

Obesity Rates in Allegheny County by Income and Education Level

Oakland Catholic High School

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Problem

Does walkability, level of education, accessibility to grocery stores, and household income have correlations with neighborhood obesity rates? Can some of the variables (univariate or multivariate) predict the obesity rate? How can we reduce the high obesity rate in Pittsburgh?

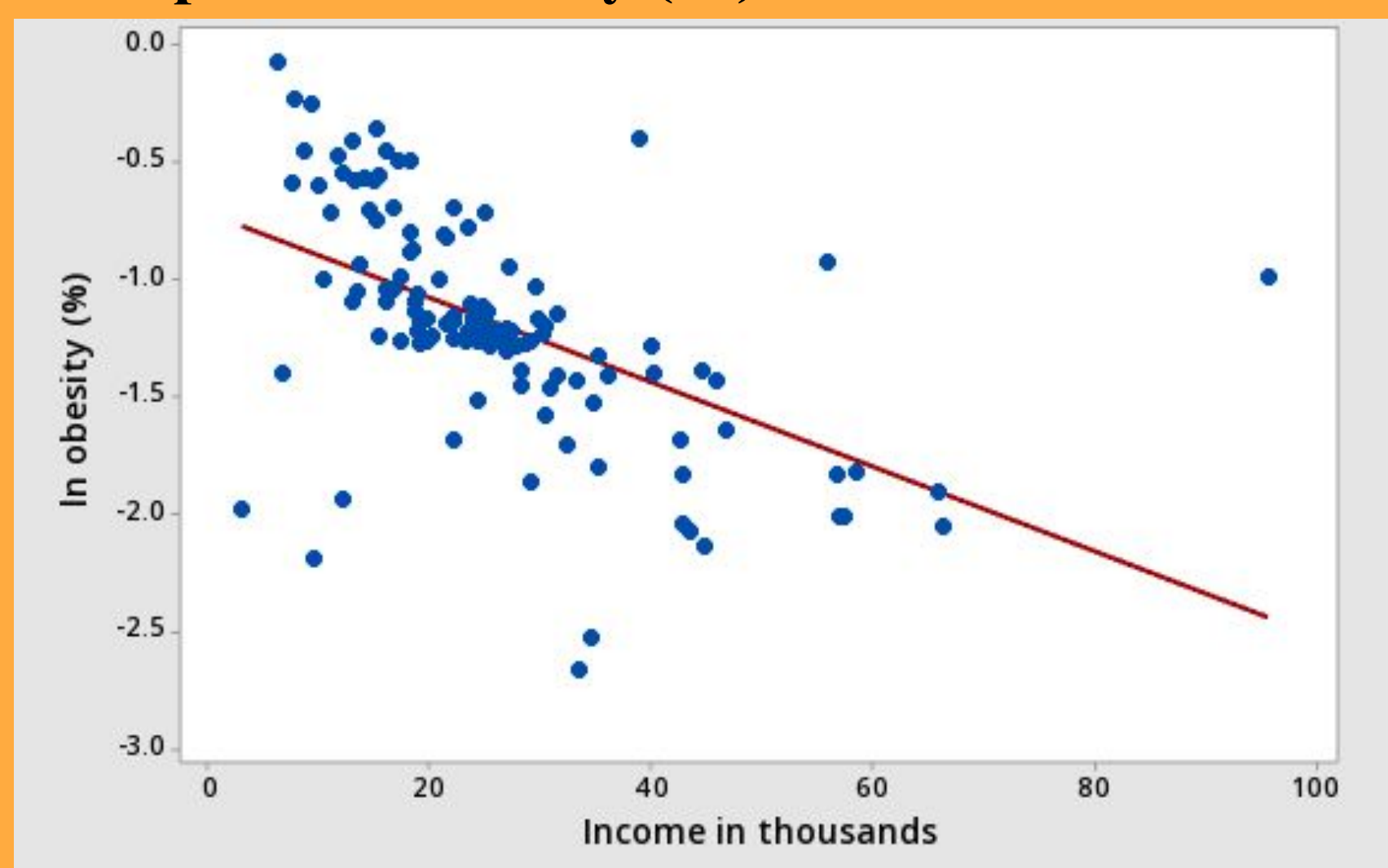
Importance

- “Mother of all diseases”¹
- Obesity rates have doubled since 1980 and tripled for teens nationwide²
- Pittsburgh: 31.1 percent of adults reported being a health weight in 2016³

