

# Education Inequality Project

## DATA - 3320

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# Introduction

## The Problem

- The purpose of this project to examine whether socio-economic factors have a impact on students educational outcomes. This project will focus on students ACT scores relative to their socio-economic status.



# Introduction

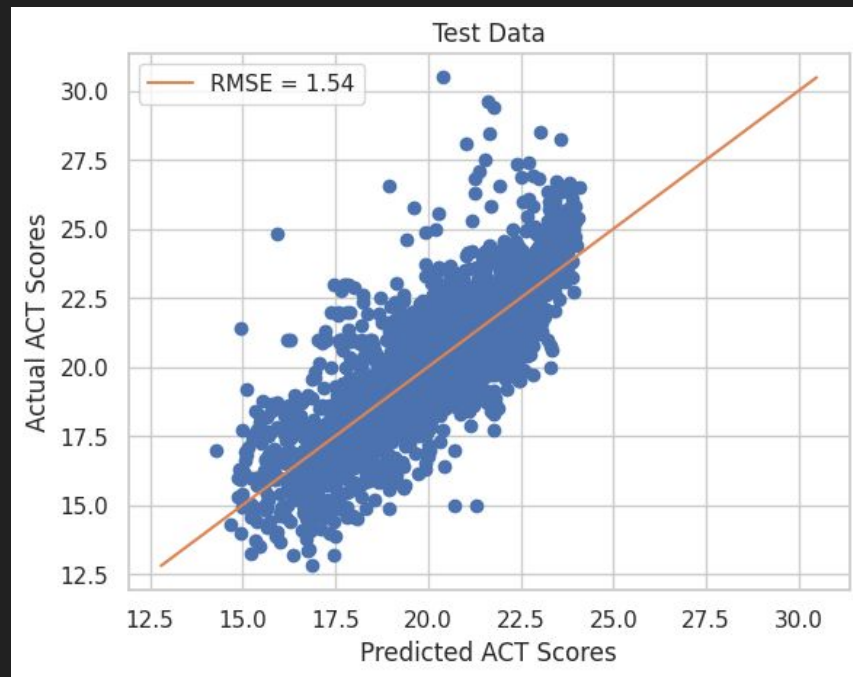
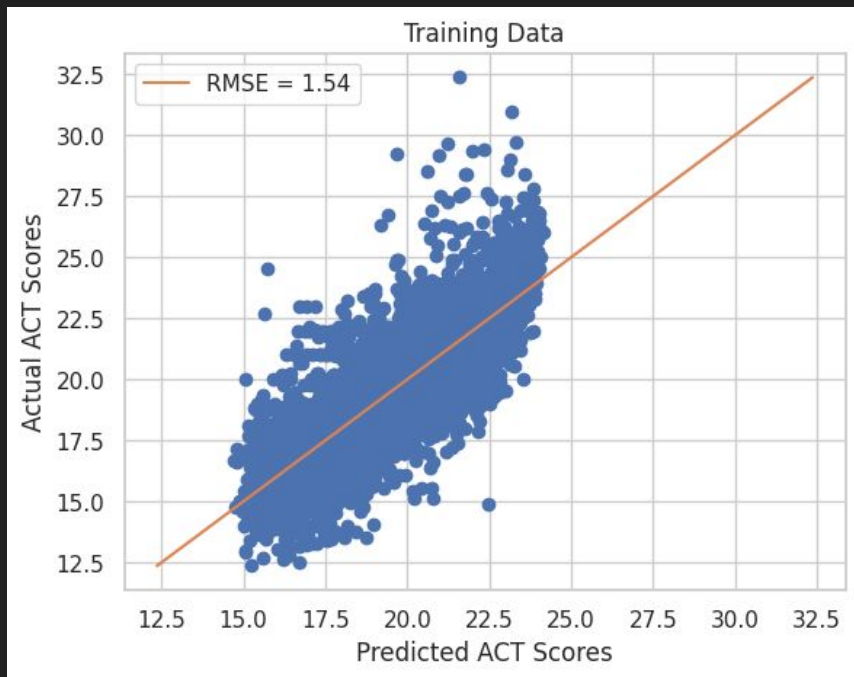
Data - This project uses two datasets.

