

# ANALYZING THE NCAA TO NBA DRAFT TRANSITION: STEAL OR BUST?

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# UNDERSTANDING THE DRAFT

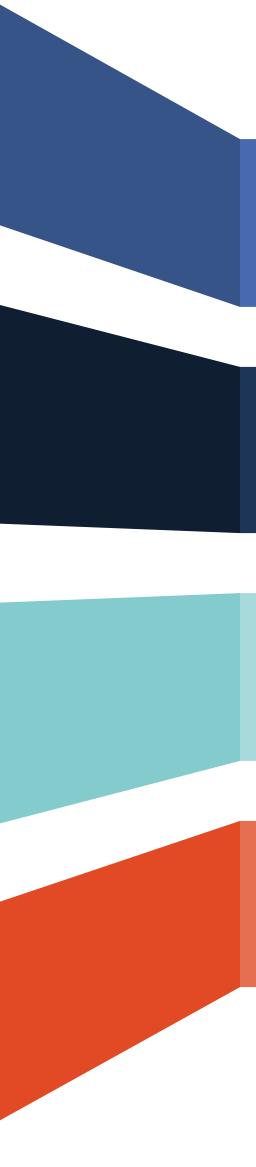
## How it works

- **30 teams** - Worse performing teams get better lottery picks.
- **Draft Combine** - Evaluate physical and mental strengths, skills etc.
- **This is fair but unjust at the same time** - Best players end up on bad teams and not very good players play on the best teams.

# MOTIVATION

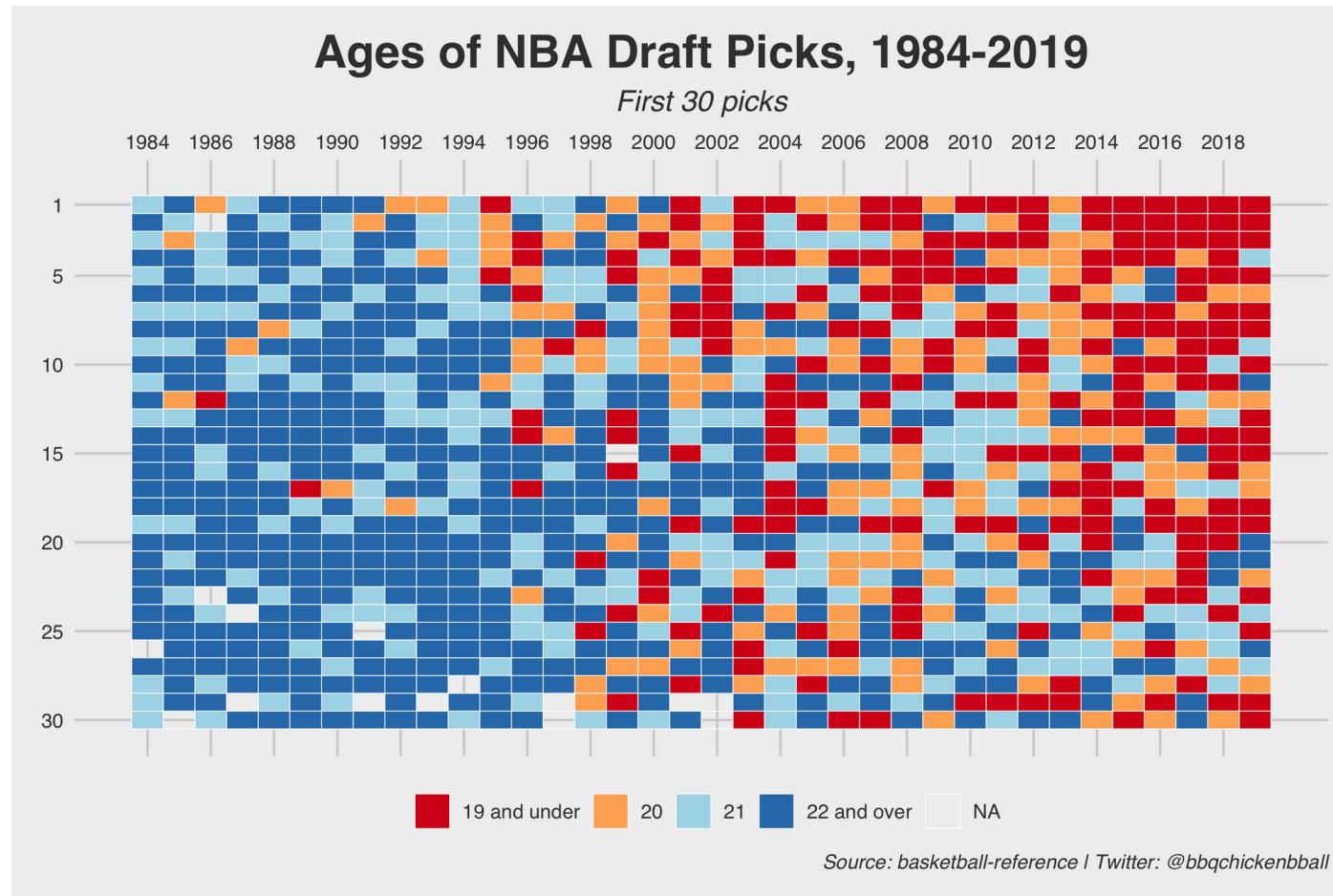
- Inconsistent distribution of players and teams.
- Players get waived or traded easily if they do not perform because they did not fit well in the team.
- Many mistakes have been made in the draft process which affects the Franchise.

# THE PROCESS

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- 1 Gathered and Preprocessed data
  - 2 We broke down the process of the draft and analyzed trends over the years
  - 3 Examined existing visualizations of the NBA and create more intuitive and visually appealing charts.
  - 4 Compared players that fit best with various teams and suggested a potential redraft (Top 3 picks) to the 2019 draft.

STUDYING EXISTING  
VISUALIZATIONS AND FINDING  
WAYS TO IMPROVE THEM

# Analyzing the variance in the age of each year's Draft Picks 1984 - 2019

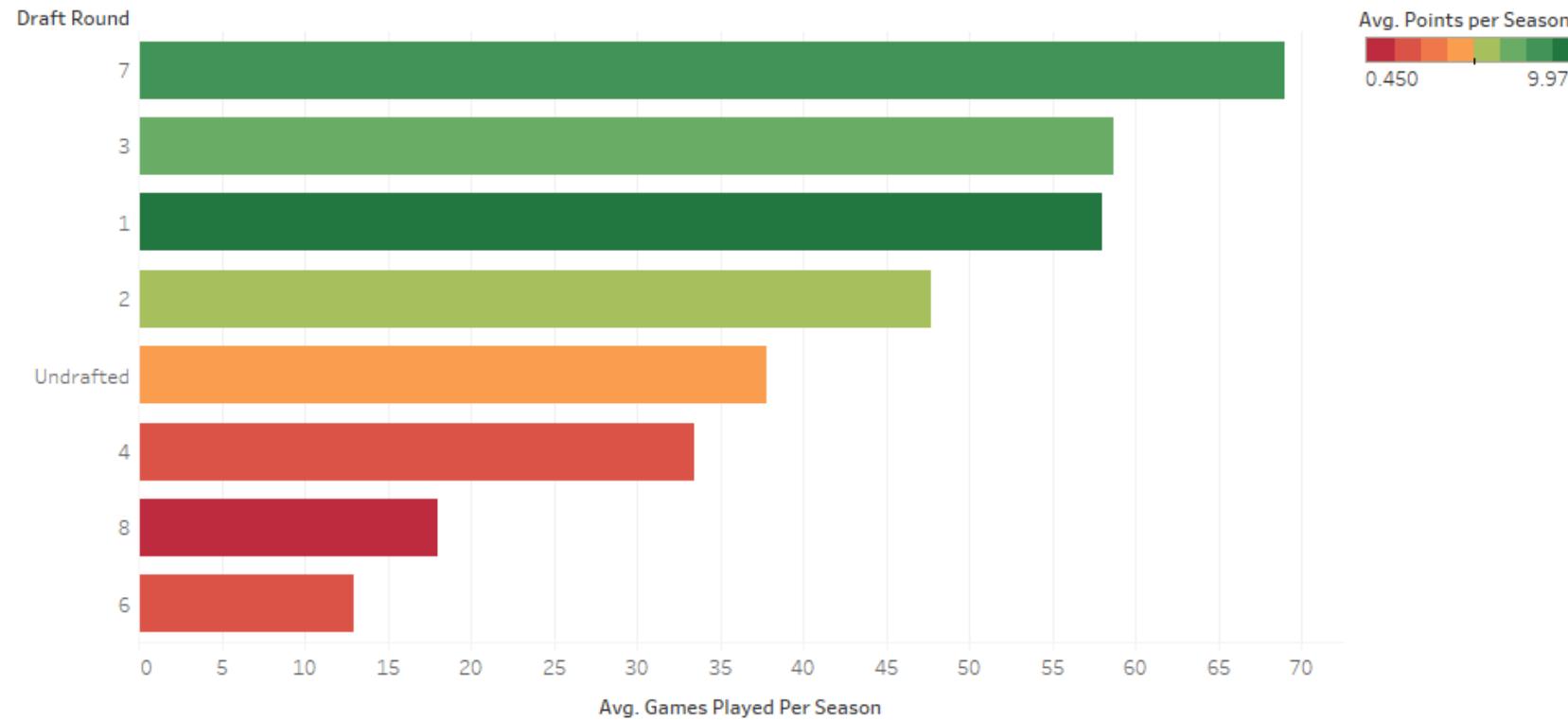


This Heatmap clearly indicates that with time, younger players (range of 20 and 19 and under) were selected for the First Draft over older players.

# Can the draft round really impact how many games a player ends up playing in a season?

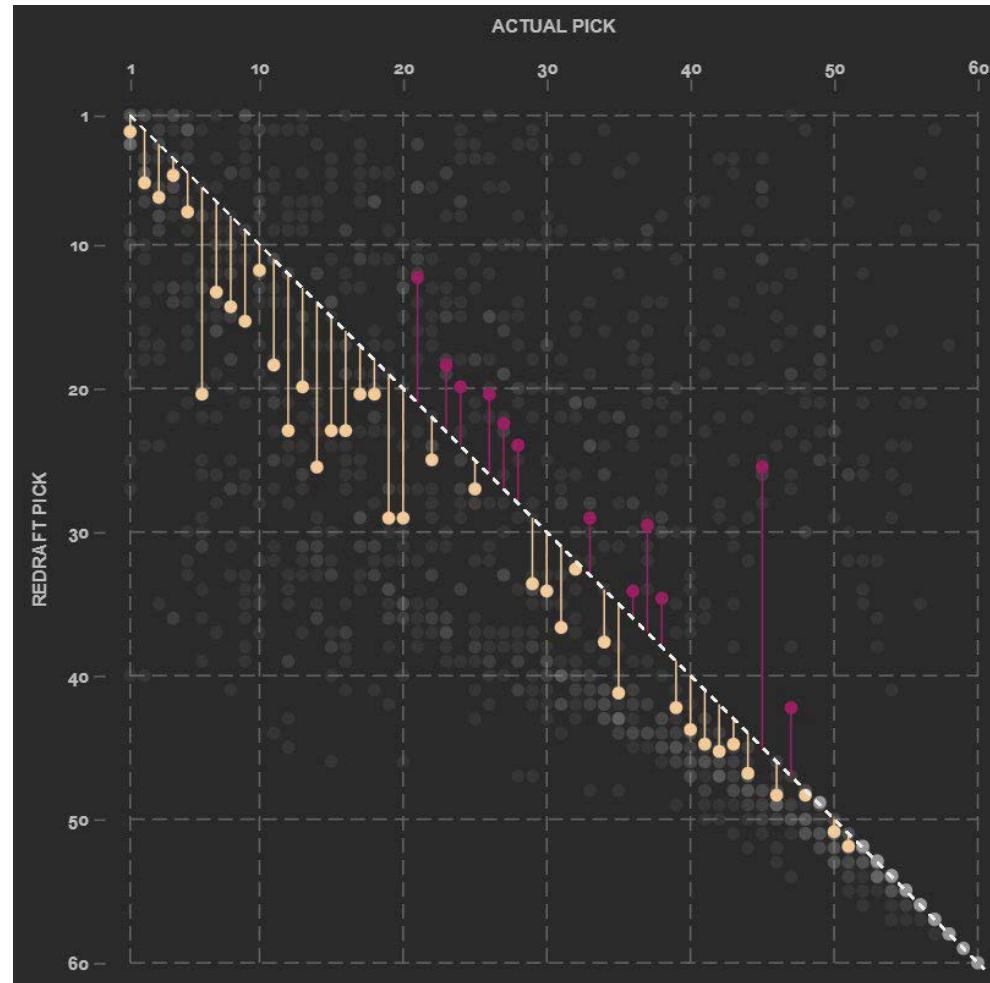
Draft Round vs Avg Games Played per Season

Color indicates average points per season.



