

What Makes the Minnesota Twins a Successful Baseball Organization?

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Introduction

Something incredible happened recently: the Twins won their first playoff game since 2004.¹ How does a team break a 19 year playoff drought? This immediately intrigued us as to how their 2023 performance was so different. We aim to answer the question: What makes the Minnesota Twins Baseball Organization successful? Alongside this, we want to know if 2023 was an outlier year for the Twins. Our results can inform us of which baseball statistics are most effective at predicting win percentage and if the Twins had an exceptional season in 2023.⁶

Dataset and Exploratory Data Analysis

Data and Variables

We are looking at Minnesota Twins stats from 1992-present, since the last time the Twins won the world series was 1991. It also does not make full sense to look at data from the entire existence of the Twins as baseball is played differently today than it was 75+ years *ago*.³ This data was collected by Major League Baseball and consists of *batting*⁴ and *pitching*⁵ average statistics per year in the selected years. Some of these statistics include wins, losses, hits for, hits against, and many other predictors of win percentage. We calculate a new variable called *WinPct*, or win percentage, by using the aforementioned statistics. Win percentage will be the response variable while the remaining 32 variables are potential explanatory variables.

We decided to exclude the year 2020 since this was the year COVID-19 ramped up, meaning only 60 games were played rather than the usual 162. We also chose to exclude 1994 and 1995 since only 113 and 144 games were played respectively due to a Major League Baseball *strike*.²

Fig. 1 explains the names of the variables which ended up in our final models. The only variables that need further explanation are SLG (slugging) and SV (saves). Many other variables are self explanatory. With that in mind, a team receives a save if one of the following is true:

- Enters the game with a lead of no more than three runs and pitches at least one inning.
- Enters the game with the tying run in the on-deck circle, at the plate or on the bases. This essentially means that there are one or more runners one base. If the batter is succesful, the score will be tied.
- Pitches at least one inning.

Another complex stat is Slugging Percentage (SLG). Slugging percentage is calculated by the total number of bases hit divided by the total number of at bats. This means that if a player has a 1.0 SLG, they average one base recorded per at bat on average. This would be very high as the twins average 0.427 SLG, meaning that that on average they get 0.427 bases per at bat.