

Project Proposal
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NBA Top Draft Class Rankings

1. Introduction

It is a common debate for NBA fans and analysts to debate which draft class produced the best players throughout the 76-year history of the league. According to top analysts, the discussion usually boils down to the draft classes of 1984, 1985, 1987, 1996, and 2003 (bleacherreport.com and basketball-reference.com). Therefore, our analysis will take a look at all the players drafted in these 5 years, and how their careers went, to see which of these draft classes leads in specific categories and uncover if there truly is one greatest draft class of all time.

2. Data

The first dataset we will use in this project is a combined data set from <https://www.basketball-reference.com/> that gives us career statistics for the drafted NBA players. From the five drafts that we choose, there are 257 entries in the dataset that we will use to analyze the purpose of answering our questions. We can use the career statistic against each other to find out what the best draft class ever in the NBA has been.

The basketball reference dataset is given to us as a CSV file, so we will not need to do anything special to read it. We deleted the irrelevant fields in the data set because we were not going to use them. The columns removed were the win shares per 48 minutes, the win shares, and the box plus/minus. The table below has the columns that we plan to analyze.

Column	Type	Description
Year	numeric	Year player was drafted
Pick	numeric	Overall pick player was taken at
Team	text	Team that the player was drafted to
Player	text	Name of the player drafted
Yrs	numeric	Seasons that the player has appeared in the NBA
Total_G	numeric	Total games played by player in career
Total_MP	numeric	Total minutes played by player in career
Total_PTS	numeric	Total points player scored by player in career
Total_TRB	numeric	Total rebounds grabbed by player in career
Total_AST	numeric	Total assists by player in career
FG.	numeric	Percentage of field goals made by player in career
3P.	numeric	Percentage of 3-point field goals made by player in career
FT.	numeric	Percentage of free throws made by player in career
PG_MP	numeric	Minutes player played per game
PG_PTS	numeric	Points player scored per game
PG_TRB	numeric	Rebounds player grabbed per game

PG_AST	numeric	Assists player had per game
VORP	Numeric	Estimate of the points per 100 TEAM possessions that a player contributed above a replacement-level
Position	text	Position that the player got drafted at
Nationality	text	Nationality of the player drafted
School.Club	text	The college or international team player played at before they were drafted.

For the second dataset, we plan to scrape Wikipedia Data on the Positions of the players, their nationality, their college school/ club team that they previously played on and the grade of the player when they were drafted. We will then be able to review the data and analyze things like the best colleges for drafted players, best position drafted and more.

3. Analysis

The goal of our project is to discover if one of these draft classes produced more success in the NBA than the others. This success can be interpreted in several different ways, so our research questions will attempt to compare a variety of statistics to see if there is one common best draft class across them all.

3.1 Players Without NBA Experience

In all the NBA draft classes that we examined there were players who never made it to the NBA. We wanted to create a fair evaluation of those players that did play, so we decided to remove them from the dataset.

Year	Players Without NBA Experience
1984	7
1985	4
1987	7
1996	11 (9)
2003	11 (7)

Table 1

The table above indicates how many we had to remove from each draft class when we evaluated them. The last two classes (1996 and 2003) have 6 more picks than the other drafts. When we looked deeper into 1996 after the 52nd pick, which was the last pick in the other 3 drafts, there were only 2 who did not play in 1996 and 4 from 2003. We decided to subset the players that did not play out of the dataset because they have no real influence on the numbers that we are trying to compare.

3.2 Draft Class vs Time

We created three separate box-plots to analyze how each draft class stacked up against each other when looking at how much time they spent in the NBA as a whole. The first plot (Figure 1) uses the variable Years Played (Yrs) to quantify the longevity of the players in each draft class

while Figure 2 uses Games Played (Total_GP) and the Figure 3 uses Minutes Played (Total_MP).