We can clearly observe that the draft pick number is not commensurate with player performance.

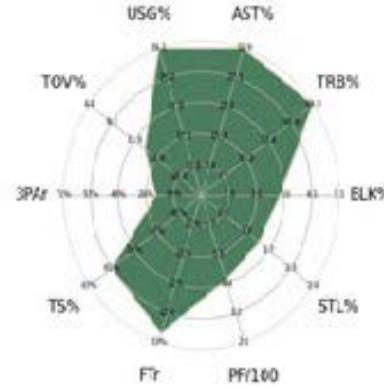
# Comparing the Players' Draft with Their Redraft Values: Does a higher pick guarantee better performance?



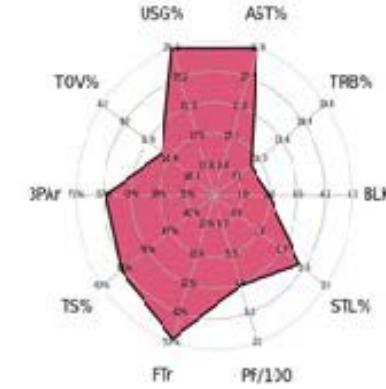
Disorder can be observed in this trend, so a higher pick value does not necessarily guarantee a better and more successful career.

# Player radar charts with overall statistics

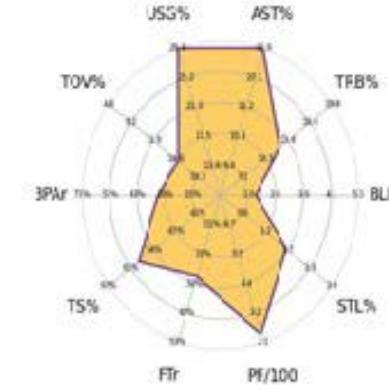
**Giannis Antetokounmpo**  
Milwaukee Bucks, 2019-20



**James Harden**  
Houston Rockets, 2019-20



**LeBron James**  
Los Angeles Lakers, 2019-20



Radar charts are very popular in sport visualizations and they represent different stats of players at a glance and understand their strengths and weakness

# OBJECTIVE FOCUSED ANALYSIS

A brief road map of what we investigated and hoped to achieve from this project.

- Compare draft players to other draft players.
- Check NCAA player transitions to NBA and compare their success rates.
- Identifying players' potential and finding the best fit team.
- Identifying “sleepers” in the draft.

# OBJECTIVE FOCUSED ANALYSIS

A brief road map of what we investigated and hoped to achieve from this project.

- Compare **overall top picks** throughout the years.
- Contrast **Second round pick** potential **over First round picks.**
- Increase **in International players** over the years.
- Identify the **biggest draft/trade** mistakes made by NBA franchises.

# UNDERSTANDING OUR DATA

A combination of datasets from the NCAA and NBA were merged for our project.

## 1 NBA Player by State

Used to understand the players backgrounds, containing cumulative statistics throughout their career.

## 2 All Seasons Data, 1963 - 2020

Used to observe what countries maximum international players came from and to create the box plot to compare the variance in age of each year's draft class.

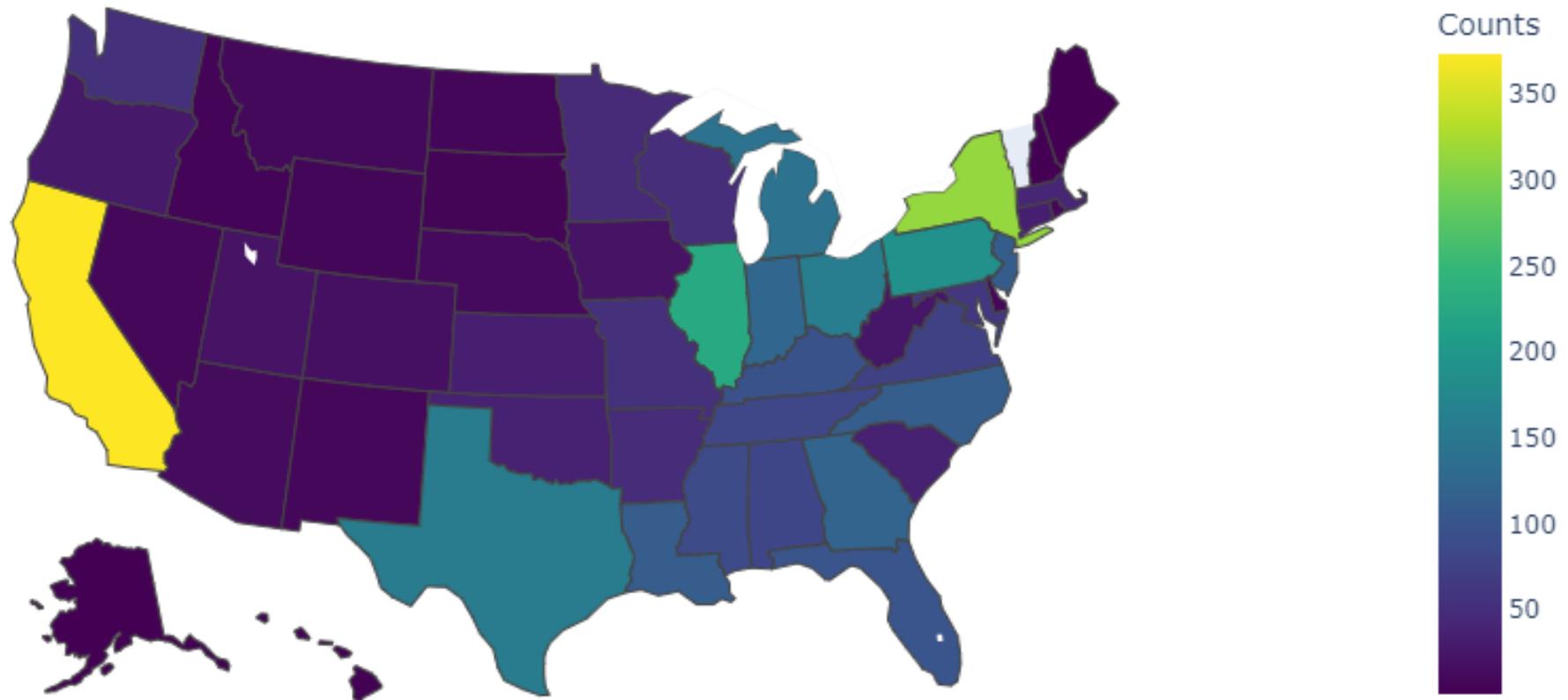
## 3 2019 NBA Draft Class by the Numbers: Collegiate Wings Edition and 2019 NBA Draft

These two datasets were the major datasets used throughout our project to analyze various trends in the transition from NCAA to NBA in terms of a player's performance.

# INVESTIGATIVE ANALYSIS USING VISUALIZATIONS

# NBA PLAYERS DRAFTED BY US STATES

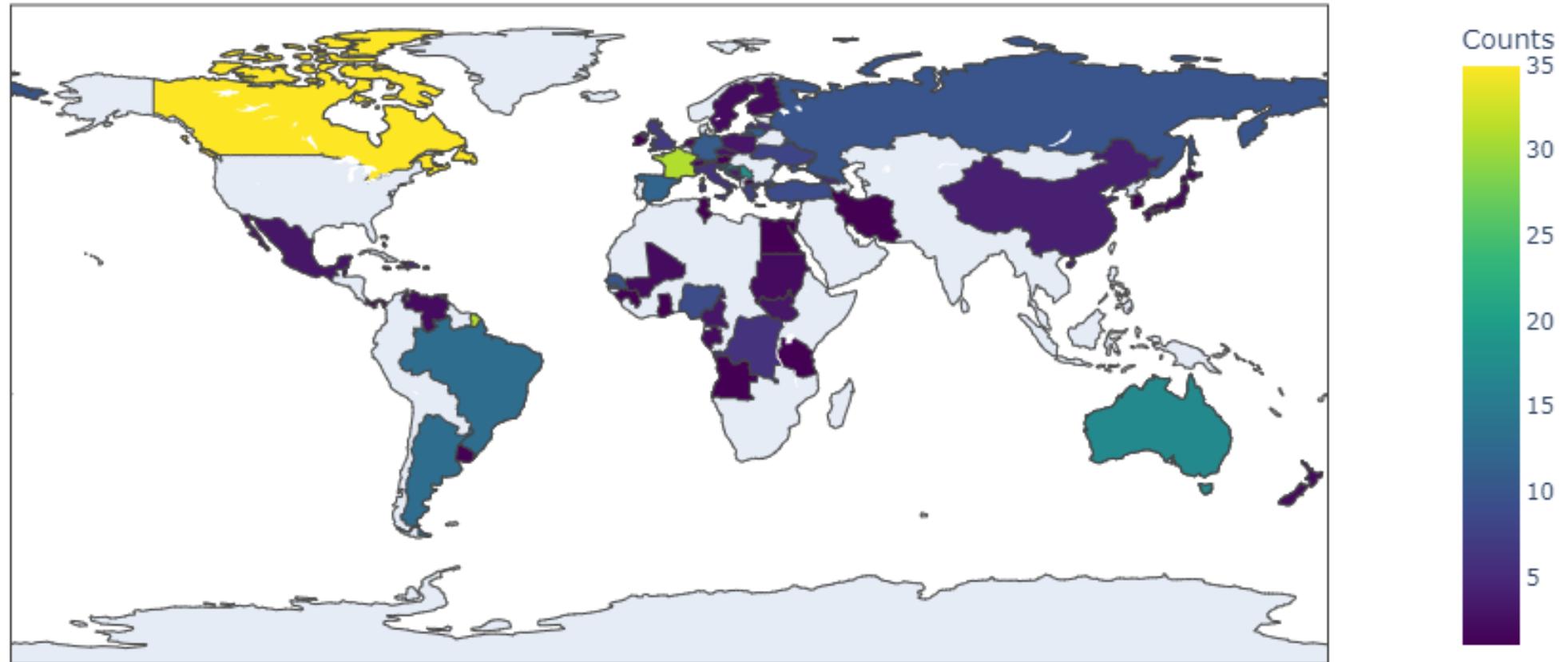
### Number of total players drafted from each US State, All Time



We can clearly observe that the majority of Drafted NBA players were born in the states of California, New York and Illinois.

