



From Layups to Long Bombs? A 20-Year Journey of NBA Scoring Trends

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INTRODUCTION

The National Basketball Association (NBA) has been around for 77 years. There have been many changes that have been implemented throughout the years, such as the three-point shot being introduced, increased spacing, isolationism, rest restrictions, etc.

The three-point shot was introduced in 1979 to make the game more exciting, increased spacing allows for more dribble penetration, isolationism happened in the late 1980s and 1990s (making the game slower), and rest restrictions prevented teams from sitting multiple star players on the same night.

NBA shooting has changed tremendously in the last two decades. There has been an increase in different types of shots that are being taken. There has been an increasing number of field goals per game, and this goes back to the significant changes in the shooting distances where players choose to shoot the basketball. In the NBA, field-goal accuracy for all shooting zones has shown an increasing trend.

Over the last twenty years, NBA games have resulted in higher scoring results. There has been an increase in both 2-point and 3-point shooting. Teams are now prioritizing shooting from the 3-point line then they ever have before. Players are taking shots inside the paint and from the 3-point line which is causing these percentages to increase.

RESEARCH QUESTION

How has scoring in the NBA changed over the past 20 years, and what factors have influenced these changes?

Table 1.
Mean by Year, 2000-2001 vs 2022-2023

Conference	2000	2022
3 Point Percentage	35.2	36.0
2 Point Percentage	44.3	47.5
Points Per Game	94.8	114.7
Minutes Played	48.4	48.4
Win Percentage	.5	.5

Table 1 displays the average of each variable by year between the two seasons in the study, 2000-2001 and 2022-2023. This shows how the averages have changed over time. In the 22 years between these two seasons, 3-point percentage has increased by less than a percent, while 2-point percentage has increased by over 3 percent. Points per game has increased by just under 20 points.

METHODOLOGY

For our study, we employed a linear regression modeling approach to investigate changes in three-point percentage, two-point percentage, points per game, and overall shooting attempts in NBA games over the 2000-2022 period. We collected game statistics from the NBA database and Yahoo Sports encompassing these respective years, focusing on shooting metrics and total shot attempts.

Our model treated year as a binary predictor to assess variations in shooting performance across different years. Through this analysis, we aimed to understand how shooting behaviors and efficiency have evolved over the two-decade timeframe, providing insights into the trends and patterns within NBA scoring dynamics.

RESULTS

Table 2.
Descriptive Statistics and Correlations

	M	SD	YR	PPG	3P	2P	MP
Year	.51	.504					
Points per game	104.9	10.5	.952*				
3 Point %	35.6	2.04	.206	.332*			
2 Point %	45.9	2.13	.771*	.841*	.523*		
Minutes played	48.4	.198	-.093	-.025	.078	-.025	
Win %	.5	.139	0	.175	.510*	.408*	.319*

* $p < .01$

Table 2 displays the descriptive statistics and correlations between variables for a combination of both seasons. This table helps to see the average of each variable, along with which variables are more linked to each other. M and SD displays the mean and standard deviation between the two years. The year variable's value is .51 since there was one expansion team (Orlando Magic) added to the NBA.

This table emphasizes how points per game has increased through its very positive correlation with year. 2-point % and 3-point % are both positively correlated with points per game, though 2-point % is much larger. They are also both positively correlated with win percentage, with 3-point percentage having the slight edge.

The increase in points per game, 2-point %, and 3-point % can be due to tactical and player evolutions or changes in game rules. 3-point % and year not being correlated suggests that players have not gotten very much better at 3-point shooting, which is supported by our next table.

Table 3.

Predictor Variables	β	St. Error	Beta	t	Sig (p)
Constant	-270.7	191.9		-1.411	.164
3 Point Percentage	-.387	.448	-.075	-.865	.391
2 Point Percentage	4.762	.407	.964	11.688	<.001
Minutes Played	3.684	3.903	.069	.944	.349
Win Percentage	-15.293	6.517	-.202	-2.347	.023

Table 3 displays our regression model, which shows how each variable affect points per game in both seasons combined, since it does not include the year variable. The β variable shows how each variable affects points per game as you add one more of it, and Sig (p) shows if this is a significant change. The average VIF in this regression was 1.46, which shows no collinearity issues.

A β of 4.7 for 2-point % shows that a 1% increase in shooting would make a team score 4.7 more points, and a p -value of <.001 shows statistical significance. No other variable in the model has a significant regression on points per game, meaning that 2-point % is the main cause of increased points among our variables.

2-point %'s significance in the regression means that it is a more reliable scoring method in terms of points per game, whereas 3-point % is less reliable to the point that it does not have a significant correlation. The negative β for win percentage suggests that teams that score less win more, which could suggest that teams that consistently play low-scoring games have better records.

IMPLICATIONS

Acknowledging the limitations of analyzing basketball's evolution is crucial, particularly considering the changing dynamics within the NBA. Understanding these limitations has significant implications for the basketball community, informing talent evaluation, recruitment practices, and player development programs. Coaches and teams can leverage historical scoring data to adapt their strategies and game plans according to prevailing trends, enhancing their competitive edge. Moreover, providing historical context fosters appreciation for the game's evolution among fans, enriching their engagement with basketball. By navigating these limitations and implications effectively, stakeholders can better understand and respond to the ever-changing terrain of basketball.