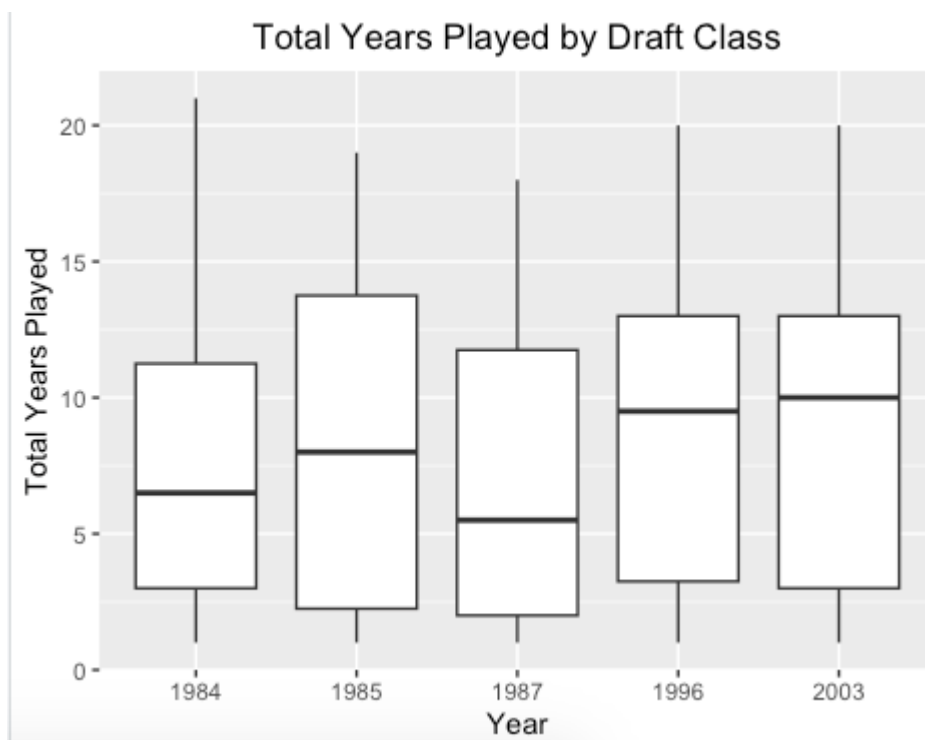


Figure 1

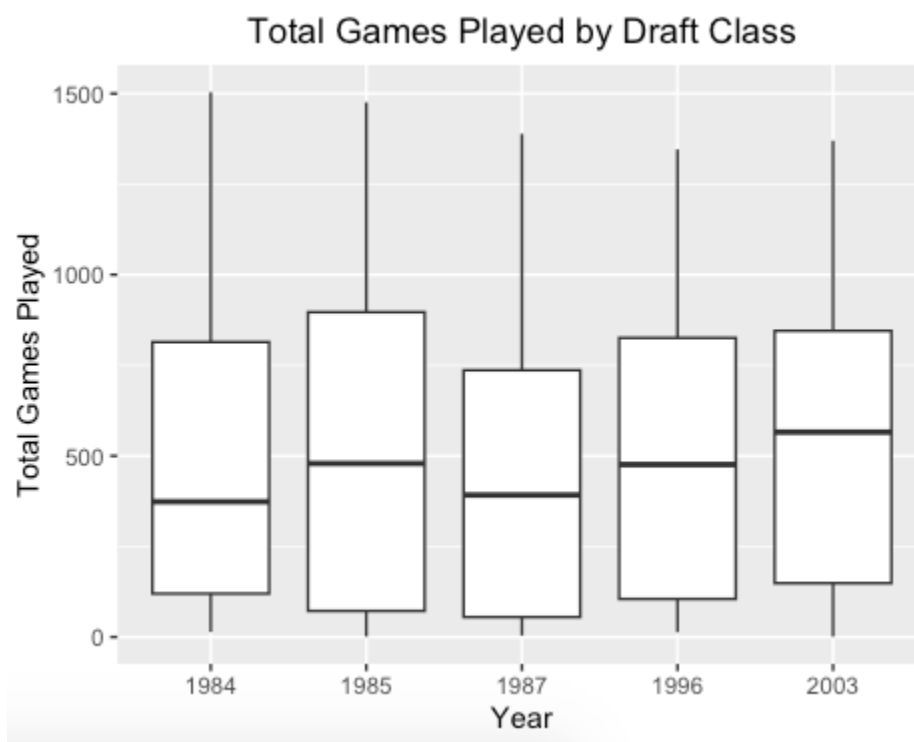


Figure 2

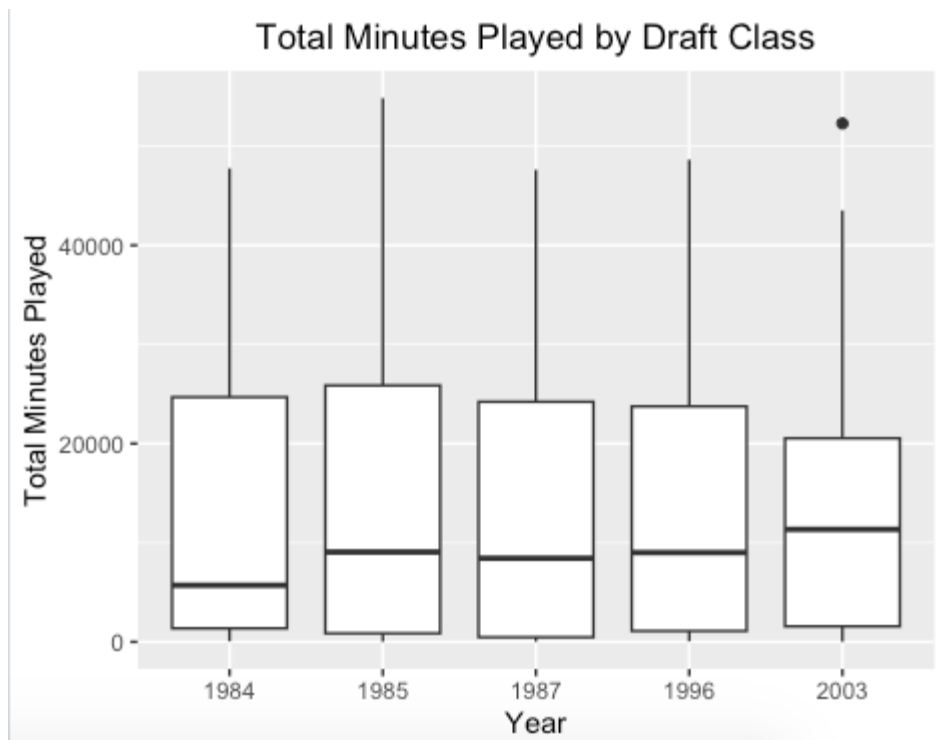


Figure 3

As seen in the three figures above, each of these three statistics (Minutes Played, Games Played, Years Played) are very similar when it comes to comparing the draft classes. The biggest difference would be that the range of Years Played is larger, which is because there are some players in each draft class that played for close to 20 years which forces the upper limit higher and the box relatively lower than the other two plots.

What we can learn from Figures 1-3 is that the 2003 class is clearly the best when it comes to longevity as they have the highest median in all 3 graphs. The second best was 1996 followed by 1985. The trend across these plots seems to be that as time goes on, the draft classes seem to have better longevity, other than 1987. That trend makes complete sense because as the league progressed so has sports medicine which undoubtedly has aided players in recovering from injuries and having longer careers.

3.3 Draft Class vs Career Totals

How do the different draft classes compare in total points, rebounds, and assists? To answer this question, we created a bar graph where you can compare the numbers points (Total_PTS), rebounds (Total_TRB), and assists (Total_AST). The bar graph below (Figure 4) indicates that a few classes can be considered the top, but one class that can be taken out of consideration is 1987.

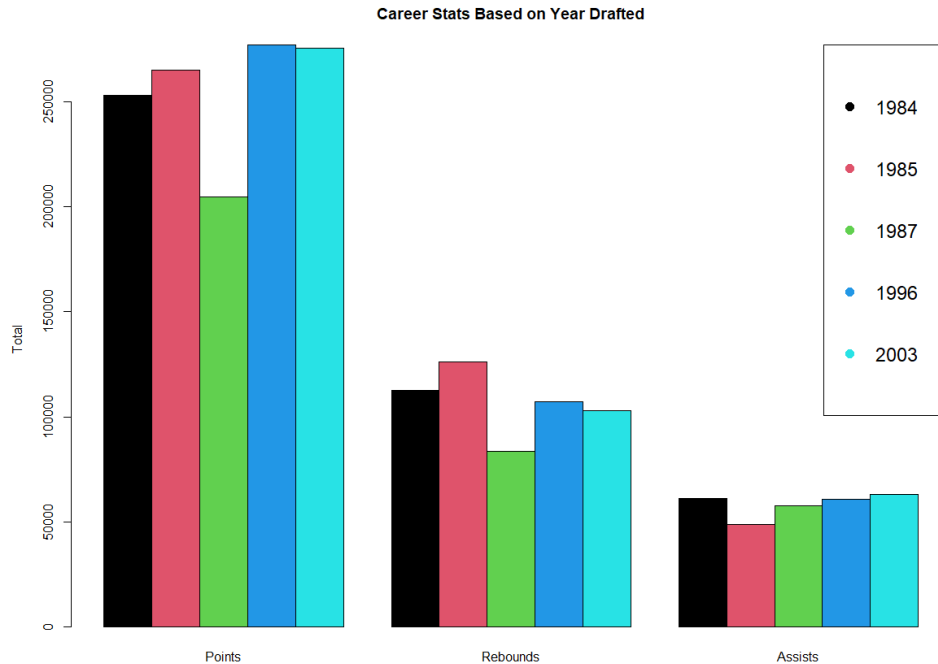


Figure 4

First, looking at points, the top class is 1996 (276,813). It barely has the edge over the 2003 (275,446) class in terms of points. However, those two are in a class of their own with 10,000 more points than the rest of the classes. When looking at the total rebounds, we can see that 1985 (126,003) has rebounded significantly more balls than the other classes. This could tell that in the draft, more positions were drafted that were taller. Lastly, looking at the assist totals, they were all relatively the same besides the low number of assists from the 1985 class (48,705) that excelled so much at the rebounds. 1985 draft class had nearly 9,000 fewer assists than the next class and was over 10,000 rebounds below the average class.

Overall, when looking at career totals, many things can be considered as to what makes a great player, whether that be points, rebounds, or assists.; therefore, we will look at the total of all points, rebounds, and assists. The class of 1996 has the edge over the class of 2003. The class of 1996 put up 445,077 combined points, rebounds, and assists. While 2003 put up 441,560 combined points, rebounds, and assists. The class of 1996 has 3,517 more points, rebounds, and assists than the second-best class (2003). Based off career totals 1996 takes the lead as the best class.

3.4 Comparing per game averages among classes

How do the per-game statistics differ among the draft classes? We again decided to create a group bar chart to answer this question. First, we had it grouped by year and then evaluated the number of minutes per game (PG_MP), the number of points per game (PG_PTS), the number of rebounds per game (PG_TRB), and the number of assists per game (PG_AST). We decided to look at the per game stats because there could have been better players that did not play as long as others. Figure 5 represents our data in the per-game stats that we have.