# NBA PLAYERS DRAFTED INTERNATIONALLY

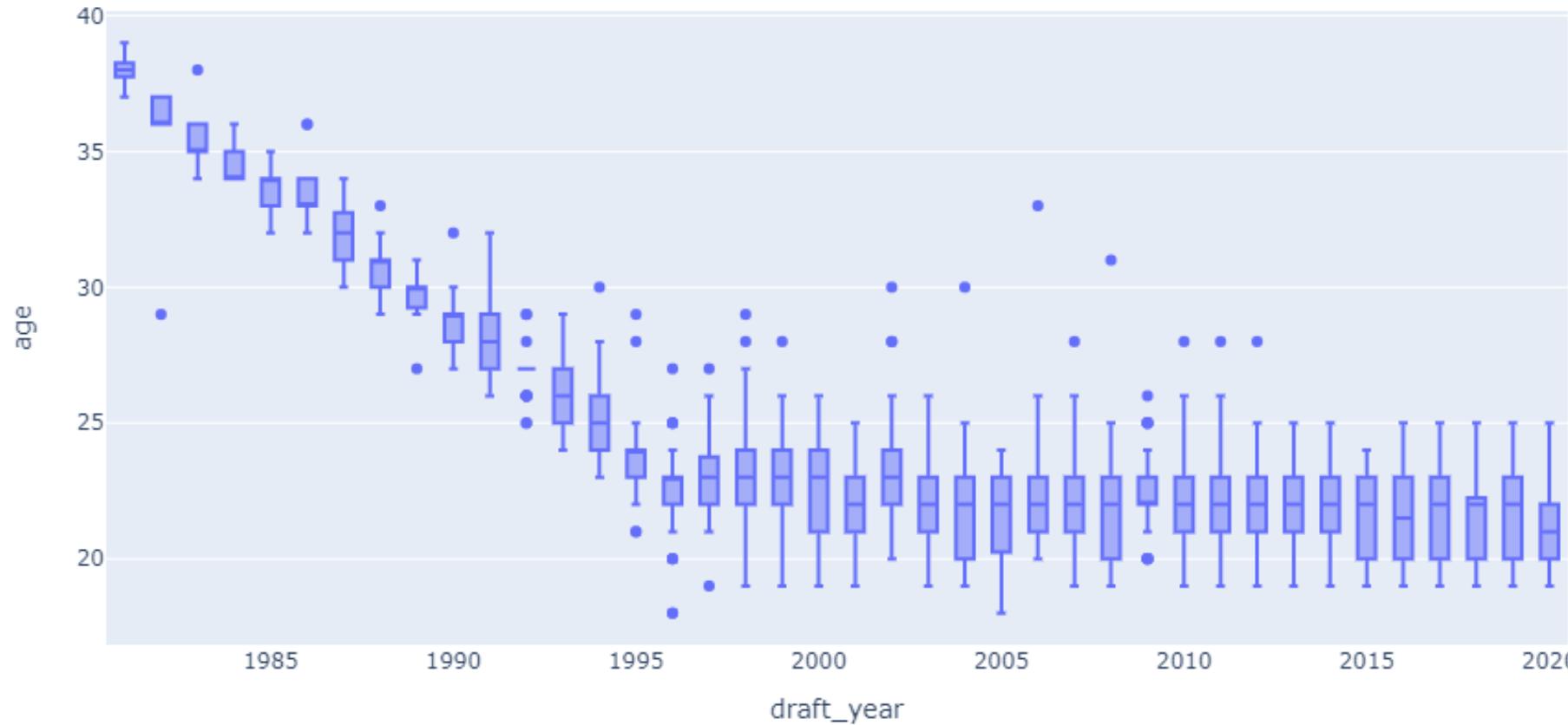
Number of total players drafted from each country excluding the US, 1963 - 2020



We can clearly observe that the majority of Drafted NBA players from International Leagues were selected from countries like Canada, France, Serbia and Australia.

# AGES OF NBA DRAFT PICKS, 1981 - 2020

Ages of NBA Draft Picks, 1981 - 2020



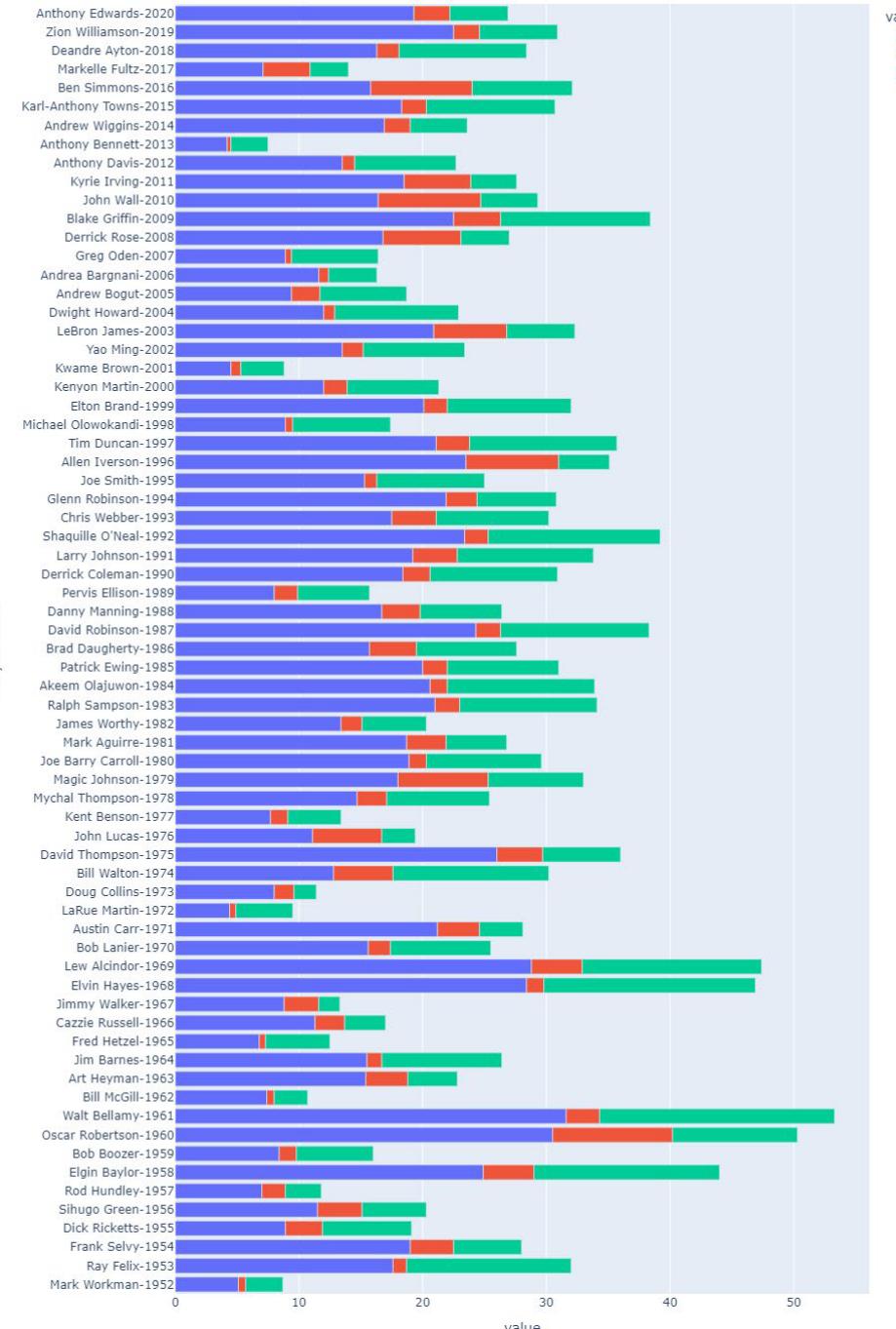
We can observe that there was a drop in average age of drafted players from 38 in 1981 to 21 in 2020. We also observed that the youngest age at which any player was drafted into the NBA was 18 for the year of 1996 and 2005. Further, we observed that from the year of 2010, the minimum age of drafted players for each consecutive year was 19.

# FOCUSED ANALYSIS

# FIRST PICKS SINCE 1952 TO 2020 – COMPARING THEIR PPG, APG AND RPG STATS

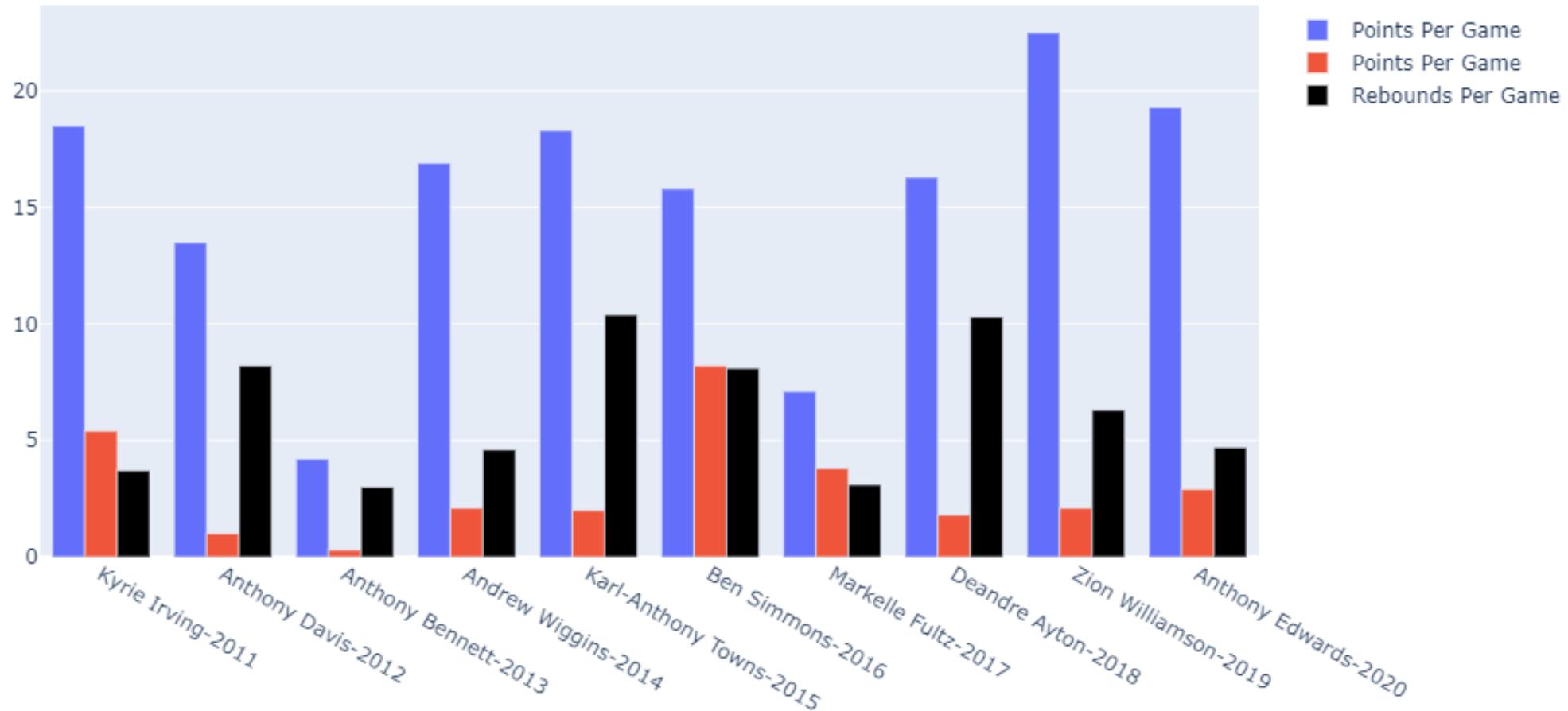
Overall, most of the first picks lived up to their standards averaging about 20 points per game. Though few players perform so poorly, as fans, we tend to doubt the management decisions made by franchises.

