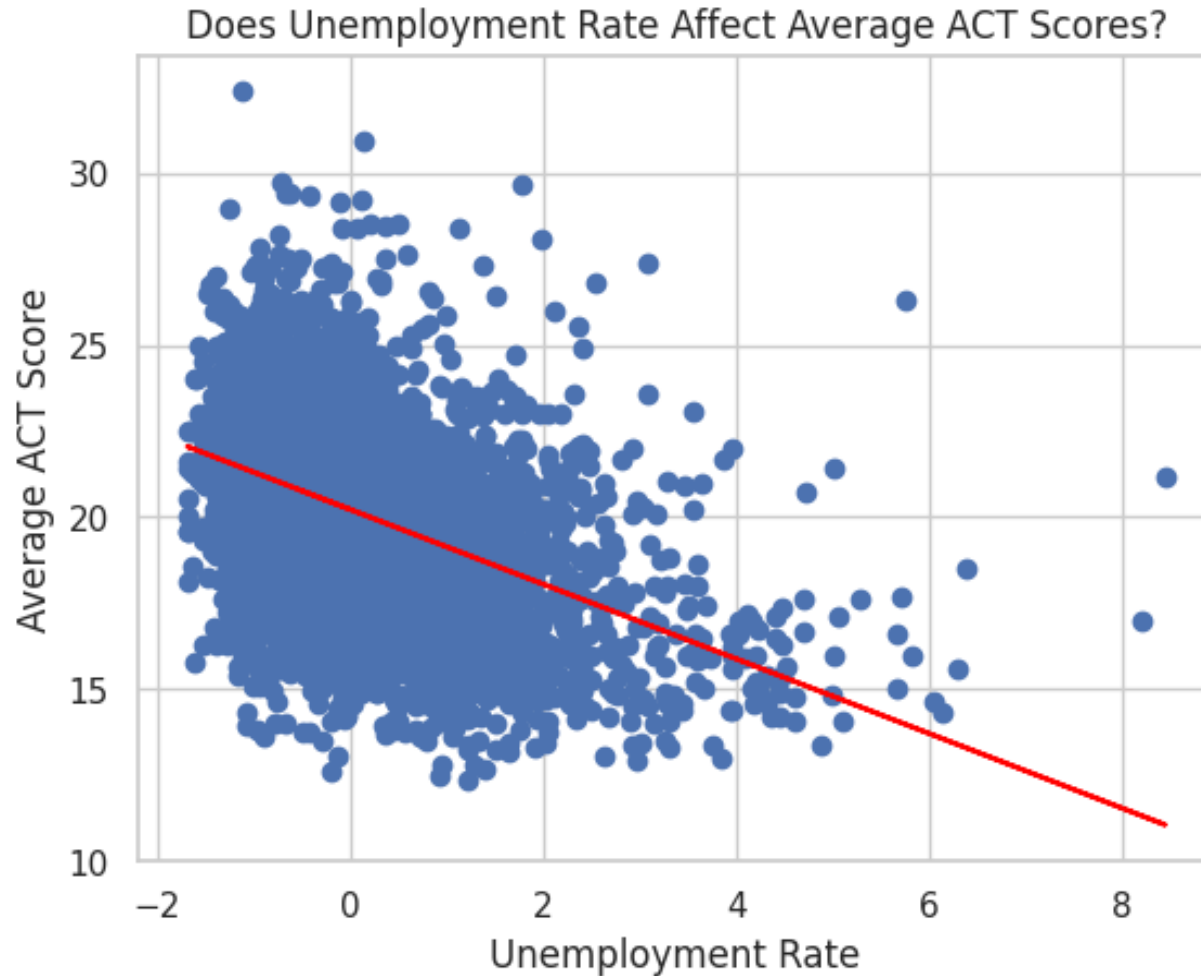
The Questions

- How does the variation in median household income within the same state affect the average ACT scores?
- What is the relationship between each socioeconomic factor (unemployment rate, marriage rate, college attendance rate, etc.) and average ACT scores?
 - Here we want to learn how average ACT score relates/correlates to the other quantitative variables.
- Is a regression that takes the above socioeconomic factors into account able accurately predict average ACT scores? If not, how could it be improved?

How does the variation in median household income within the same state affect the average ACT scores?