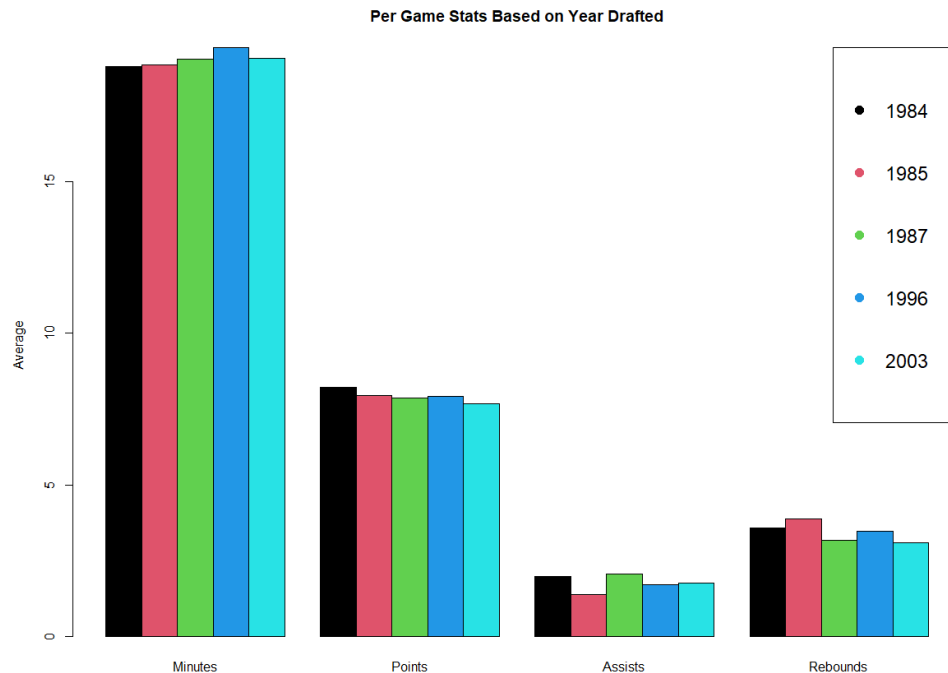


Figure 5

The first per-game stat that will be looked at is minutes per game. This is important when analyzing because this is a tale of whether the drafted players played a lot. To no surprise, the 1996 draft class has the most significant number of minutes per game (19.4) than the rest of the classes. This means they were on the court more than the other draft classes per game. Considering the points per game, it is a surprise that 1984 is number one. Considering that 1984 had the least number of minutes per game (18.8) and the most points (8.23), they were very productive with their time on the court. Moving on to assists, the two classes that stand out are 1987 (2.06) and 1984 (1.98). The number of rebounds per game goes to the class of 1985 (3.88) and 1984 (3.58) came in second.

The best draft class based on per-game stats would go to 1984. They did more with the time that they played. When adding all of the per-game averages up, 1984 (32.59) slightly beat 1996 (32.52). This shows that even though they did not have the most minutes on the court, they were productive and are top class regarding these stats.

3.5 Best Shooting Draft Class (FG%, 3P%)

We created a scatterplot (Figure 6) using Field Goal Percentage and Three-Point Percentage as the axes while group the players by their draft year to ideally pinpoint and cluster them into groups to find which class is the best at shooting. Unfortunately, the scatterplot is not easily decipherable so we included a table (Table 2) to more easily show the trends.