First Picks since 1952



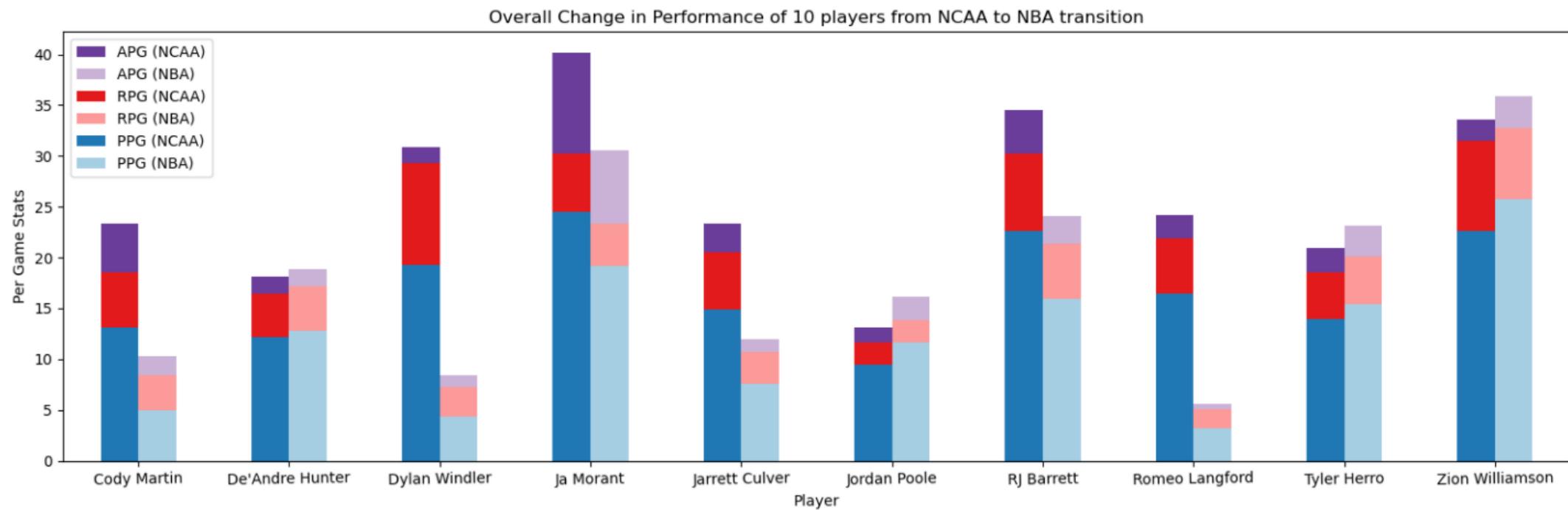
# FIRST PICKS OVER THE LAST 10 YEARS

## First pick over the last 10 years



Clearly, we see a lot of busts and that almost every 4 years we see this trend repeating. How can the player go from **BEST** to **BUST**.

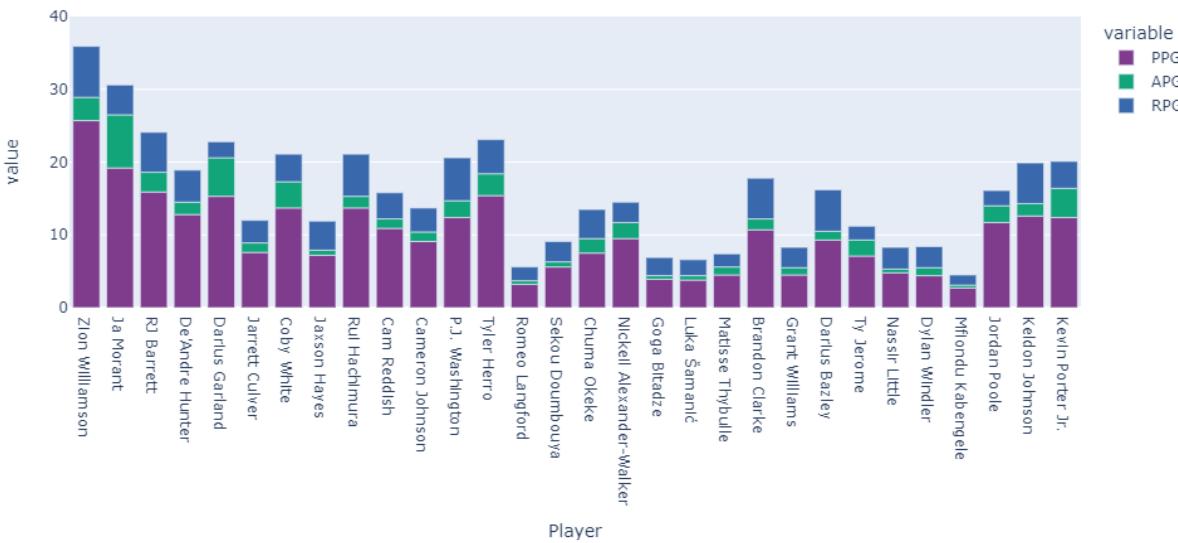
# TRANSITION FROM NCAA TO NBA



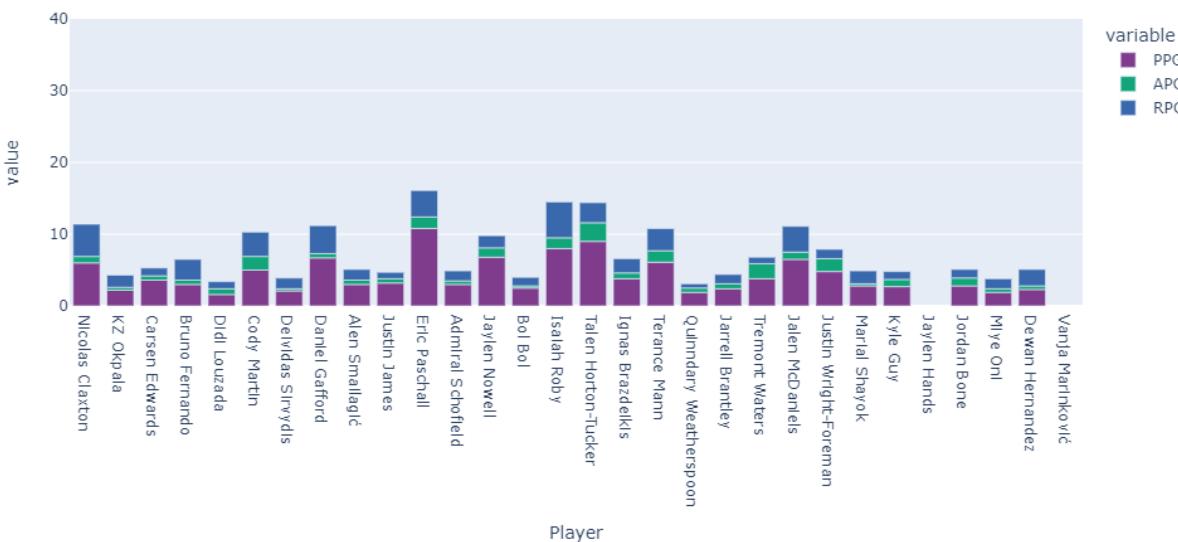
- The performance of Cody Martin, Dylan Windler, Jarrett Culver and Romeo Langford, fell drastically.
  - The performance of De'Andre Hunter remained relatively unaffected.
- Jordan Poole, Tyler Herro and Zion Williamson improved. Zion Williamson was in fact the 1st draft pick in the 2019 season, Tyler Herro was the overall 13th pick, whereas Jordan Poole was the 28th pick, now considered a sleeper pick.

# 2019 DRAFT PICKS- COMPARING 1ST ROUND VS 2ND

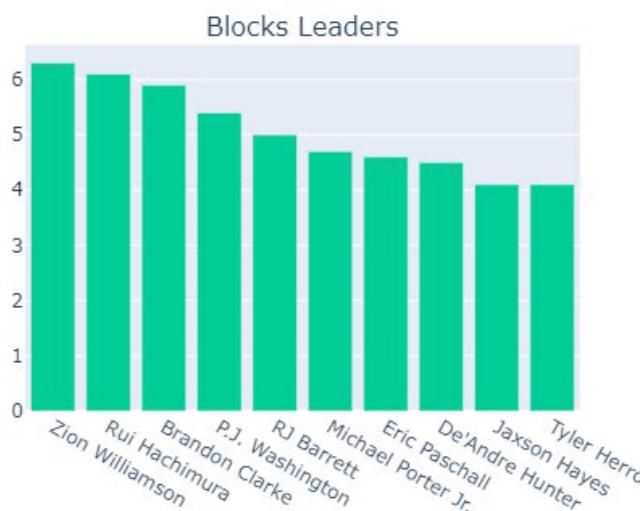
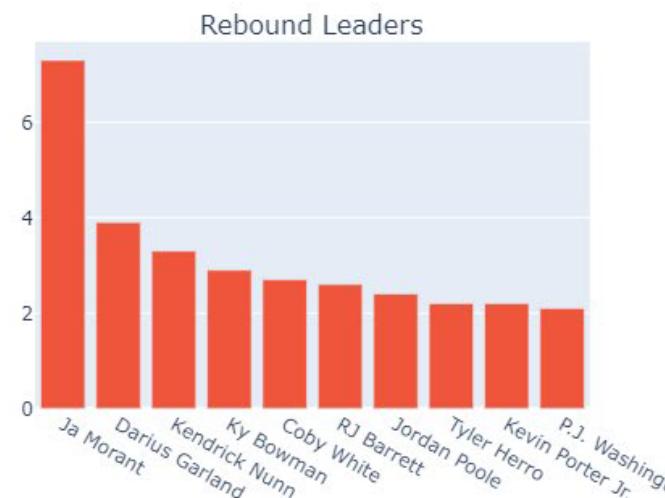
First round picks with PPG,APG,RPG stacked



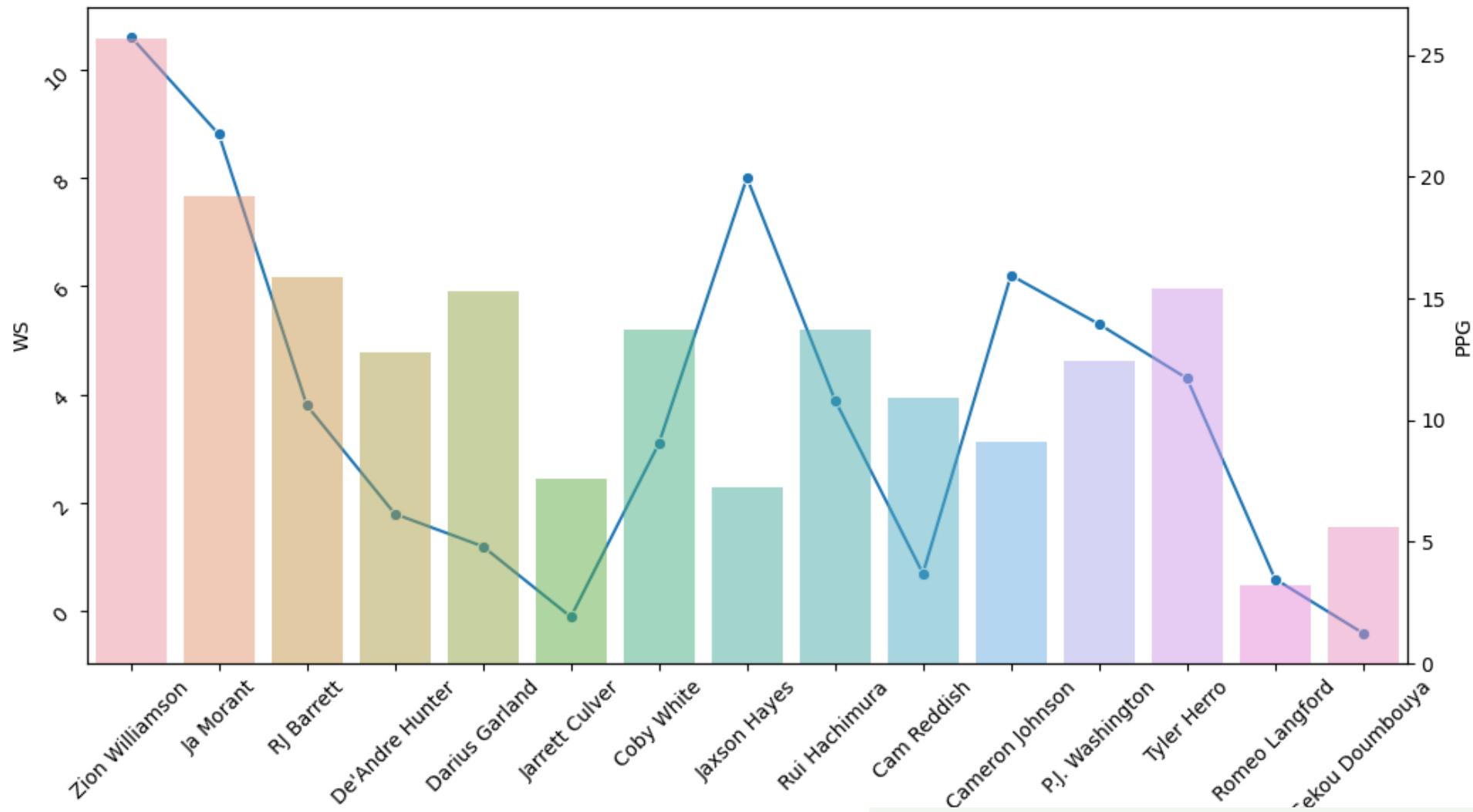
Second round picks with PPG,APG,RPG stacked



