Gambling Lines and Weather

By Rhoads MacGuire

Sports Gambling is a Burgeoning Market

- Landmark SCOTUS decision allows states to legalize sports gambling

- Football is the most widely gambled on sport in the US with $2B in wagers from Nevada in 2018 alone

How does Weather affect the accuracy Gambling Lines

- As the popularity of sports gambling grows, so does the importance of establishing accurate gambling lines.

- Understanding the relationship between weather and the accuracy of gambling lines would have large monetary implications for sportsbooks and bettors.
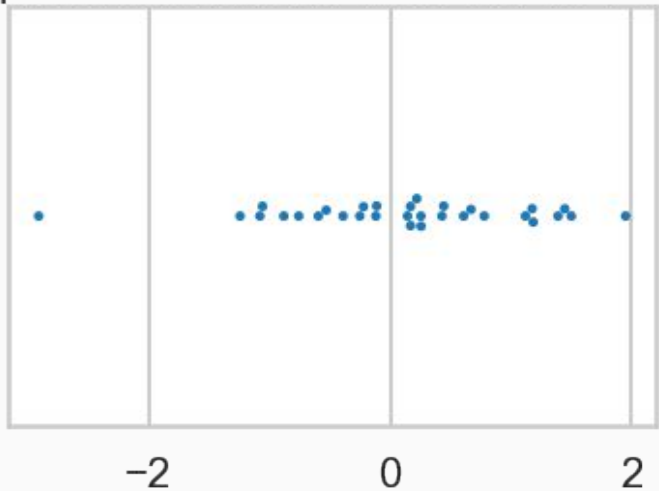
Data Collection

- Game data came from Kaggle

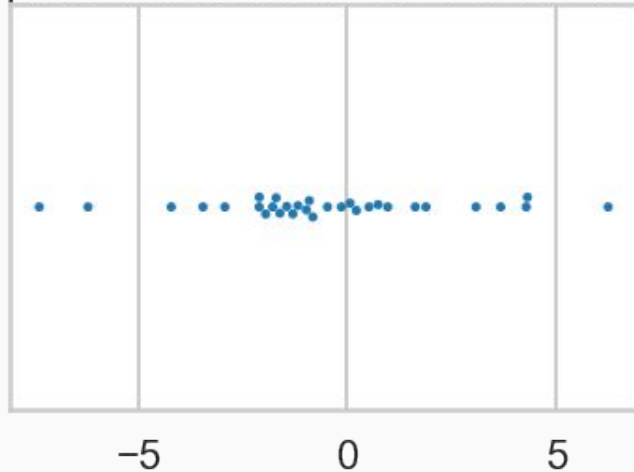- Weather data was scraped from almanac.com

Data Wrangling

- Deleted columns that were superficial to analysis

- Created columns 'result-spread' and 'over_diff' to represent the difference between the gambling lines and the result of the games

- Also created bw to indicate games with inclimate weather

Bad weather appeared to increase Variance in the point spread error on a yearly basis
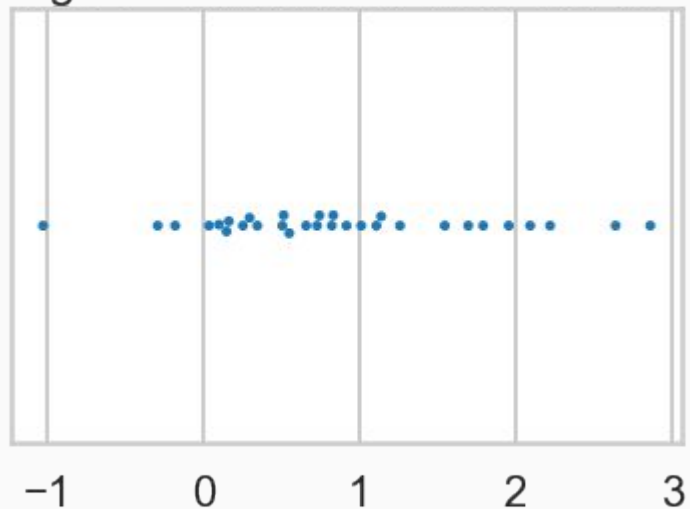

Avg Spread mistake in Nice weather by year

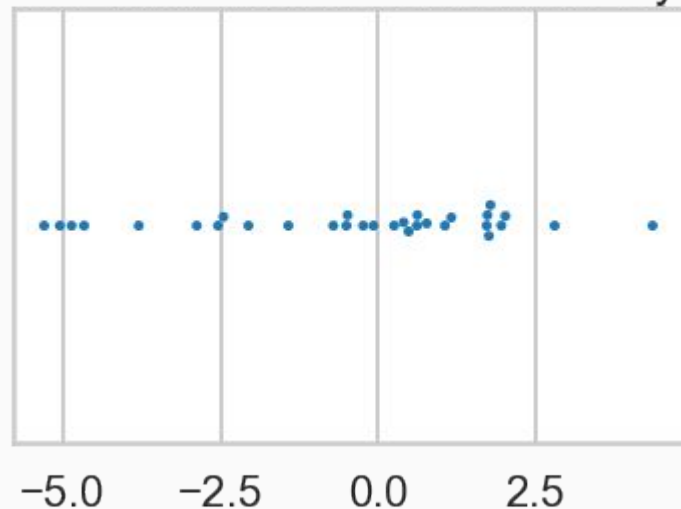Avg Spread mistake in Bad weather by year

It also increased the Variance of Over/Under (O/U) error on a yearly basis

Avg O/U mistake in Nice weather

Avg O/U mistake in bad weather by year

Inferential Analysis

- While visual analysis showed weather increased the variance of both target variables, a closer look showed that weather was only weakly correlated with error in the point spread.

- It appears there was a decently strong correlation between the weather and O/U error.

Machine Learning Techniques

- Used an OLS regression models to try and find an exact numeric relationship between O/U error and weather.

- The model performed very poorly and had a negative R-squared

Conclusions

- The analysis failed its goal of understanding the relationship between weather and the accuracy of gambling lines.

- Reasons for this failure include, lack of controls of relative skill of teams and underestimating line setters ability to adjust to weather.

Possible Improvement

- Adding a measure of relative skill such as DVOA for each team

- Using the initial gambling line rather than the final line so the weather is more ambiguous to line setters