Datasets

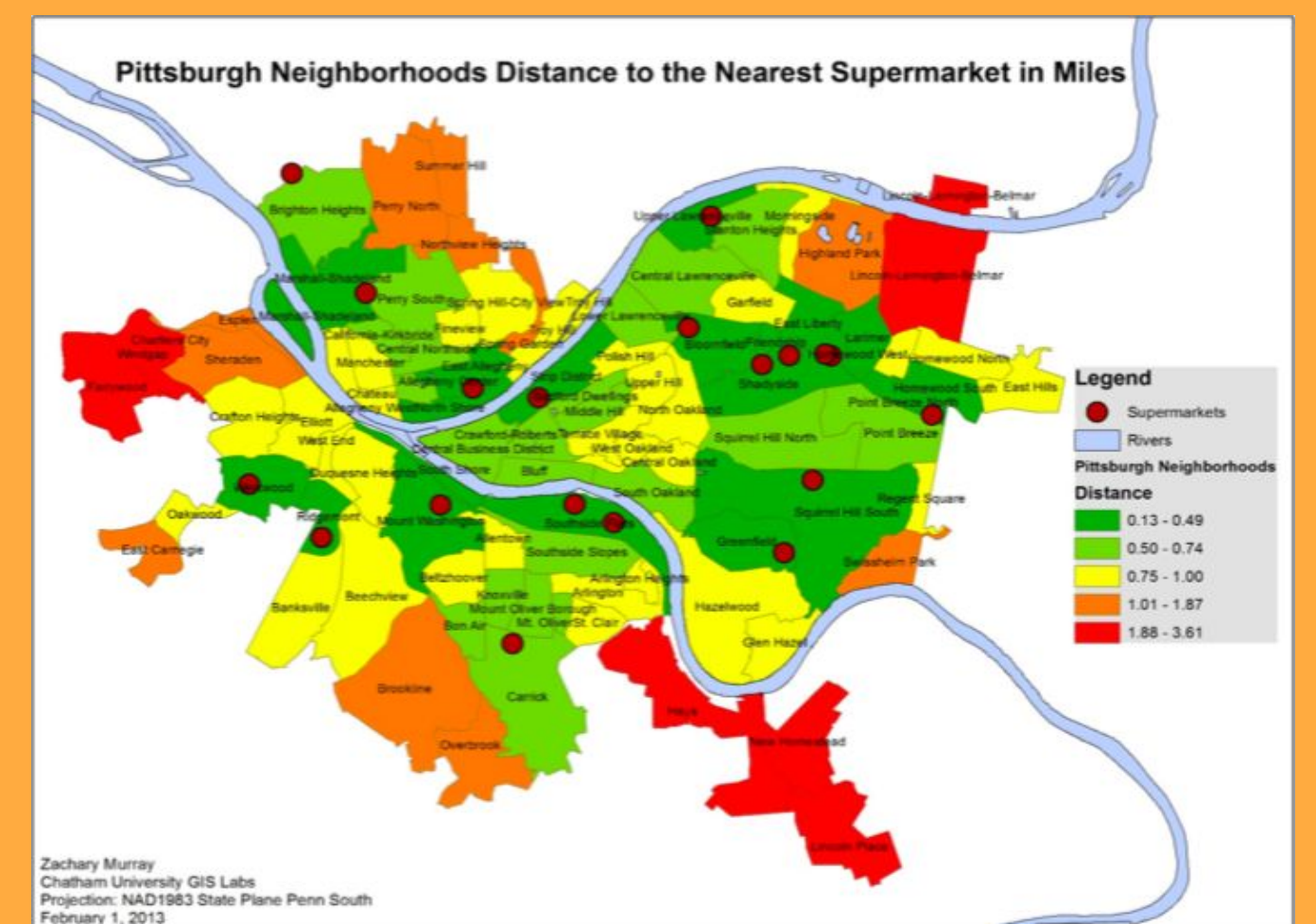
WPRDC and US census datasets were used. All data used was compared by census tract. Obesity rates and walkability were found through the WPRDC. Income and education datasets found through US census data.

Scatterplot of ln obesity (%) vs. Income in thousands



This graph shows that people with lower income are more likely to be obese than higher educated people.

