The Baseball Futures Market

Gambling with Predictive Models

Background

Current State of Gambling

- Ambiguous legality
  - Massive black market
  - Inconsistent government policies
- Regulated by Vegas casinos
- Upcoming Supreme Court case
  - *Murphy v. NCAA* (formerly *Christie v. NCAA*)
    - Great odds to rule that the 10th Amendment implies that the federal government cannot compel states to follow this federal law
  - State regulation--estimated that nearly half of states will attempt to legalize gambling by the end of the year, assuming a positive outcome

Barriers to Entry

- Sports are incredible unpredictable
  - More so at the elite levels professionals play at
- Organizing amounts of data needed for an effective analysis
- Getting historical odds information to test model
  - Super risky to try out model in real time

Data

- Retrosheet
- Historical Odds purchased from third party
  - Casinos don't just give up this information to prevent any heavy analysis
- Recreate some Sabermetric stats as simple summaries
  - FIP, wOBA, BABIP
- Create matchups
  - Home batters v. Visiting starting and bullpen pitchers
- Cumulative stats
- 5 and 10 game rolling stats

Machine Learning Approach

- Logistic Regression to predict an outcome
- Linear Regression to predict respective home and away runs
- Scale bet according to confidence level

Correct Prediction Rate

LogReg Winner	58%
LogReg O/U 6.5	79%
LogReg O/U 7.5	63%
LogReg O/U 8.5	44%
LinReg Winner	55%
LinReg O/U 6.5	78%
LinReg O/U 7.5	70%
LinReg O/U 8.5	59%

- Don't necessarily have the availability to bet on every type
- Each approach picks different outcomes, though with plenty of overlap
- The only way to apply the model is to pick one approach over the other and place as much volume as possible

"I begin to speak only when I'm certain
what I'll say isn't better left unsaid"

- Cato

Best Performing Strategies

Best Performing Strategies - 2017

Next Steps

- Write code to scrape current data and re-create calculations from Retrosheet database
- Explore further improvements in the model
- Write amicus brief to Supreme Court
- Move to Vegas, sell picks online and start podcast
  - Kind of kidding