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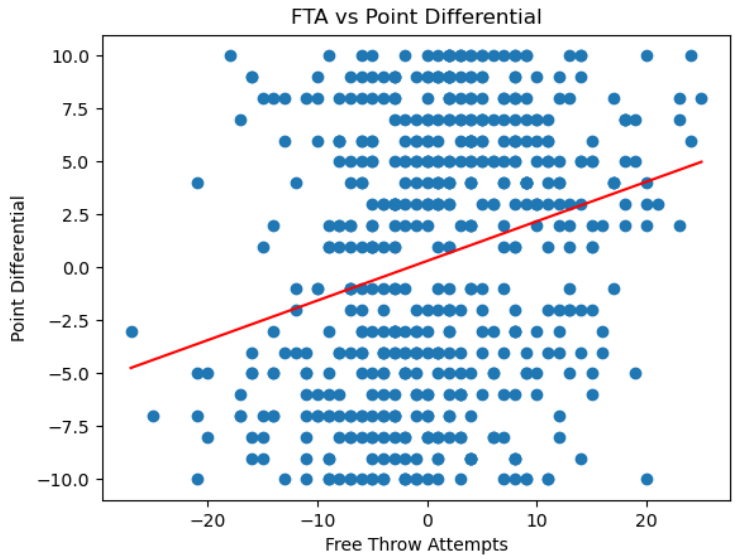
Dec 18, 2021

How are new changes in foul rules affecting NBA offense?

Introduction

One of the most important aspects of basketball has been the shooting foul and the free throw shot. Throughout NBA history, free throws have decided games — especially in close situations. During the 2020-21 NBA season, in games decided by 10 points or less, the team that had more free throw attempts (FTA) won the game 60% of the time, with an r-value[1] of .26 between free throw attempts and point differential.



Due to the significance of the free throw, especially during close games, NBA players often “foul hunt,” or intentionally draw fouls. Whether that means exaggerating contact on the

[1] Pearson correlation coefficient (r_{XY}), is a statistical measure of the degree of linear correlation between these two variables

court or purposefully propelling themselves into defenders, foul hunting results in referees calling fouls in situations where most fans don't believe a foul took place. Due to pressure from fans and players alike, the NBA announced during the 2021 off-season that there will be "an interpretive change in the officiating of overt, abrupt or abnormal non-basketball moves by offensive players with the ball in an effort to draw fouls."[2] In addition to the new rules on shooting fouls, the NBA has also allowed more aggressive defensive play. This paper will discuss how these officiating changes have altered offensive production thus far in the 2021-22 NBA regular season.

Statistical Methodology

To determine how the offensive game has changed, a comparison can be made between the production of the top 20 scorers of the 2020-21 NBA season and their production this season using a chart containing selected values that measure offensive production.[3] These include 6 total measured values: points per game (PPG), free throw attempts per game (FTA), field goal percentage (FG-PCT), player efficiency rating (PER) which measures a players' efficiency for every minute played; win shares per 48 (WS48), which measures how impactful a player is to their team winning every 48 minutes; and offensive box plus minus (OBPM), which estimates a players offensive contribution to the team while that player is on the court. At the bottom of the chart, the averages are displayed for each statistic. All of the statistics in the chart below have been adjusted per 48 minutes so the difference in minutes played between seasons of any given player does not impact their performance.

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[2] Rill, J. (n.d.). Explaining the NBA Rule Changes for 2021-22 Season. Bleacher Report. https://bleacherreport.com/articles/2949534-explaining-the-nba-rule-changes-for-2021-22-season

