

Part 1: Data Comprehension

Question 1: Which NBA team(s) has drafted the most players who went to Duke and were drafted in or before the 2000 draft?

Dallas, Minnesota, and Phoenix each drafted two players from Duke in or before 2000.

Question 2: Which NBA team(s) has drafted the most players who have a first name that begins with D and were drafted in an even year draft (1990, 1992, 1994, ...)?

Milwaukee, Boston, and Seattle all drafted 7 players whose name starts with a letter D in an even year. If you want to count franchises who meet the above criteria, Seattle/OKC drafted 8 players whose name starts with D in an even year.

Question 3: Describe the relationship between a team's first round pick slot in one year with their first-round pick slot in the subsequent year.

On average, a team will draft ~13 draft slots lower in the first round of the subsequent year. In the attached Jupyter Notebook I calculate the average relationship for each team as well.

Part 2: Analytical Acumen

Overarching prompt: Analyze draft position value and team success/deficiencies compared to expectation.

Part 1: Create a method for valuing each draft slot in the NBA Draft.

The goal here is to create a holistic evaluation of each player and determine their overall contribution in the league. I therefore chose the following metrics to evaluating the value of a player's contribution to the league:

- Points
- Total rebounds
- Assists
- Win shares
- Box plus minus
- Value over replacement

To ensure one metric's arbitrarily high value (such as points) doesn't overtake the evaluation metric, I chose to use a standard scaler and apply it to all metrics. This will allow us to look at players who are outliers in both positive and negative directions. After standardizing the input, I calculated the expected value of each pick by taking the mean across each evaluation metric. Future analysis would likely use weights to more heavily favor certain metrics (such as VORP). Interestingly enough, the order of value of each pick is not strictly descending which in the

context of this analysis I am deeming fine. There is a lot of variance in NBA performance based on draft slot so I think capturing that variance by not having a strictly descending value of picks is actually good. The following table contains a subset of each pick's value based on my calculations:

Pick	1	2	3	4	5	...	56	57	58	59	60
Value	1.41	0.92	1.17	0.97	0.92	...	-0.33	-0.19	-0.52	-0.72	-0.45

Part 2: Conditional on the expected value of the draft positions, which NBA teams have over or underperformed the most when drafting during this time span. Which College Teams have had the players outperform expectations the most after entering the NBA?

In order to calculate how both NBA and College teams have performed in the draft, I first calculated the standardized value of each individual pick and then subtracted the expected value of each pick calculated above given the pick slot. In other words, all of the first overall pick values had 1.41 subtracted from them to determine how well the pick performed compared to average value of the pick. Given my evaluation criteria, here are the NBA teams who performed the best/worst:

Team	NOH	SEA	SAS	CHH	...	WAS	CHO	NOP	NOK
Value	0.62	0.38	0.29	0.11	...	-0.16	-0.31	-0.39	-0.51

An interesting finding is the short-lived franchises such as the New Orleans Hornets (both NOH and NOK) were outliers positively and negatively. This makes sense given the variance in the draft. The best performing, still existing franchise was, perhaps unsurprisingly, the Spurs.

Next we will cover the college teams who have outperformed expectations the most.

College	Santa Clara	Davidson	Trinity Valley	Rhode Island	IUPUI
Value	3.36	2.60	1.69	1.55	1.24

It seems as if small sample sizes rule with Steve Nash being a massive outlier for Santa Clara and Steph Curry being an outlier for Davidson. The following boxplots show the distributions of the data in both cases:

