**Are Players Now Trying Harder in the MLB All Star Game? By Robbie Steirn**

Since the All Star game determines home field advantage for the World Series, my hypothesis is that there is a greater chance to win the World Series if a team’s league won the All Star game. This statement seems reasonable because in almost all sports, home field advantage can make the difference between a team winning or losing a game. According to Freakonomics, home games won in the MLB, NHL, NFL, NBA, and MLS are 53.9%, 55.7%, 57.3%, 60.5%, and 69.1%, respectively. 1

I looked at data starting at 1933 since that was the inception of the All Star game. I removed data in year 1945 since there was no All Star game (due to WWII travel restrictions) as well as 1961 and 2002 since those games ended in a tie. Lastly, there is no data for 1994, since that was the lockout year. From the data below, you can see that the NL has won more All Star games, but have lost more World Series.

Looking at 82 years of data, about 60 percent of the time the home field team wins the World Series. Thus, if the AL wins the All Star game, they have a 10 percent greater chance to win the World Series than if they lost the All Star game. While this is technically not statistically significant (using an alpha of .05), it is close enough to significance for me to be confident in the data (94% confident in the occurrence of the aforementioned event). Thus, if I bet on the World Series (which I wouldn’t unless I was in Vegas… after I turn 21), home field advantage would play a big role in my decision calculus.

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|  | **Year** | **NL** | **AL** |   |   |   |   |
| **All Star** | 2003 - 2014 | 3 | 9 |   |   |   |   |
|  | 1933 - 2001 | 39 | 31 |   |   |   |   |
| **World Series** | 2003 - 2014 | 7 | 5 |   |   |   |   |
|   | 1933 - 2001 | 31 | 39 |   |   |   |   |
|   |   |   |   |   |   |   |   |
| **Is there a home field advantage in the World Series?** |   | <-- We use .5 b/c that is chance of guessing the league |
| Null Hypothesis: p = .5 |   |   |   |  that wins the World Series correctly. |   |
| Null Alternative: p > .5 |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |
| Reject if z > 1.645 (alpha of .05) |   |   |   |   |   |
|   |   |   |   |   |   |   |   |
| z= 1.546 |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |
| Do not reject null hypothesis since 1.546 < 1.645. No stat sig evidence. P value of .94 |   |   |

So, why do we have one game determine who has home field advantage? You can thank Bud Selig, former Commissioner of the MLB, for that. In 2002, the All Star game resulted in a tie. The game went into extra innings and both teams used up their roster. Bud Selig called off the game because he was concerned about overusing the pitchers. Thus, in hopes of reinvigorating the All-Star game, Bud Selig increased the stakes by awarding the winning league home-field advantage. Now was this a good idea?

First, let’s talk TV ratings. Household viewership for the All Star game declined from 2002 to 2013 by about 3 million views.2 However, I wouldn’t attribute this to his decision since All Star Game TV viewership has been in decline since the early 80s. There has been a slight upwards trend the past two years which could be due the excitement of Trout and an exciting Home Run Derby this year. So, we’ll rule out TV ratings for now. Second, is determining a 10 percent increase in winning the World Series from a single game fair? Pre 2002, home-field advantage alternated between the AL and NL every year. This arbitrarily disadvantages teams based on the year they happen to enter the World Series. We can make it so the higher regular season win-loss record gets home-field advantage (like the NBA). But, one league may have better players than the other league which could deflate a team’s win-loss record. We could do interleague win-loss record, but that relies heavily on who you play since there are only about 18 games of interleague play. Head to head matchups don’t work because you only play about 5 teams from the other league. There may not be a right or fair strategy, so let’s go back to the main question at hand.

Did Bud Selig achieve his goal of making the All Star game more competitive by anteing up the stakes? It’s almost impossible to prove whether individual players are trying harder, but maybe the managers are using more strategy to win games by allowing players to stay in the game for longer durations. Also, perhaps the players are more incentivized to play better so that they can snag that 10 percent increase of chance to win the World Series (given that they make it to the World Series).