- One is from EdGap.org which includes school districts' average socio-economic status and individual schools' average ACT scores.
- The second data set is from the National Center of Education Statistics which contains basic identifying information for each school.

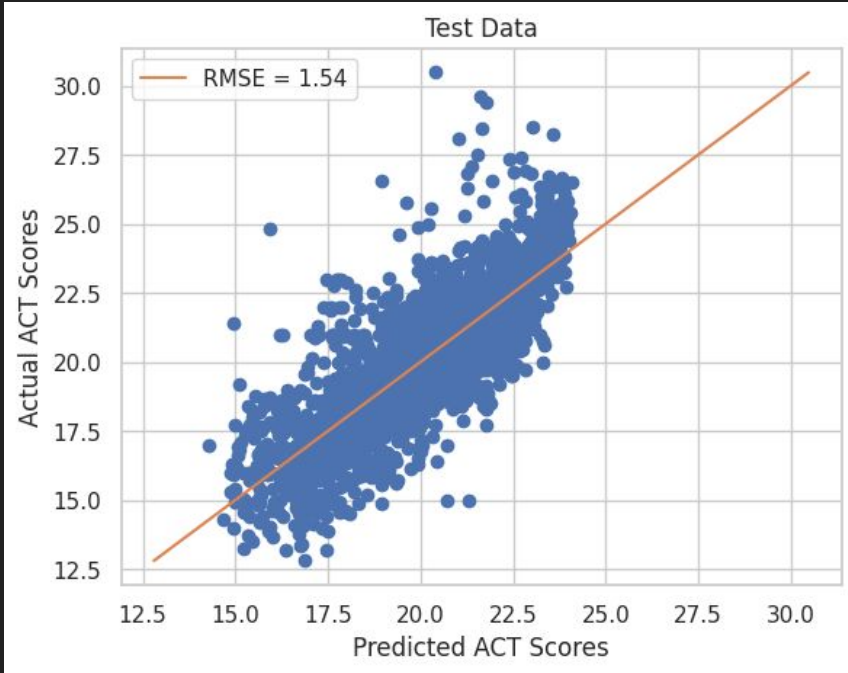


# Analysis

# Regression Plot



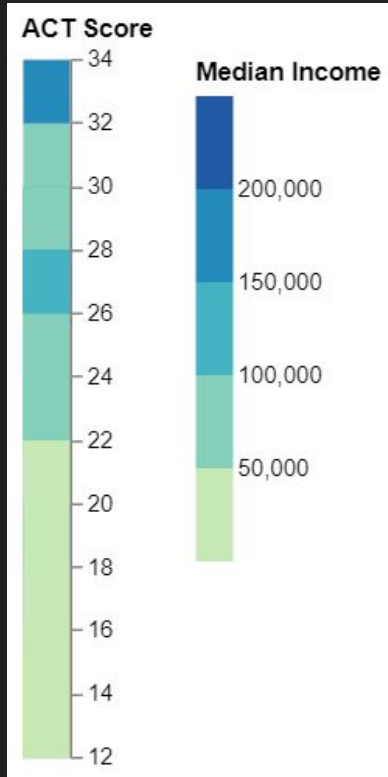
# Regression Plot



As we can see in the chart there is a visible relationship. While we can see that the estimate is not perfect a students ACT score does have a linear relationship with their socioeconomic standings.

With a RMSE of 1.54 (compared to the scale of ACT scores of 1-35) We can see that the model can be a good indicator of how a student will score.

