Predicting NBA Rookie Success via Draft Rank and All-star Teammate

Alexander Hayek
Dr. Layla Guyot
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TEXAS
The University of Texas at Austin

Statistics + Data Sciences

Introduction

Objectives:

- My goal: see how draft pick and teammates affects NBA rookies first season in NBA for Fantasy Basketball betting.
- Population of Interest: NBA Rookies
- Stakeholders: Those who bet in Fantasy Basketball
- The higher their draft pick and if they no all-star in their position, a rookie should have a higher rank 1st season.

Research Questions:

Research Question 1 – Does NBA draft pick number influence rookie rankings for rookies' first season in the NBA?

Research Question 2 – Does an all-star NBA player starting over a rookie influence his chances of higher ranking in rookie season?

Methods

Data Collection:

- Sample Unit: the NBA rookie, their draft pick, if there is an all-star in their position and their rookie ranking.
- Total of 63 sampling units

Measures: I measured draft rank from nba.com draft rank listings. I am measuring all-star in rookies position using nba.com giving me a list of the all-stars the prior year, then looking at the rookie's position and comparing.

Analysis Method: I am using Rstudio to run a general linear model to analyze if draft rank and if there is an all-star in rookies' position are significantly linear predictors of rookies rank

Descriptives

Response Variable:

Table 1,2,3 – Descriptive Statistics (n=63)

	Median	IQR
Rookie Season Rank	37	39.5

Explanatory Variables:

	Median	IQR
Draft Rank	24	29.5
Sqrt(Draft Rank)	Sqrt(Mean): 2.12	Sqrt(Std): 0.46

	No	Yes
All-star in their position	34	29

Results

Results table:

Table 2 – Model Results

Variable	Estimate/SS*	Test	P-value
Intercept	31.076/2.850	10.903	P < 0.05
Draft.Rank_c	4.925/1.478	3.332	P < 0.05
Allstar.Starter_yes	5.216/4.207	1.240	P > 0.05
Draft.Rank_c*Allstar.Start_yes	2.493/2.320	1.074	P > 0.05

R^2 adjusted 0.3148

Rookies Rank by Draft Pick and Team Allstar
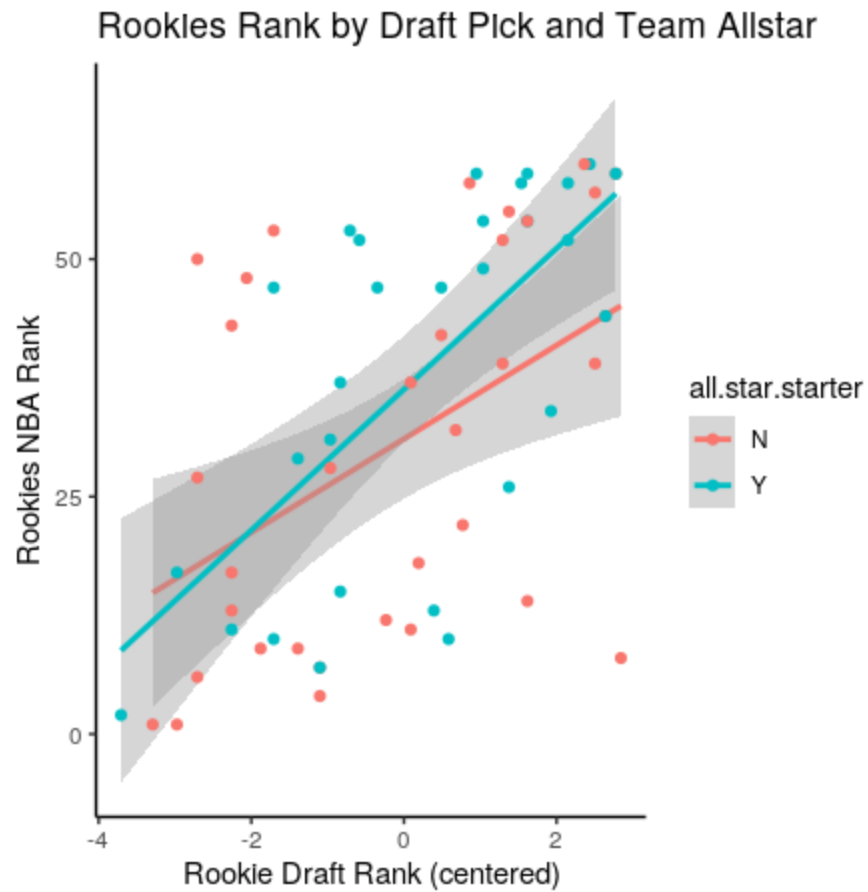
The lines are not parallel predicting there is an interaction.

