Michael Dresser
Mark Wilmes
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CSCI 4831 Sabermetrics

Final Project Part 1: Explanation of Statistic

Introduction

The current slew of baseball statistics generally all relate to one thing: a player's contribution to winning games. This is good; fans like to see wins, wins get you to the playoffs, and happy fans and playoff games means big money. However, no statistic covers how fun it is to watch a certain player. High OBP is great for wins, but who likes to see lots of walks? Exciting players are more fun to watch, which attracts more fans to go to and watch games, and equates to more money. We propose a new statistic called "Excitement Factor" or EF. This statistic aims to capture how exciting a player is to watch. This statistic will be split into EFP and EFB for pitchers and batters respectively.

Details

Exciting plays for batters include home runs, doubles, triples, and stolen bases. Strikeouts, walks, and going high in the count are not very fun at all. PCA5 = Plate Appearances where the pitch count goes above 5.

EFB =

$$\frac{1.0 * HR + 0.8 * 3B + 0.5 * 2B + 0.2 * 1B + 0.5 * SB - (0.4 * SO + 0.2 * BB + 0.2 * PCA5)}{PA}$$

Exciting play for pitchers involves a high strikeout rate, high pitch movement, high pitch speed, and keeping the count low. The fewer batters in an inning, the better. Home runs, high pitch count, and walks (of all causes) are the reverse. We choose to use speed and X/Y movement pitch data from statcast. Unfortunately this means our statistic is only valid as far back as this statcast data goes. Perhaps a simpler version of this stat could be formulated to work for a longer period.

EFP =

$$\frac{1.0 * SO - (0.5 * PCA5 + 3.0 * HR + 3.0 * BB + 2.0 * IBB)}{BF}$$

$$- 1.0 * WHIP + 0.1 * avgYMove + 0.1 * avgXMove + 0.3 * avgSpeed$$

Why EFB and EFP are Good Statistics

EFB and EFP fill a gap in baseball statistics because they directly address the way a fan would react to a player. Winning is of course great, but if your team is doing it in a flashy, exciting way people will want to watch (and go to) games

more. These stats can also be used for baseball fans to choose what games to watch. There's a lot of baseball in a season and if you want to watch a game, why not a game with a really exciting pitcher or lineup? While this would require further study, teams with exciting players would probably monetarily benefit from how exciting their team as a whole is to watch.

Similarities to Other Statistics

For batters, EFB could be seen as somewhat similar to wOBA calculations because of its high value on run scoring, but it is different because it undervalues singles and walks. As mentioned before, it is less a measure of a contribution towards wins and more a measure of unusual or exceptional individual play.

For pitchers, EFP is somewhat similar to FIP though probably not enough to track it very closely. A rather obscure statistic called NERD does relate strongly to what we are attempting to display with EFB and EFP though it takes a different approach, focusing mostly on strikes and deviation from FIP.