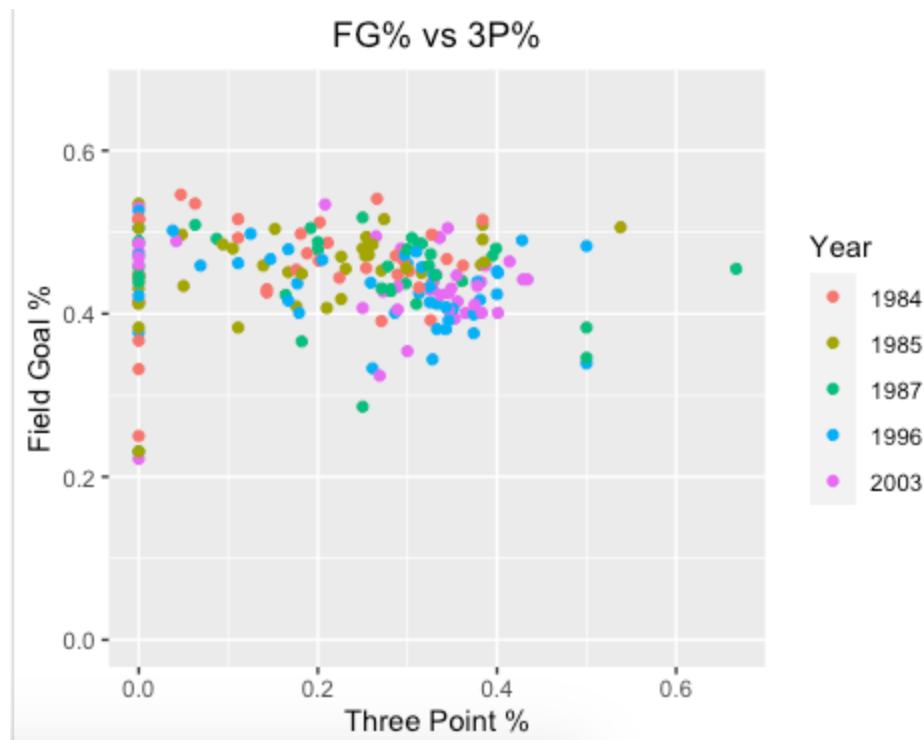


Figure 6

	Year	Avg FG%	Avg 3P%	Combined
1	1984	0.4581282	0.1779744	0.6361026
2	1985	0.4555000	0.1840556	0.6395556
3	1987	0.4431765	0.2454412	0.6886176
4	1996	0.4334318	0.2624318	0.6958636
5	2003	0.4377805	0.2731220	0.7109024

Table 2

It appears that the 2003 draft class has the best combination of Field Goal Percentage and Three-Point Percentage. This is because 2003 has the best 3P% which makes up for their poor FG%. 1984 stands as the best FG% class among these five drafts as well as the worst 3P%.

Once again, there is a clear trend across time as the years go up, the FG% typically goes down and the 3P% goes up. This trend could be because the league has been shooting more and more three-point shots every year which usually causes both 3P% to go up and FG% to go down.

4. Conclusion

In this project we created a dataset of all of the NBA players drafted in the draft classes of 1984, 1985, 1987, 1996, and 2003 by scraping data about the players from their Wikipedia pages and

combining with a dataset downloaded from Basketball Reference. We used several different visualizations such as bar plots, boxplots and scatterplots to determine if one draft class ruled over the rest. As we expected, there is no clear cut best draft class ever but we were able to make a few takeaways. First, 2003 was the best class when we look at how long the players played in the NBA making them the best at longevity. When looking at total statistics, 2003 and 1996 were similar and dominant in both points and assists but 1985 was by far the best at rebounding and the worst at assisting. When we combined these stats, 1996 came out on top, with 2003 as a close second. When we look at per game statistics, surprisingly 1984 turned out to be the best even though they played the least minutes per game. Lastly, when it comes to shooting, 1984 is the leader in field goal percentage while 2003 leads in three-point percentage. Overall, we would conclude that based on our analysis that the 2003 draft class is the best and most well-rounded draft class, however there are certainly strengths to each class.

We would like to acknowledge some of the limitations that our project has. First off, our project is subjective when it comes to deciding the “best” draft class because the “best” may differ for people who favor certain statistics over others. Next, when comparing the draft classes, it was clear that over time the game of basketball was changing which had a huge impact in stats like shooting percentage and longevity. This would mean that the differences in the stats may be less about the players in the draft class and more about the era of basketball they were playing in. Lastly, when looking at shooting we actually counted 3P% twice because it is taken into account when calculating FG%. Going forward, we would recommend that instead of FG% we find a way to calculate 2-point FG% and use that to avoid double counting 3P%.