There are two ways to approach the math. First, compare player statistics for the all-star game and the regular season before and after the rule change. However, if everyone plays better, it is not clear to which direction that would sway the in-game performance. Batters and pitchers will do better, so will that increase or decrease runs scored, batting average, and ERA? Your guess is as good as mine, so I went another route.

What if we start analyzing the correlation between winning the All Star game and winning the World Series before the rule change? By doing this, we can then remove home-field advantage as a variable and just use the All Star Game as a predictive tool to determine who will win the World Series. The data below shows my results (the green highlighted portions are important numbers to look at). Pre 2002, home-field wins (HFW or HFA) in the World Series accounted for about 57.14% of games. Furthermore, when you look at teams with home field advantage who also won the All Star game, the percentage only marginally increases to 57.5%. This means that the All Star Games before 2002 can’t be proven to have an effect the outcome of the World Series. Instead, only home-field advantage shows a strong increase in World Series wins. However, post 2002 we can no longer isolate home field advantage and All Star Game results because they are no longer mutually exclusive events. The winner of the All Star Game also now receives home-field advantage.

Since the rule change, home-field advantage in the World Series increased a team’s chance of winning to about 66.7%. This also means an All Star Game win will increase the chance of winning the World Series to about 66.7%. What if this rise in percent from about 57.5% to 66.7% is not a statistical fluke but perhaps there is a deeper meaning behind this 9.2% increase. Perhaps the All Star Game is bringing out the best in players and coaches and we are finally seeing a true representation of which league is better and therefore will win the World Series. For instance, if the AL wins and then gets home-field advantage they have about a 57.5% chance of winning the World Series by just looking at the home-field advantage performance boost. However, since the rule change, the chance of winning increased to 66.7%. What if this jump isn't just due to home-field advantage, but because now the All-Star Game is giving us a glimpse of which league has the better players? Could it be that the 57.5% of that 66.7% comes from home-field advantage and the remaining 9.2% increase comes from the All Star winner already having a higher probability of winning the World Series to begin with? They just had better players as shown by their All Star game performance.

Even though it is just one game, the data I am looking at compares 12 years to 70 years of data. Also, pitchers alternate every inning, so we get to see many different players on the field who represent the best in the league. Only time will tell if my hypothesis is correct, however, we can use a hypothesis test to minimize the chance of error given minimal data points. Looking at the findings below, there is no statistically significant evidence that the All Star Game has become more competitive which therefore provides us insight on which league will win the World Series. I would still argue that it is heading in the right direction. While we are only about 70 percent confident in the findings below, if the data stays constant over the next 30 years, this article will be a gold mine.

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|  | **Home Field Wins** | **HFW %** | **AS ∩ WS Win** | **AS ∩ WS Win %** | **AS ∩ HFA ∩ WS Win** | **AS ∩ HFA ∩ WS Win %** | **Total Years** |
| **Post 2002** | 8 | 66.67 | 8 | 66.67 | 8 | 66.67 | 12 |
| **Pre 2002** | 40 | 57.14 | 36 | 51.43 | 23 | 57.50 | 70 |
| **Total** | 48 | 58.54 | 44 | 53.66 | 31 | 59.62 | 82 |
|   |   |   |   |   |   |   |   |
| **Are players trying harder in the All Star game since 2002?** |   |   | <-- p1 = post 2002; p2 = pre 2002 |
| Null Hypothesis: p1 - p2 <= 0 |   |   |   |   |   |   |
| Null Alternative: p1 - p2 > 0 |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |
| Reject if z > 1.645 (alpha of .05) | p= 0.44 | SE= 0.15 |   |   |   |
|   |   |   |   |   |   |   |   |
| z= 0.6 |   |   |   |   |   |   |   |
|   |   |   |   |   |   |   |   |
| Do not reject null hypothesis since .6 < 1.645. No stat sig evidence. P value of .72 |   |   |   |

1 http://freakonomics.com/2011/12/18/football-freakonomics-how-advantageous-is-home-field-advantage-and-why/

2 http://www.baseball-almanac.com/asgbox/asgtv.shtml