# TOP LEADERS IN THEIR FIRST DRAFT SEASON



# COMPARING PLAYER POINTS TO THEIR WIN SHARES

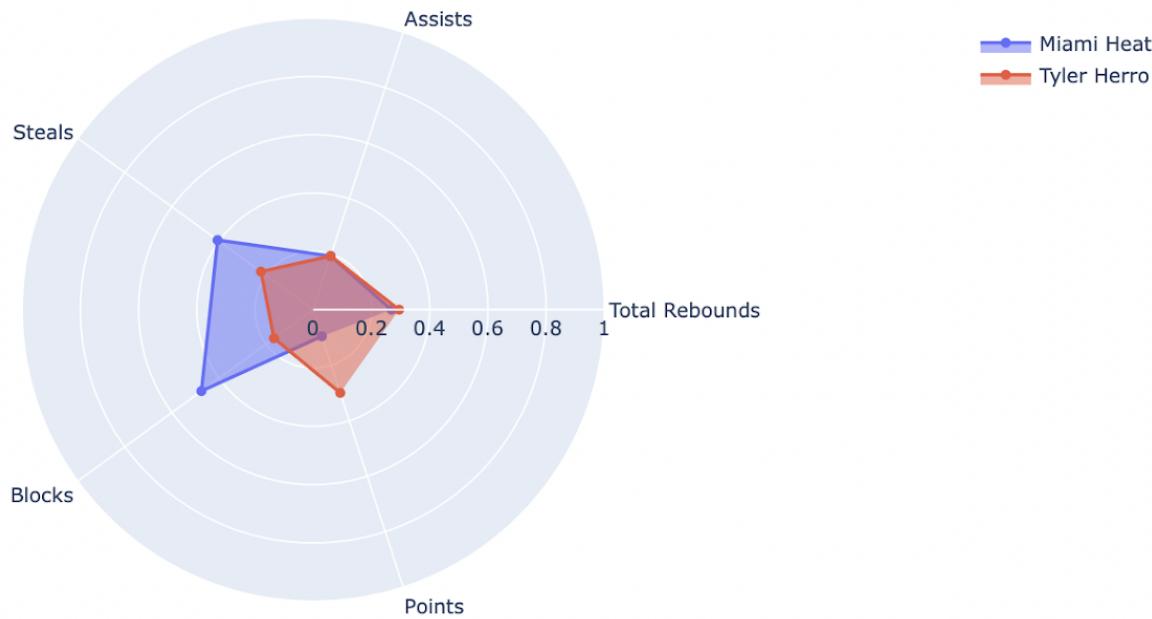


\*Win Shares is a player statistic which attempts to divvy up credit for team success to the individuals on the team.

# SLEEPER ANALYSIS AND BEST FIT ANALYSIS

# SLEEPER ANALYSIS - TYLER HERRO

Best Fit Check: Tyler Herro and Miami Heat

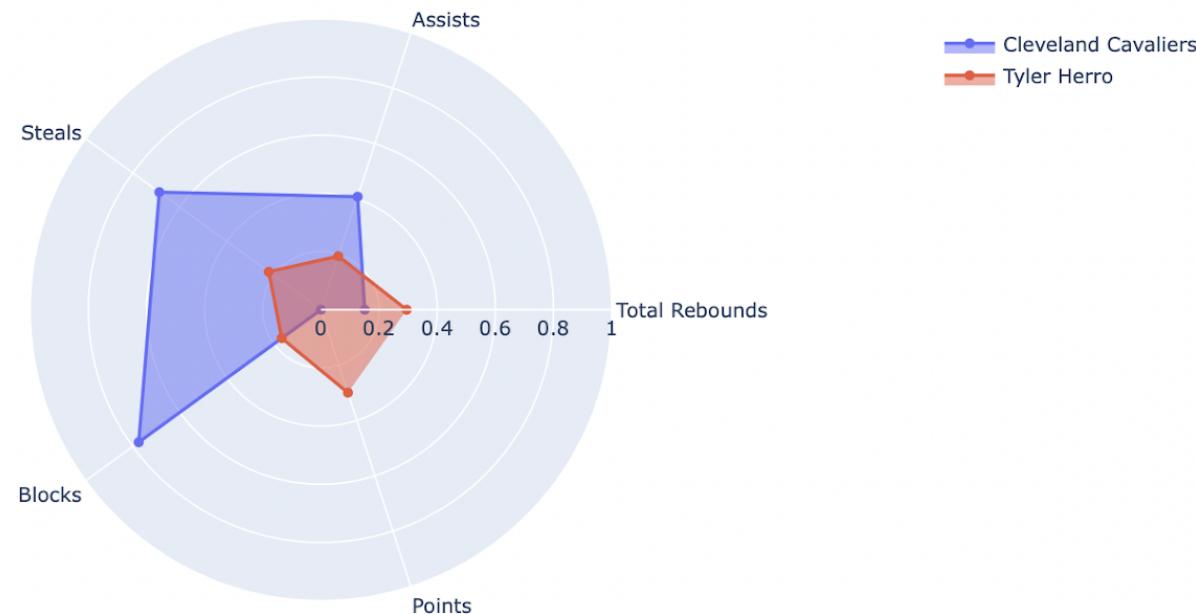


Tyler Herro was drafted by the Miami Heat in the 2019 NBA Draft. They had the 13th pick. Tyler performed very well for the Miami Heat and helped them make the final NBA finals in the 2019/20 season.

# SLEEPER ANALYSIS - TYLER HERRO

We checked Tyler's statistics against the teams that had a pick before the Miami Heat in 2019 player draft and came up with two teams that could have benefitted by picking him:

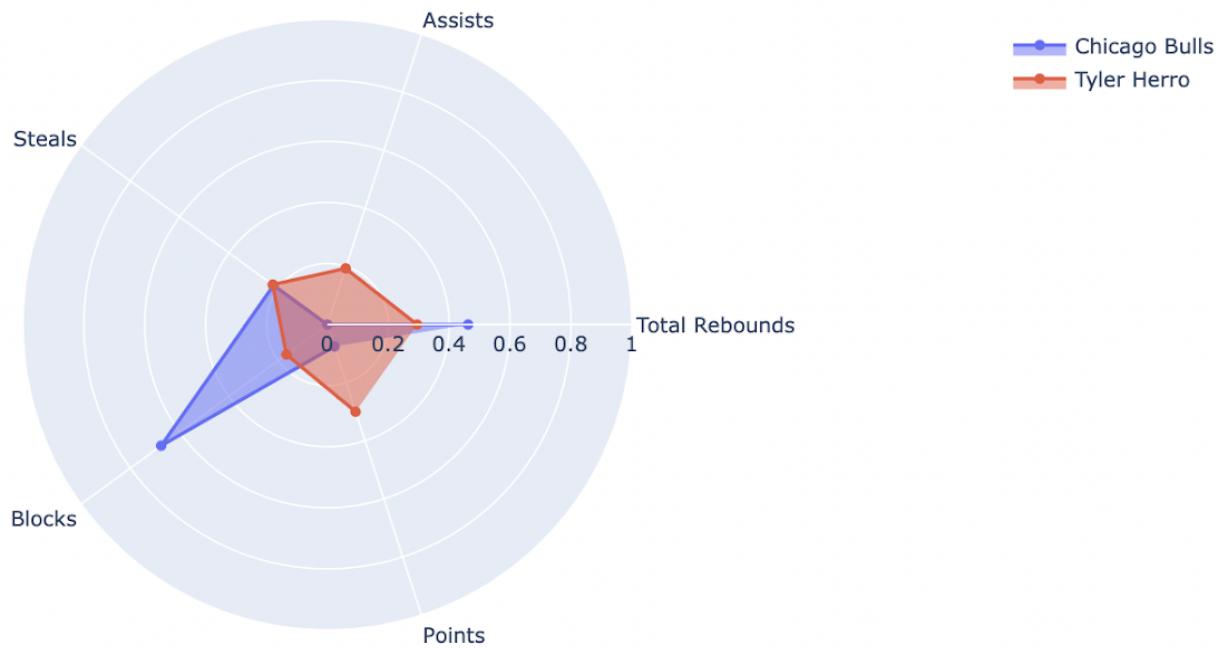
Best Fit Check: Tyler Herro and Cleveland Cavaliers



1. Cleveland Cavaliers (Had the 7th pick) : Tyler could have helped improve Cleveland's Total Rebounds and points per game numbers. He could have given them a better shot at making the 2019/20 playoffs which they did not qualify for.

# SLEEPER ANALYSIS - TYLER HERRO

Best Fit Check: Tyler Herro and Chicago Bulls

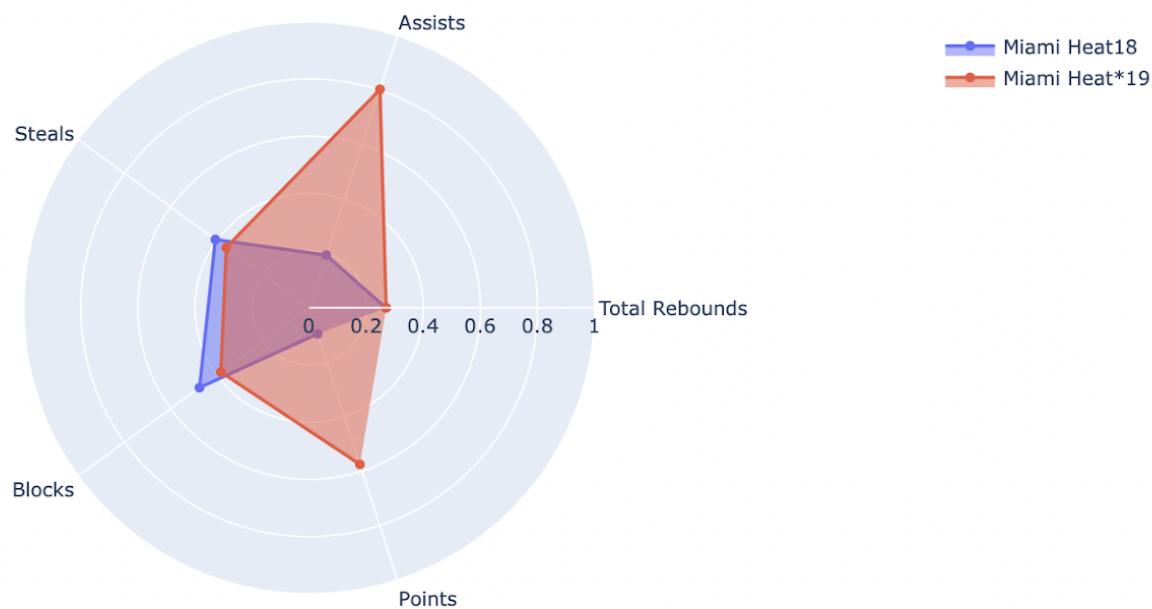


2. Chicago Bulls ( Had the 5th pick) : Tyler could have helped improve the Bulls' assists and points per game numbers. The Bulls also did not qualify for the 2019/20 season playoffs.