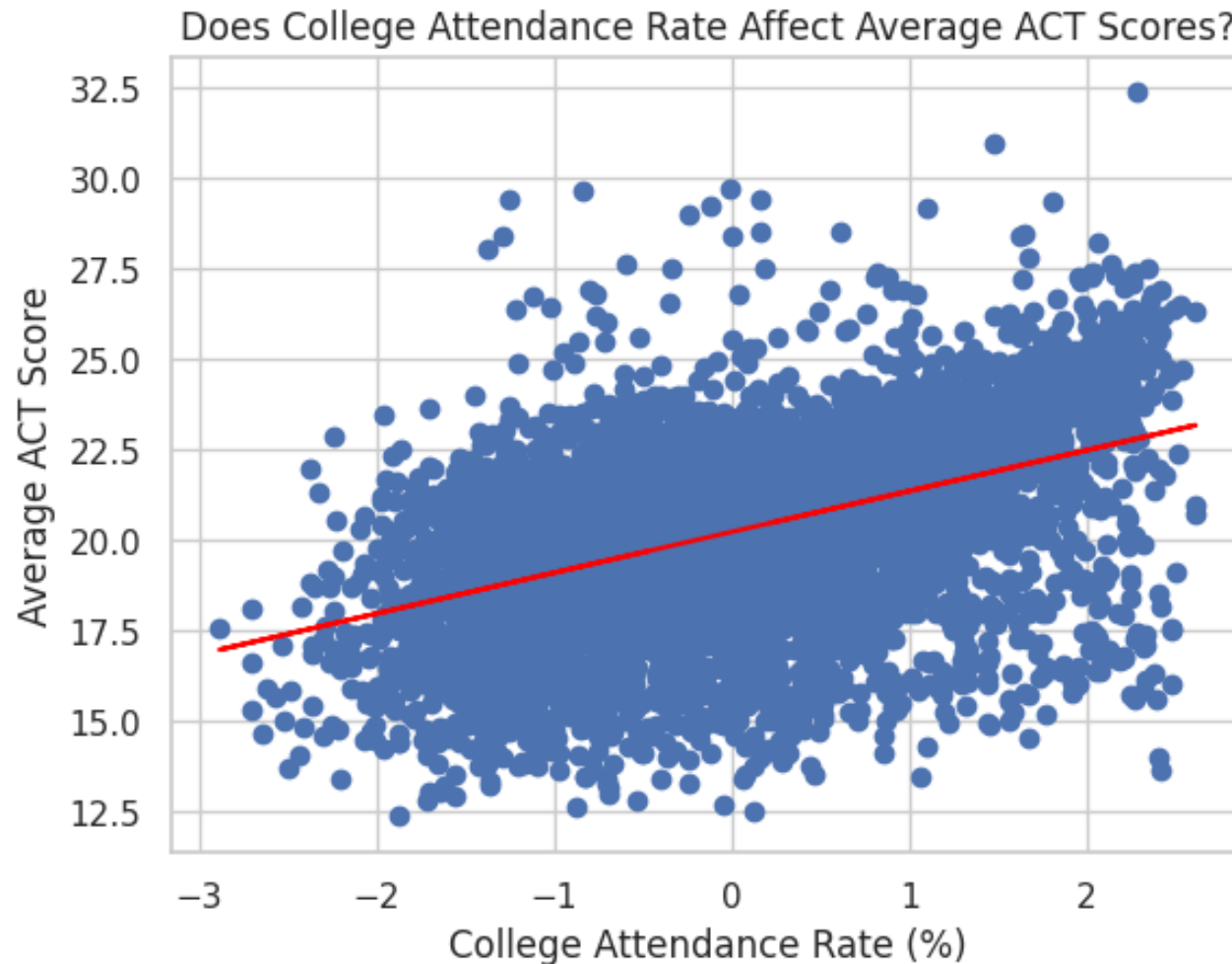
What is the relationship between each socioeconomic factor (unemployment rate) and average ACT score?



What is the relationship between each socioeconomic factor (marriage rate) and average ACT scores?



What is the relationship between each socioeconomic factor (college attendance rate) and average ACT scores?



Conclusion

- In conclusion, we can see that socioeconomic factors do play a role in the average ACT score achieved.
- Through the analysis of the relationship between average ACT scores and (unemployment rate, median income, marriage rate, and college attendance) that it does have an effect.
- Greater median income, lower unemployment rate, higher marriage rate, and higher college attendance rate all correlate to elevated average ACT scores.