

Assignment 3 - MLB No Hitters

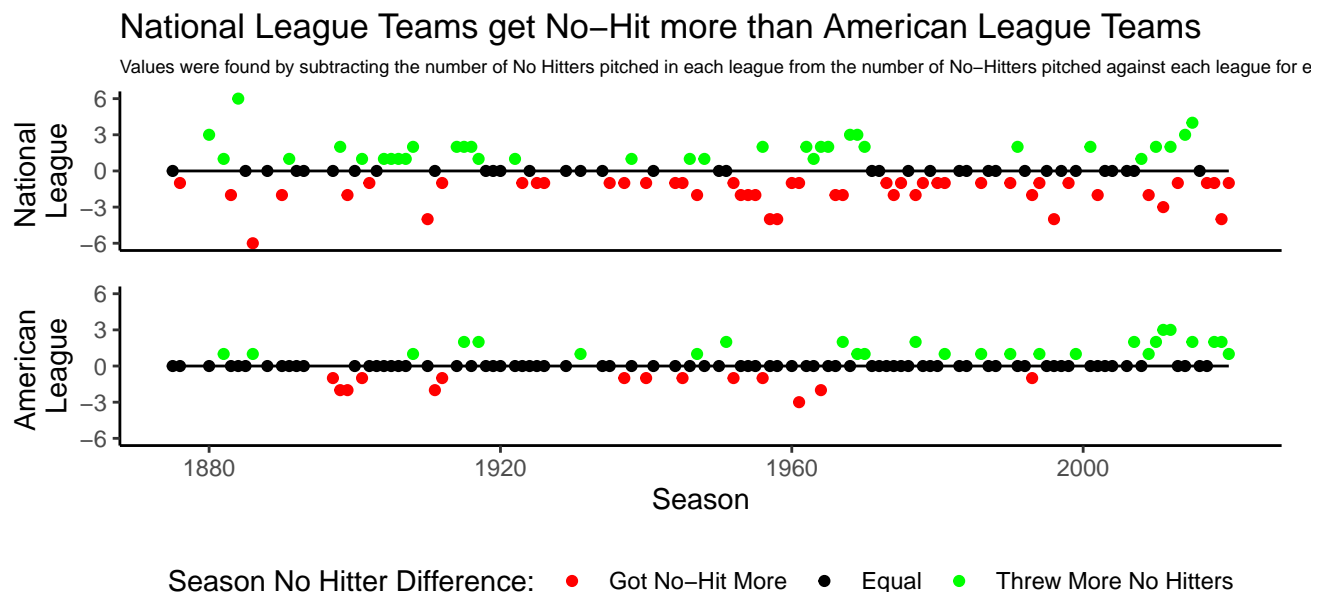
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Data Introduction

The first professional Baseball league in the United States was formed in 1870 and since then, all different kinds of data has been kept, including extensive pitching records. A No Hitter occurs when a pitcher of one of the teams doesn't allow the other team to get a hit, while a Perfect game occurs when the pitcher doesn't allow the other team to get any base runners. From 1875-2020, there have been 295 No Hitters, which includes 23 Perfect games. The data set used for all exploration below includes extensive records about each No Hitter, including the players name, the season, the teams involved in the game, and a wide range of different pitching statistics.