# SLEEPER ANALYSIS - TYLER HERRO

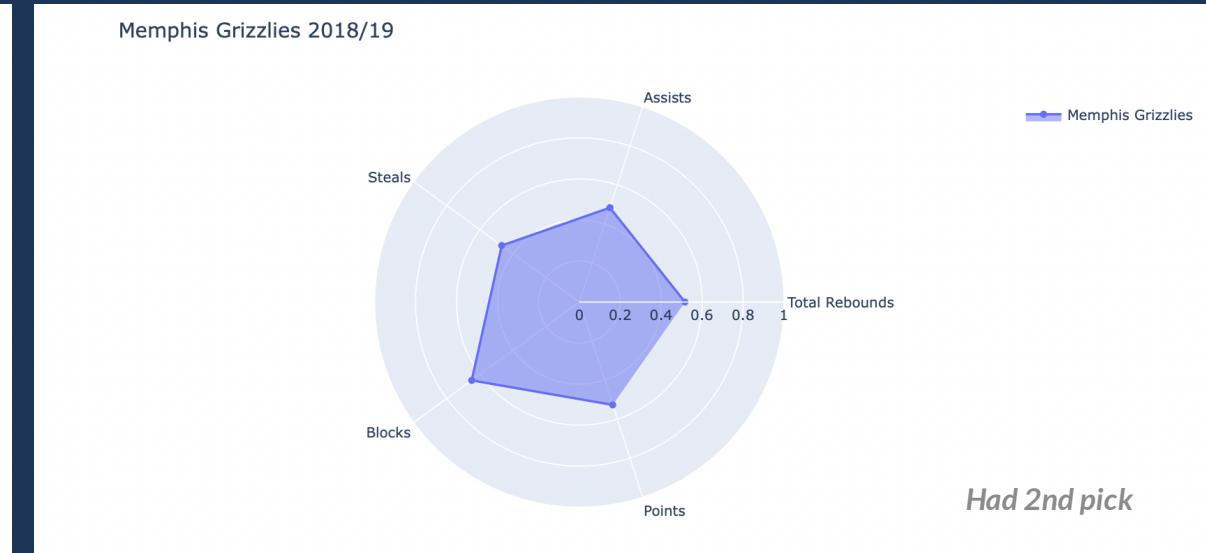
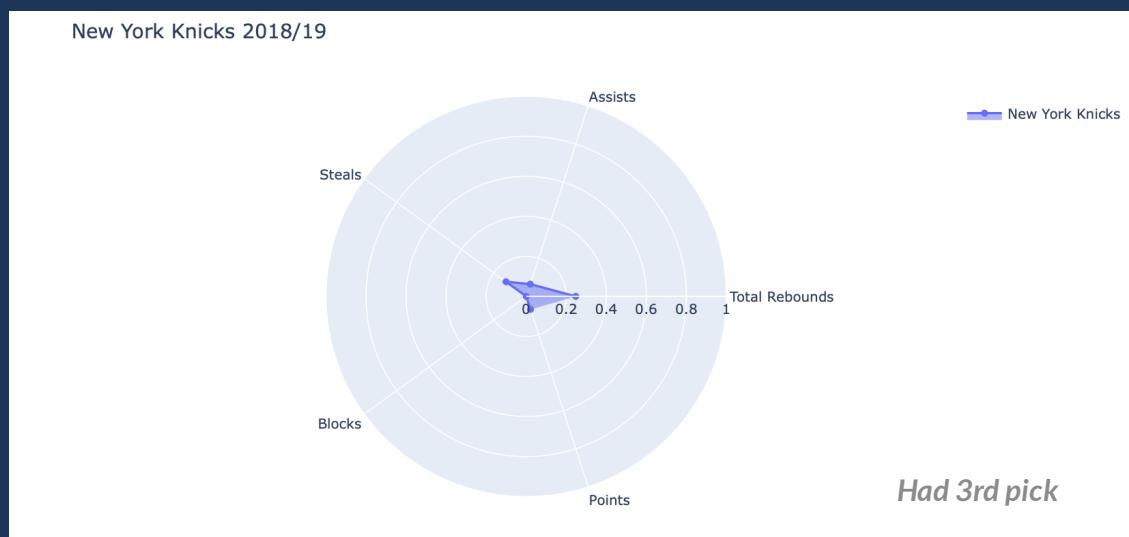
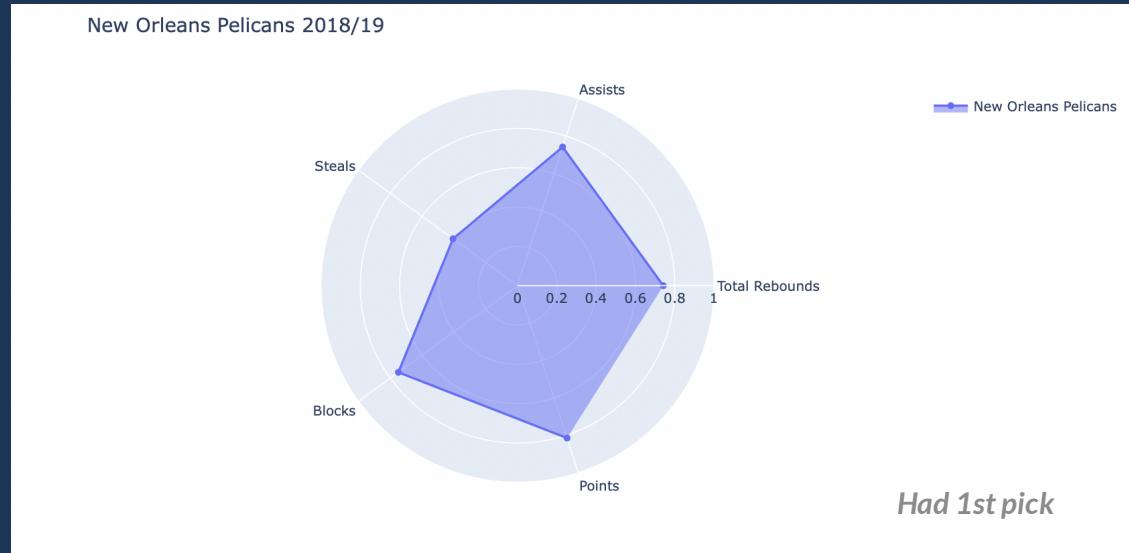
We did a comparison of Miami Heat's 2018/19 season's stats to their 2019/20 season's stats. We can see that their stats show considerable improvement in the department of assists and points per game, both attributes that Tyler Herro did well at.

Heat18 vs Heat19

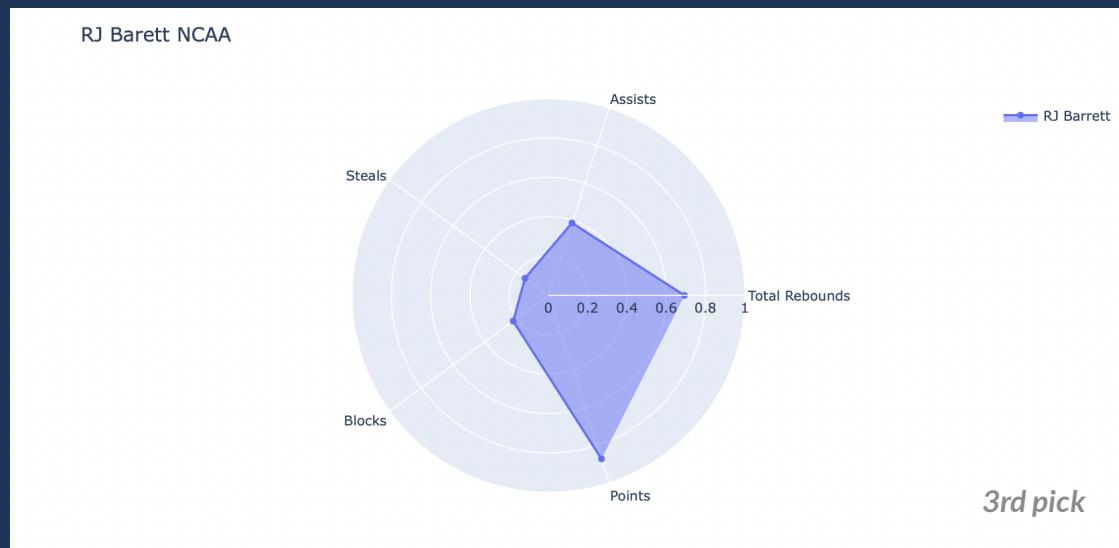
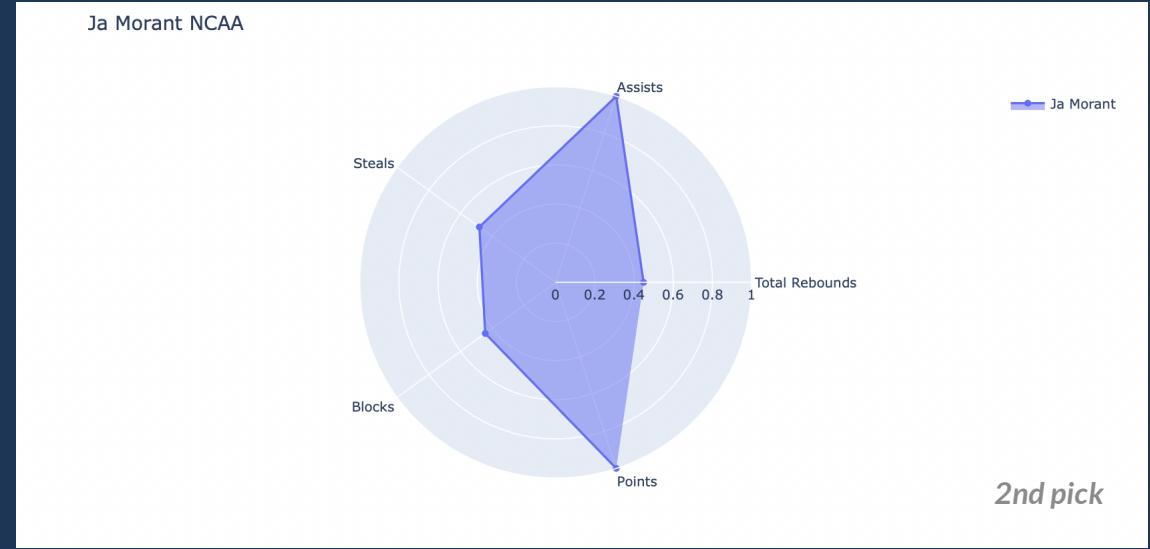


We can therefore conclude that Tyler Herro was a sleeper in the NBA 2019 draft and turned out to be a steal pick for the Miami Heat.

