The Evolution of NBA Scoring*

A Breakdown on How Modern Basketball Produces Historic Numbers

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Using the basketball statistics provided by basketball-reference.com, this paper investigates the rise of scoring in the NBA by analyzing the difference in statistics from the years 2000 to 2024. By making use of league-wide statistics as well as highlighting significant individual analytics from certain teams and players, we aim to showcase the main contributing factors to the rise in scoring as well as any possible consequences. This paper covers the significant factors from quantitative numbers, like, the rise in three-point shooting and increased shooting efficiency, as well as, qualitative measurements, such as team pace and overall physicality. With the help of running these findings in a model, we intend to predict how NBA scoring may look in the future and whether there is another level of scoring or if it is nearing its peak.

1 Introduction

The evolution of basketball throughout its tenure has brought about various discussions between the older generation of fans and the newer generation. A main topic of debate is in regards to the scoring of the game. To give a brief context into the sport, in basketball, scoring points is done by shooting the ball through a hoop that is 10 feet off the ground. You can score two points by shooting the ball from within a marked line, called the three-point line, and three points by shooting the ball from beyond that line. The game is played in four 12 minute quarters and the team with the most points at the end of the game wins. Throughout this paper, we will be looking into the statistical data from the 2000-2001 NBA season up to the current 2023-2024 season. By analyzing the data and considering the changes, we aim to deduce the significant factors that have impacted scoring in the NBA.

To introduce how big of a gap has occurred, we will use data from *Basketball-Reference.com - Basketball Statistics and History* (2024) to acquire the necessary statistics. In the 2000-2001

*Code and data are available at: https://github.com/foreverwoods/evolution_of_NBA_scoring.

season, the average points per game by an NBA team was 94.8. In the current 2023-2024 season, the average points per game by an NBA team is 114.4, with approximately 90% of the games played (82 games per team) in the season. This is an increase of 19.6 points per game, which is overall a ~20.7% increase in scoring. The biggest telltale sign of this increase, and the main topic of concern in the rise of three-point shooting. In the 2000-2001 season, the average three-point attempts per game by an NBA team was 13.7, with an average of 4.8 made to give a 35.4% shooting percentage. In the current 2023-2024 season, the average three-point attempts per game by an NBA team is 35.1 with an average of 12.8 made to give a 36.6% shooting percentage. So in this time period, the average three-point attempts per game nearly tripled while also increasing the shooting percentage by 1.2%. While this information is very helpful in discovering the underlying causes of the rise in NBA scoring, there were also some consequences to this change. Like how the number of fouls has decreased from 22.3 to 18.9 which affects the number of free throws decreasing from 24.9 to 21.9 taken a game. There are also other factors that may not be as obvious in the statistics, such as the change in pace of the game, how defenses have changed, and how the players have evolved. This shows that what most would have as the 'conclusive main argument' for the 'rise of NBA scoring' in three-point shooting, may not be as significant on its own as it was originally perceived. There are many more factors that come into play that may co-align with the rise of three-point shooting, but have not been properly considered. All of these understandings are vital in predicting the possible future of NBA scoring. Suppose an NBA team replaced every single NBA shot with a three-point shot, since it is worth more points, then the entire game plan would change. Opposing teams would not consider that team a threat when they are closer to the basket, so they could overload the three point line and work to lower their opponents' three-point shooting percentage beyond the league average. This hypothetical scenario could end up with that three-point shooting team scoring significantly less than the average NBA team. 'Live by the three, die by the tree', as they would call it.

These are all factors that we will be looking into throughout this paper. This paper aims to make use of R Core Team (2023) to provide an analysis of the main factors that have contributed to the rise in scoring in the NBA and how it may affect the future of the sport, from statistics, to the player archetypes sought after, to whether or not the current NBA records will be broken. After introducing the chosen statistical data ranging from individual teams and players, to cumulative, league-wide stats, we will incorporate this data into a model to predict whether or not scoring will continue to rise, or if it has reached its peak.

2 Data

3 Model

3.1 Model set-up

3.1.1 Model justification

4 Results

5 Discussion

5.1 First discussion point

5.2 Second discussion point

5.3 Third discussion point

5.4 Weaknesses and next steps

Appendix

A Additional data details

B Model details

B.1 Diagnostics

References

Basketball-Reference.com - Basketball Statistics and History. 2024. Sports Reference LLC. https://www.basketball-reference.com/.

R Core Team. 2023. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.