# ACT Performance and Median Income



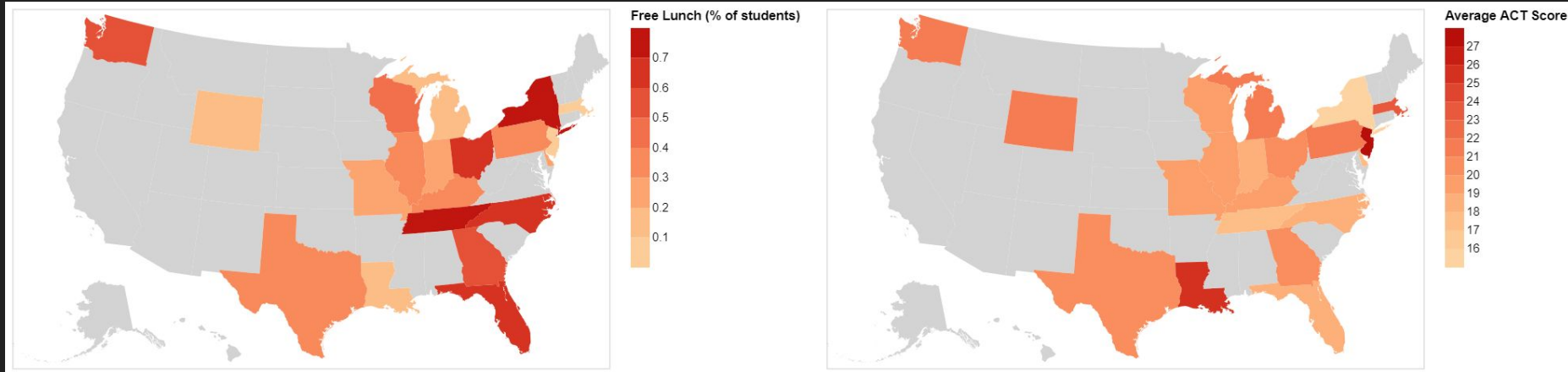
From this chart we can see that

- Scores in the higher range (20+) are generally darker (higher income) than low scores.
- The scores in the top range of 32-35 are also the students with the highest income level.

That being said

- The benefit of having a higher income seems to be less impactful after 100k-150k.

# ACT Performance and Free Lunch (% Received)



From this chart we can see that states where a lot of students receive free lunch generally perform worse on the ACT.

- In Tennessee and Florida where the percentage of students receiving free lunch is in the highest category and the average ACT performance is in the lowest.
- New Jersey has one of the lowest scores for free lunch and one of the highest average ACT scores



# Conclusion

After examining this data we can conclude that

- Socioeconomic factors do affect ACT performance.
  - The percentage of students who receive free lunch has a strong negative correlation with ACT performance
  - Higher median income is positively associated with ACT performance

# Conclusion

However

- The impact that each socioeconomic factor has on a student's ACT score varies
  - For instance, the percentage of students who receive free lunch has a strong negative correlation with ACT performance while median income seems to have a much weaker effect.
- The difference in ACT score does increase/decrease equally with socioeconomic circumstances.
  - While having a higher median income is positively correlated with ACT performance it doesn't benefit scores nearly as much after the median income surpasses a certain amount.

# Data and References

The EdGap data set can be found here:

([https://docs.google.com/spreadsheets/d/1vVuT-YmJhjWrGieTI\\_Bg-mNeS7w2G0IzTbdrFdlvDpY/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1vVuT-YmJhjWrGieTI_Bg-mNeS7w2G0IzTbdrFdlvDpY/edit?usp=sharing)).

The National Center of Education Statistics data set can be found here:

(<https://docs.google.com/spreadsheets/d/1Xs6eiF3KZqoHdLtPuzUUYPDzwToZEuVkX2mvE4iFROM/edit?usp=sharing>)

EdGap: (<https://www.edgap.org/#5/37.771/-95.999>)

NCES: (<https://nces.ed.gov/ccd/pubschuniv.asp>)