# BEST FIT ANALYSIS - TEAMS

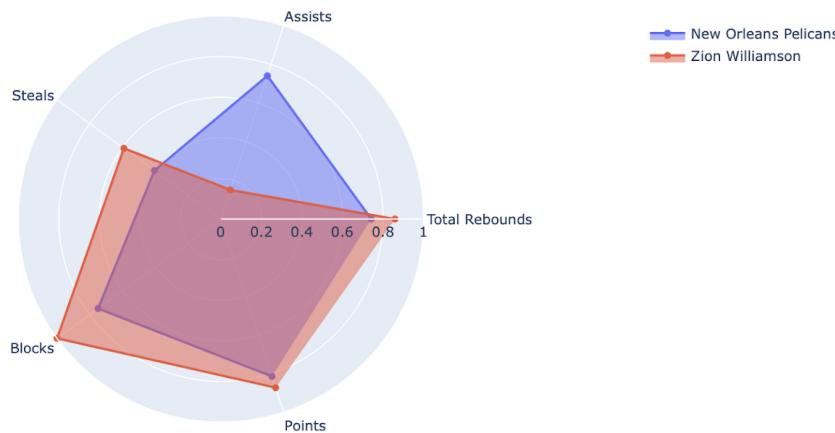


# BEST FIT ANALYSIS - PLAYERS

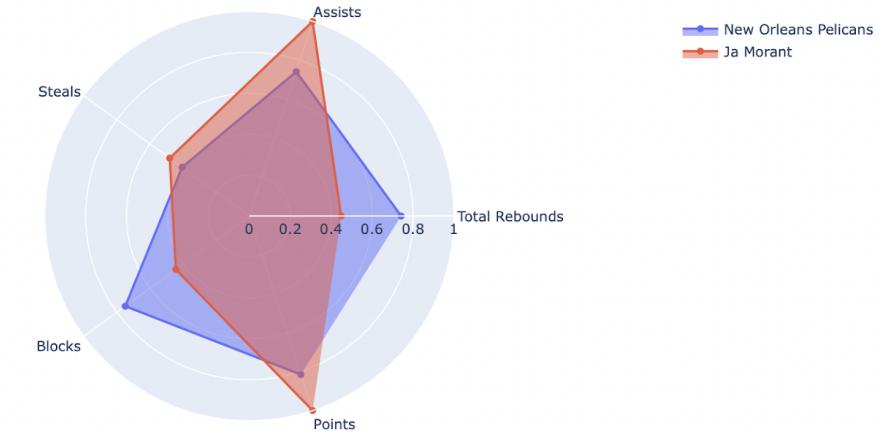


# BEST FIT ANALYSIS - NEW ORLEANS PELICANS

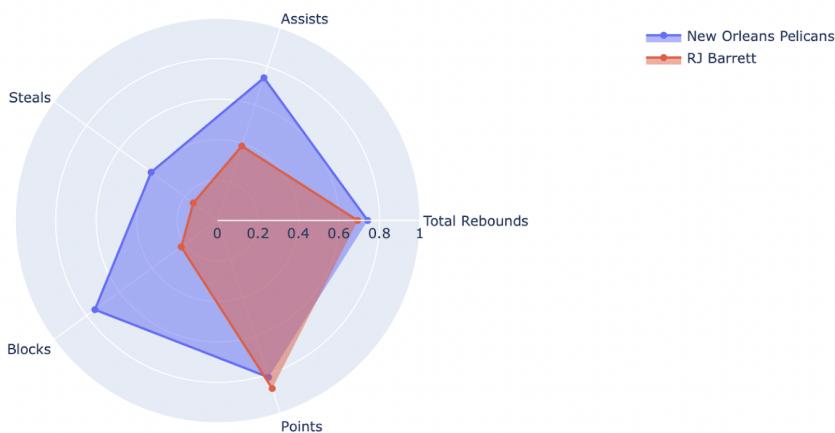
Best Fit Check: Zion Williamson and New Orleans Pelican



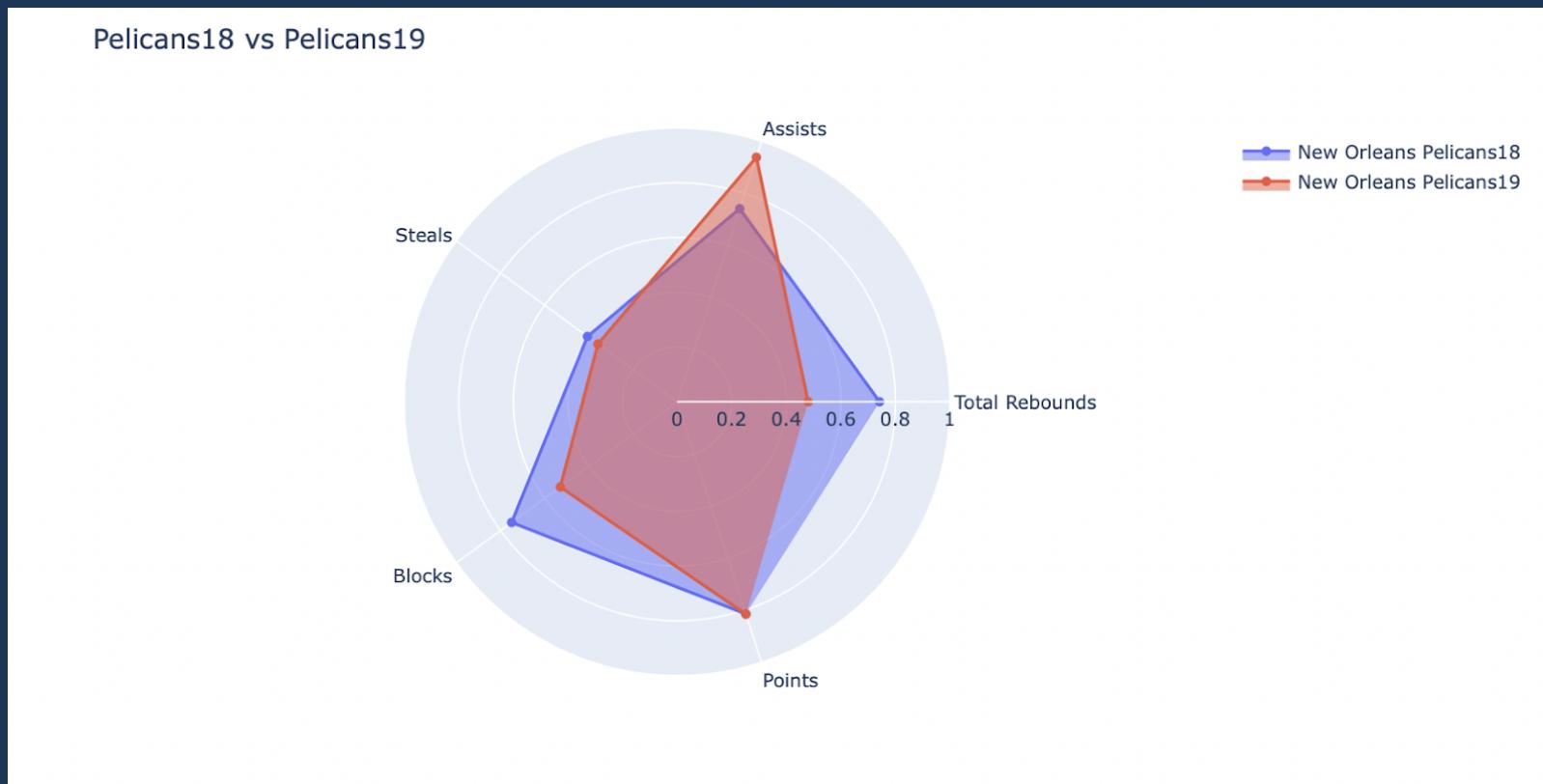
Best Fit Check: Ja Morant and New Orleans Pelican



Best Fit Check: RJ Barrett and New Orleans Pelican

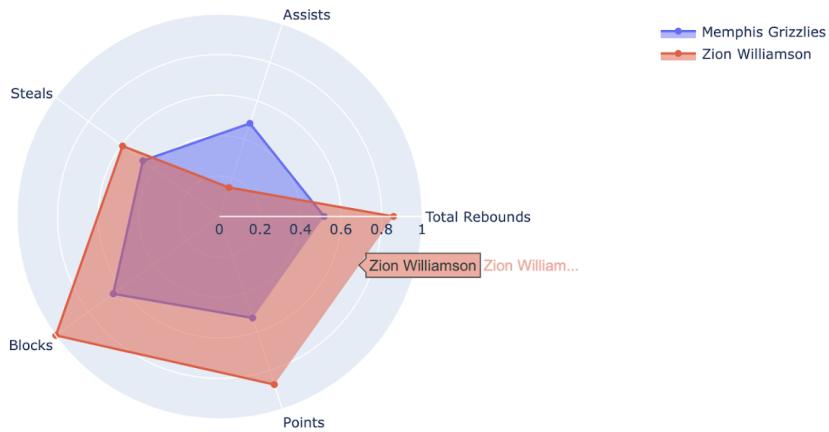


# BEST FIT ANALYSIS - NEW ORLEANS PELICANS

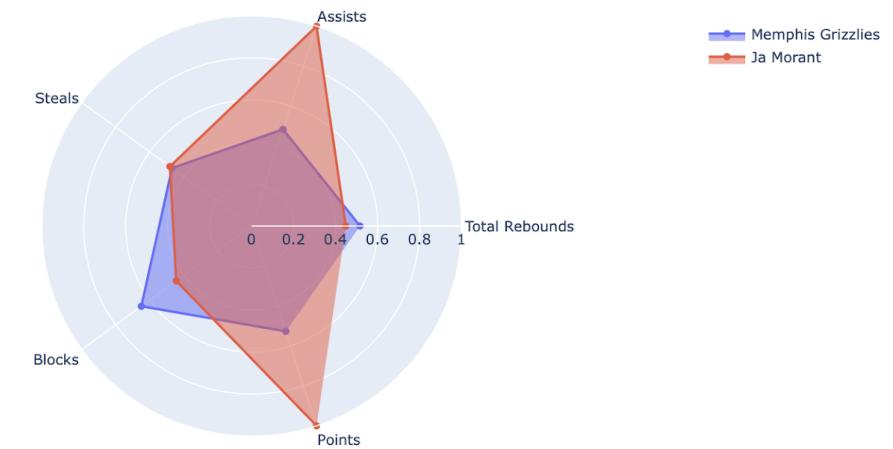


# BEST FIT ANALYSIS - MEMPHIS GRIZZLIES

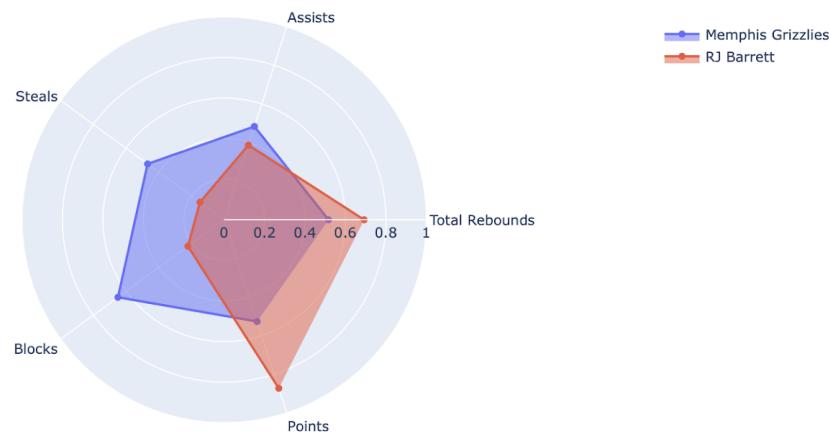
Best Fit Check: Zion Williamson and Memphis Grizzlies