National League teams get No-Hit at a higher rate than American League teams

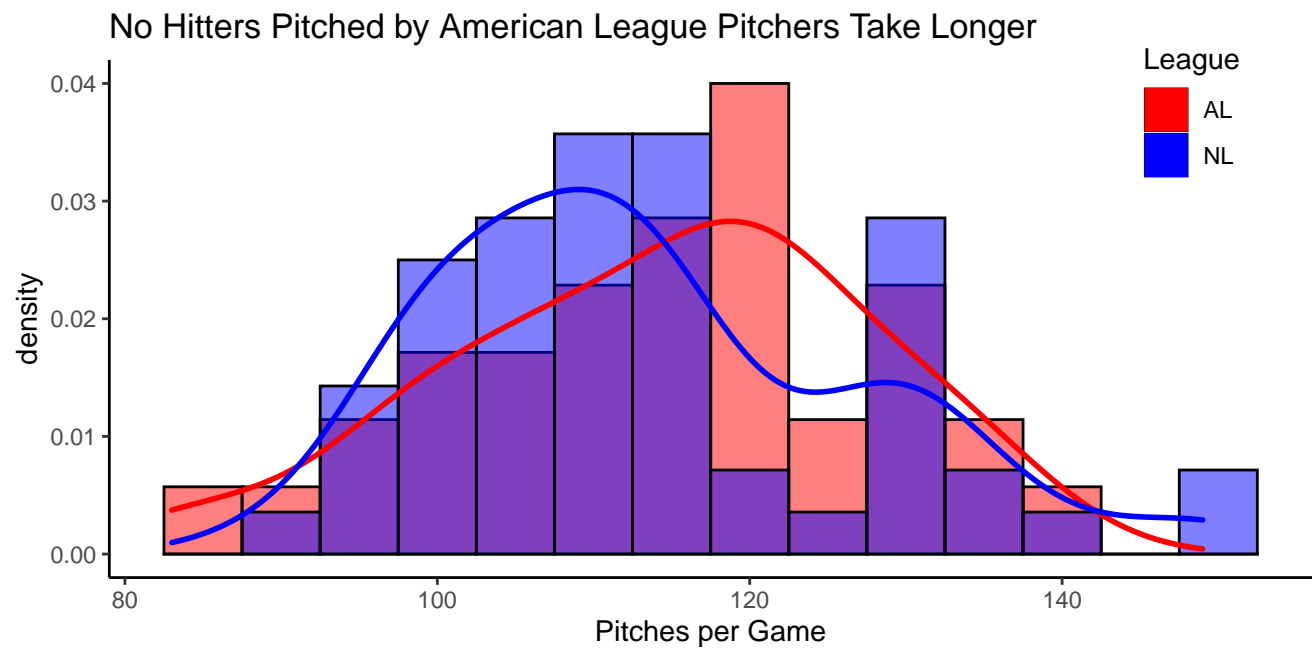
An interesting trend that came out of the data was that National League teams get No-Hit more than American League Teams. Of the 295 No Hitters, National League pitchers accounted for 54% of the No Hitters; however, National League teams account for 60% of the teams that were No-Hit. The National League having slightly more No Hitters makes sense because it has been around longer than the American League and until 2013 had more teams. The below graphic shows the difference in the number of No Hitters pitched in each league and the number of times each league was No-Hit per season. The trend of National League teams getting No-Hit more often becomes apparent when looking at the amount of season that are highlighted in red.



American League Pitchers Tend to throw more Pitches

The length of games are measured by the number of pitches that are throw in the 9 innings it takes to complete a game. Due to the variability of every game, I expected the number of pitches in each league to be approximately the

same, but from the below plot, it can be seen that American League pitchers tend to pitch more than Nation League pitchers. A possible reason for this difference could be the American League's implementation of a designated hitter that hits in place of the pitcher. Pitchers tend to be worse at hitting than all other position players, meaning the elimination of the pitcher in the batting order could cause the opposing pitcher to have to throw more pitches to get all the batters out.



Contact Pitchers Pitch more No Hitters

Pitchers tend to either be better at getting strike outs or causing batters to make bad contact with the ball. Contact pitchers are those where more than 65% of their outs are made through the hitter making bad contact with the ball. Intuitively, I believed that pitchers who tend to get more strike outs would have a higher likelihood of pitching a No Hitter since the less contact there is on the baseball, the fewer chances there are for a runner to get on base and therefore causing the No Hitter to be lost. The actual trend that came out of the data was that the majority of No Hitters were pitched with more than 65% of the outs during the game being made through contacts - ground outs and fly balls. The below heat map also shows that there were significantly more right handed pitchers who threw No Hitters compared to left handed pitchers.