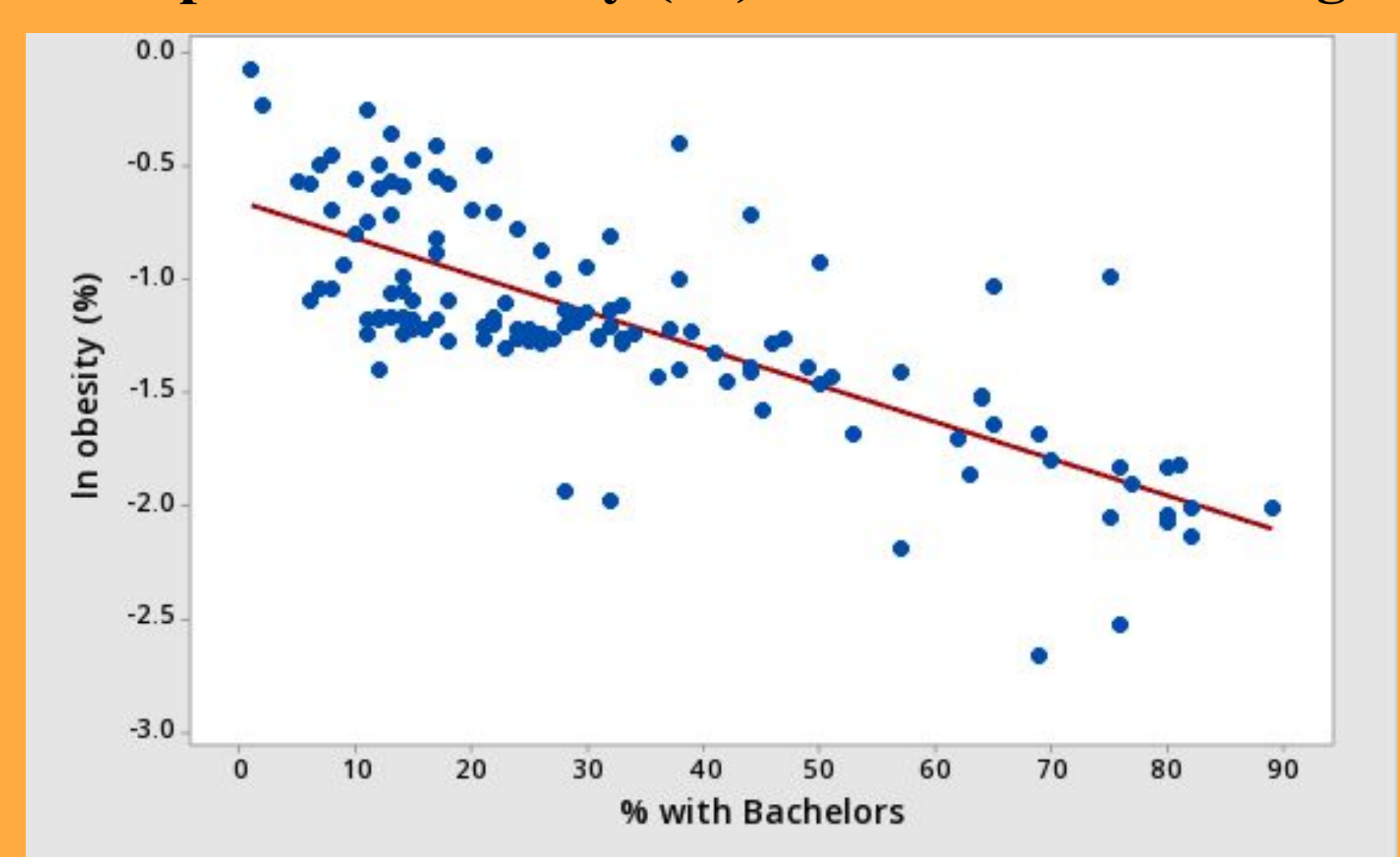
This graph shows that some areas in Pittsburgh are farther from supermarkets than other areas, meaning that it is harder for them to get food sources. This could be a potential factor of lower obesity rate due to the fact that they can't get food as often.