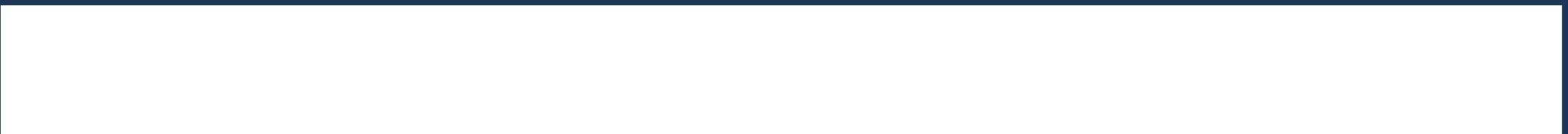
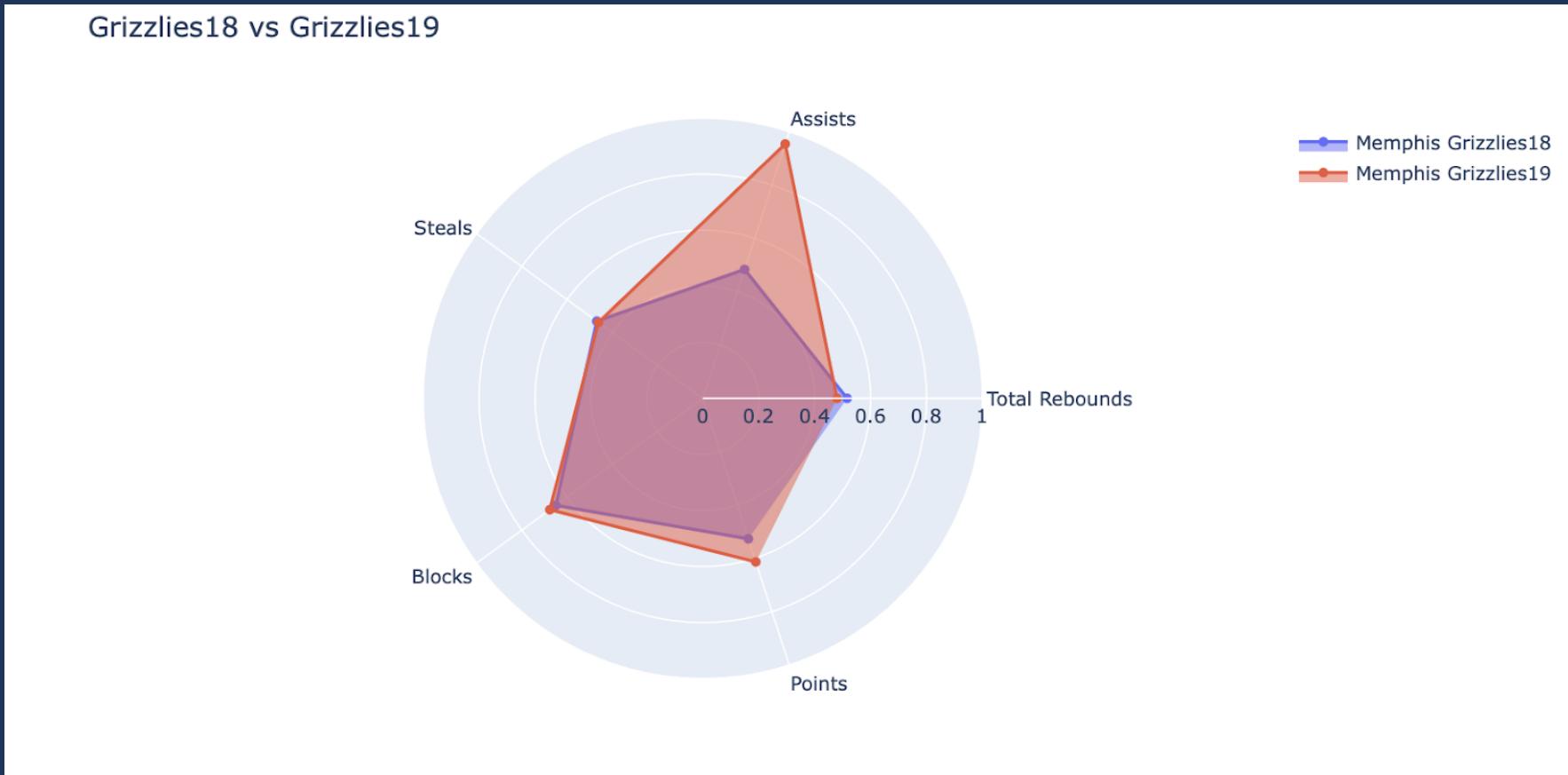
Best Fit Check: Ja Morant and Memphis Grizzlies



Best Fit Check: RJ Barrett and Memphis Grizzlies

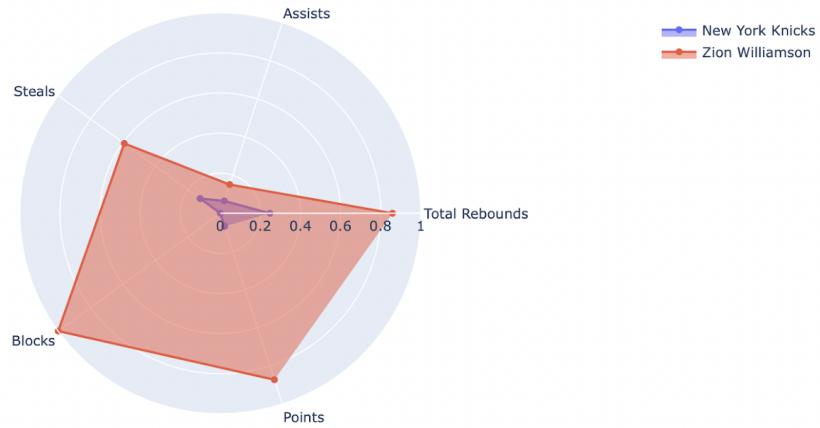


# BEST FIT ANALYSIS - MEMPHIS GRIZZLIES

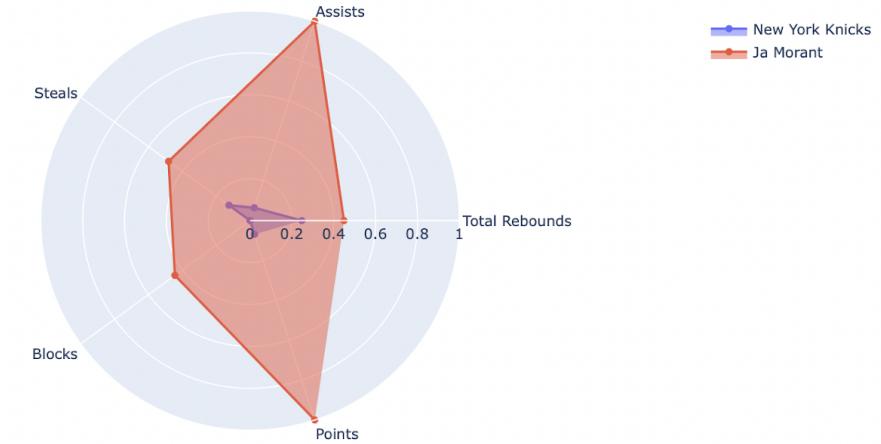


# BEST FIT ANALYSIS - NEW YORK KNICKS

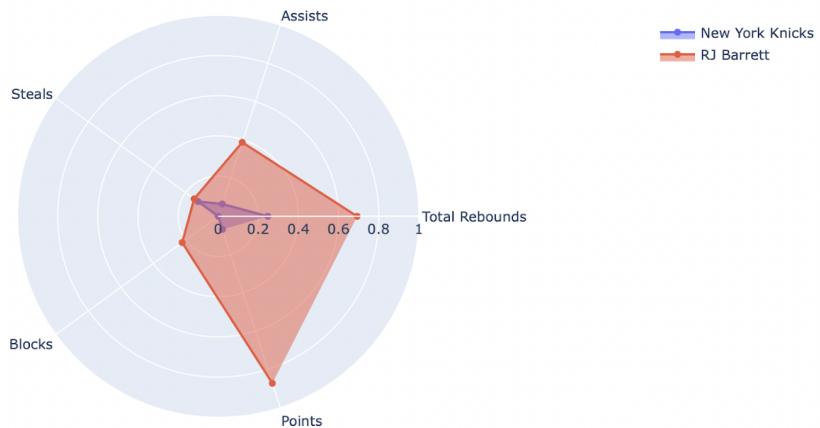
Best Fit Check: Zion Williamson and New York Knicks



Best Fit Check: Ja Morant and New York Knicks



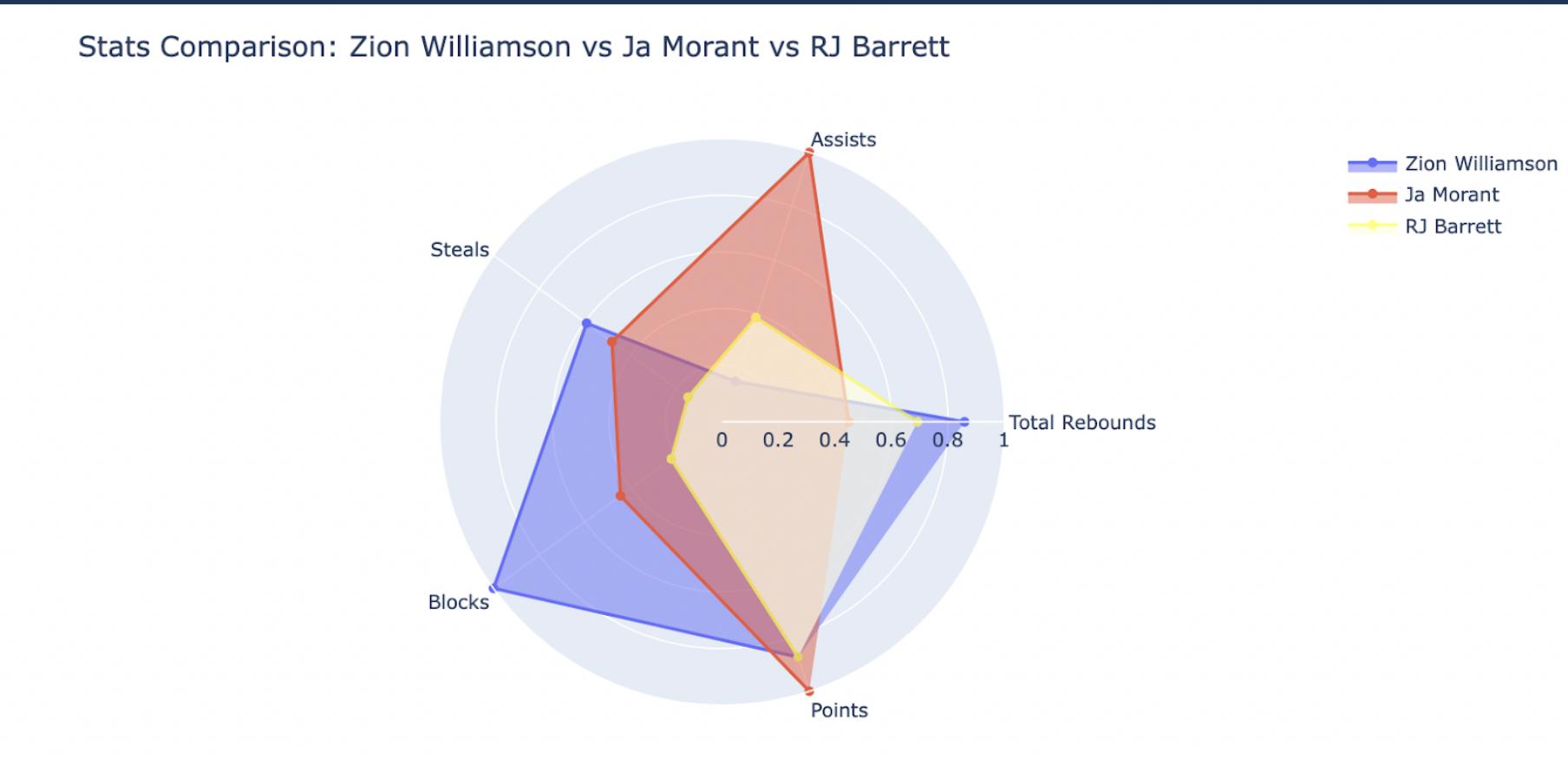
Best Fit Check: RJ Barrett and New York Knicks



# BEST FIT ANALYSIS - NEW YORK KNICKS



# BEST FIT ANALYSIS - TOP 3 PICKS COMPARISON



# RESULTS AND INSIGHTS

- 1 NBA now recruits much younger talent.
- 2 ~ 20% of the 1st picks performed poorly in the NBA.
- 3 Middle picks perform consistently better because of a stable team.
- 4 Drafting a player that fits well into a team is more important than drafting a good player.

# NEXT STEPS

- 1 Use these visualization techniques for future NBA Draft to find Best Fit .
- 2 Improving the visualizations by gathering more data and develop a Machine Learning model to calculate the success rates.
- 3 A tool that can use the difference of area in the radar charts to evaluate performance.

# Questions?