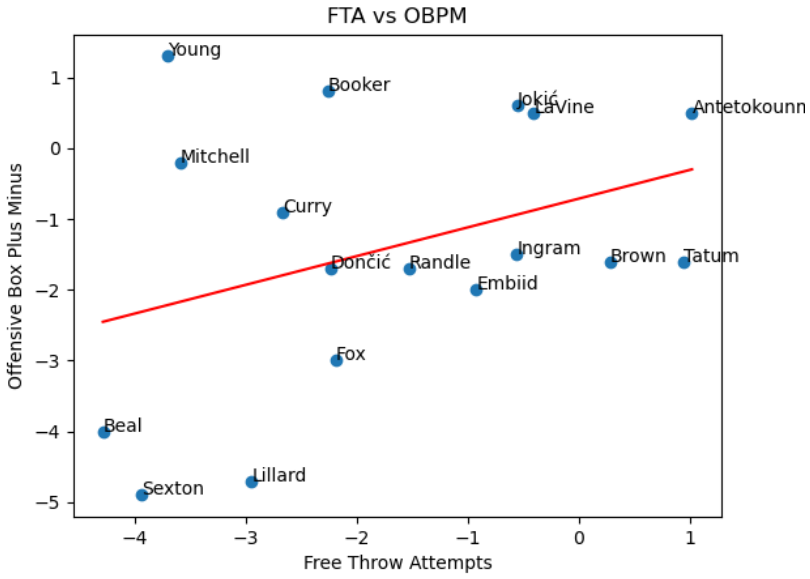
[3] Unfortunately three of the top 20 players haven't been able to play significant time (or any time) this season due to injury, so their statistics will not be included

Table 1

Name	PPG	FTA	FG-PCT	PER	WS48	OBPM
Stephen Curry	-6.88	-2.67	-4.9	-2.5	0.03	-0.9
Bradley Beal	-11.8	-4.29	-4.3	-6.1	-0.09	-4.0
Damian Lillard	-9.65	-2.95	-5.9	-7.7	-0.13	-4.7
Joel Embiid	-6.64	-0.93	-7.2	-4.1	-0.08	-2.0
Giannis Antetokounmpo	-1.16	1.02	-3.8	1.2	0.03	0.5
Luka Dončić	-2.94	-2.24	-3.2	-3.2	-0.06	-1.7
Zach LaVine	-1.91	-0.41	-1.7	0.1	0.01	0.5
Jayson Tatum	-1.07	0.94	-4.5	-1.5	-0.03	-1.6
Donovan Mitchell	-2.3	-3.59	1.7	1.1	0.01	-0.2
Nikola Jokić	0.14	-0.55	1.6	3.1	0.01	0.6
Devin Booker	-3.4	-2.27	-2.6	0.5	0.02	0.8
Trae Young	1.71	-3.7	1.4	2.3	0.01	1.3
De'Aaron Fox	-6.15	-2.19	-3.1	-3.7	-0.03	-3.0
Jaylen Brown	-4.59	0.28	-2.1	-2.1	-0.02	-1.6
Collin Sexton	-11.29	-3.94	-2.5	-6.3	-0.06	-4.9
Julius Randle	-6.38	-1.53	-3.0	-2.4	-0.06	-1.7
Brandon Ingram	-1.26	-0.56	-1.9	-1.8	-0.05	-1.5
Average	**-4.46**	**-1.74**	**-2.71**	**-1.95**	**-0.029**	**-1.41**

Analysis

On average, every offensive statistic measured has fallen from last season. The top NBA scorers are scoring over 4 points fewer and taking almost 2 fewer free throw attempts per 48 minutes played on average. Certain players who are notorious for relying on drawing shooting fouls such as Bradley Beal and Collin Sexton have been especially disadvantaged, shooting over 4 fewer free throws per game on average and scoring over 11 fewer points per 48 minutes. On the other hand, players who don't rely on foul baiting to generate free throws attempts, such as Giannis Antetokounmpo and Nikola Jokić, have been impacted less significantly, scoring 1 fewer point on average and even increasing their player efficiency ratings by 2. The following graph shows this effect with free throw attempts differential on the X-axis and OBPM on the Y-axis, representing how much the disparity in free throw attempts has affected each players' offensive efficiency with an r-value of .36.



There is also a noticeable drop in field goal percentage among the lowest differential free throw attempt players (Lillard, Beal, Sexton), and this can largely be explained due to the allowance of more physical defensive play on highly fouled players.

Conclusion and Future Work

Offensive play in the NBA has drastically changed due to the changes in officiating instated before the 2021-22 NBA season. With fewer shooting fouls being called, and referees allowing higher defensive intensity, top offensive players have struggled to adapt. These trends are displayed by drops in both basic and advanced offensive statistics described in the graphs and tables show these trends.

In the future, I would like to research how the top defensive players in the league have been impacted by these trends compared to the offensive players. Furthermore, it would be interesting to see how game strategy has shifted (ex. Teams are passing more or taking fewer contested shots) with these changes.