Assumptions

Assumptions:

I conducted a random sample from a number generator I coded of rookies since 2014. I will assume my scatterplot indicates a linear relationship between rookie rank and draft rank (sqrt). I then conformed normality of the residuals and proved equal variance of residuals. Graphs below:
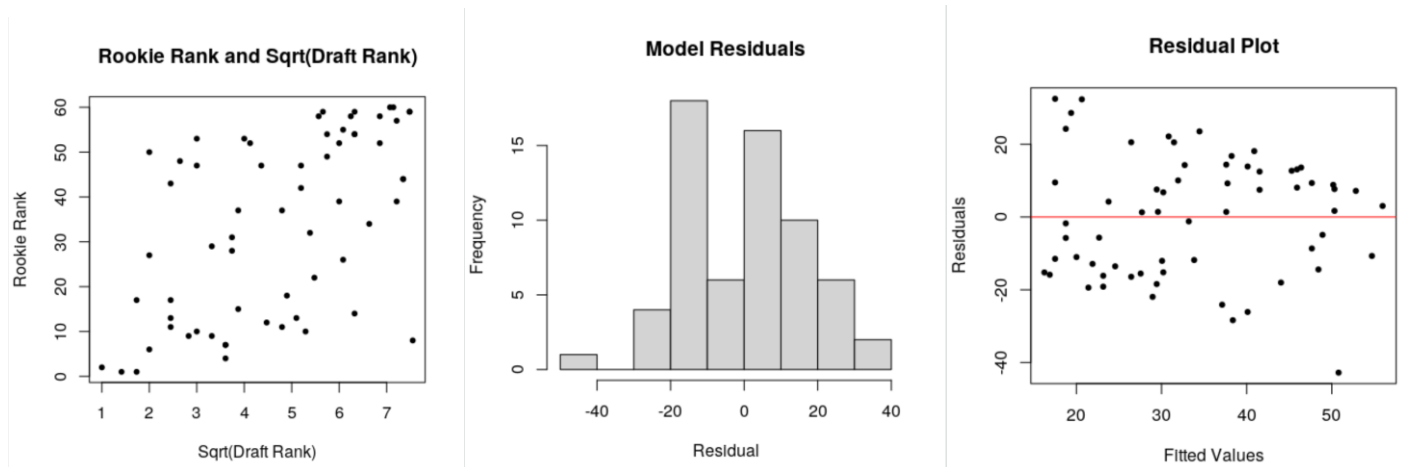
Discussion

Interpretation:

I found no significant interaction between whether or not there was an all-star in the rookie's position and their draft rank on their rookie rank at the end of their first NBA season (t= 1.704, df = 59, p > 0.05). For rookies with an all-star starter in their position, its not significant to the rookie rank (t= 1.240, df = 59, p > 0.05). For an NBA rookie that does not have an all-star starter in their position, a 1 rank increase for draft rank (centered), rookie rank increases by an average of 4.925 ranks (t = 3.332, df = 59, p < 0.05). This is what I expected, indicating you are more likely to have a better rank if the rookie does not have an all-star in their position Overall, our model explains 31.48% variation in rookie ranking.

Limitations: One major limitation is only using rookies drafted out of college. Other rookies can get moved up from G-league and their first season in the NBA is considered their rookie season indicating a sampling bias. Another limitation is there won't be normality in ranking. Overtime, it will be uniform.

Implications:

The biggest take away if that for rookies that don't have an all-star in their position, they're more likely to have a higher rank. When using results, stakeholders should shy away from rookies that have an all-star in their position because the lower rank will give those who use fantasy basketball a less likely chance of winning their league. One consequence is rookies with all-star in their position may get drafted less in fantasy basketball.

Future Research:

I would add another variable of injury. I would also like to get a broader area of players and test rookies that come up from the G-league to give a more normal representation of rookies. I expect future studies will indicate the results I found as well as a negative intercept of yes all-star to rank.

References:

O'Donnell, R. (2020, December 21). The 9 best NBA rookies in the PRESEASON, RANKED. Retrieved March 06, 2021, from https://www.sbnation.com/nba/2020/12/21/22188673/nba-rookies-preseason-rankings-lamelo-ball-patrick-williams

https://www.nba.com/draft/2021. I used NBA.com for determining all the draft pick numbers for each rookie, as well as whether or not there was an all-star player in their position that year.

https://www.basketball-reference.com/leagues/NBA_2014_rookies-season-stats.html . I used basketball reference for determining the ranks for rookies their first season in the NBA.