Multivariate Regression Line Equation

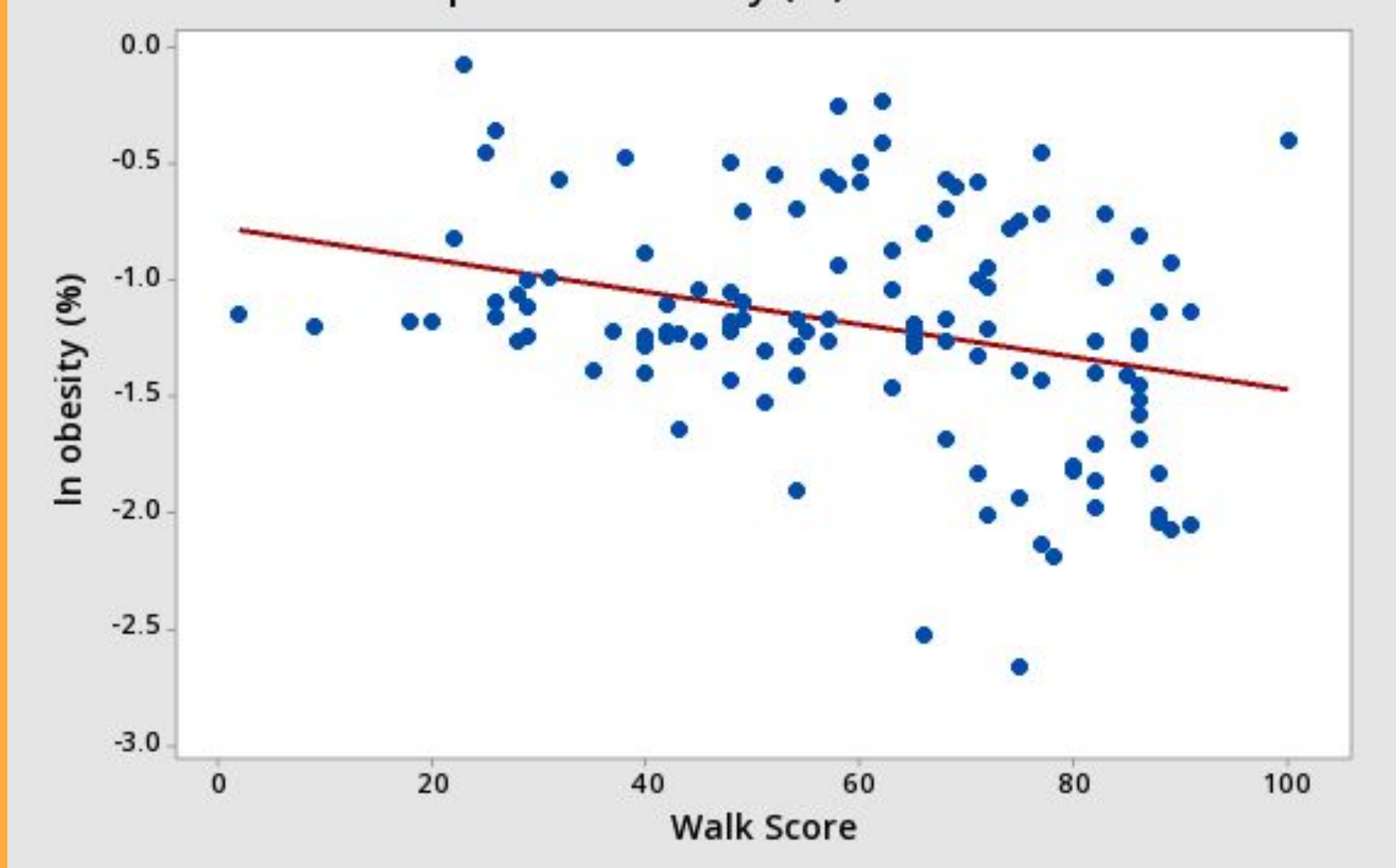
$$\ln(\text{obesity}) = -0.7229 - 1.941 * \% \text{ Bachelor's} + 0.00652 * \text{Income in thousands}$$

Scatterplot of ln obesity (%) vs. Bachelor's or Higher



This graph shows that people with a higher level of education tend to be less obese than those who are not as educated.

Scatterplot of ln obesity (%) vs Walk Score



This graph shows the relationship between walkability and the obesity rate.

Potential Actions

- In terms of self-improvement, people should be persuaded to prepare their own meals more and educate themselves about nutritious habits.
- Charity events such as running or walking to raise money and awareness for medical research would stimulate people's interests.
- Decrease the number of fast food restaurants in the area.
- Schools should encourage a healthy lifestyle and promote clean diets.
- Encourage more involvement in biking and running clubs

Challenges

- Census tract data concerning age-range was hard to find, along with a connection between age range and Allegheny County neighborhoods
- Information pertaining to obesity was difficult to locate because health data is usually protected.
- Pittsburgh already contains conventional solutions to obesity such as walking paths, bike lanes, yearly marathons, public parks, etc.

Summary

In conclusion, we found that there was a correlation between our different variables and obesity rates in the Pittsburgh area. There was a moderate correlation between obesity and income and education level while there was a much weaker relationship between walkability and obesity. We have found these connections, but coming up with a conclusive "solution" proved to be a challenge due to existing programs geared towards health. We did find out though, that education might be the best tool to keep Pittsburgh healthy.

¹ (George Eid, Allegheny Health Network's Bariatric and Metabolic Institute)

² (Johns Hopkins School of Medicine)

³ (Centers for Disease Control and Prevention's Behavioral Risk Factors Surveillance System)