

# Identifying The Most Impactful NBA Player in the 2020's

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## Abstract

The 2020's has brought in a new era of the National Basketball Association (NBA), characterized by a rise in international talent, aging legends, and evolving playing styles. This study aims to identify the most impactful NBA players of the 2020s through using a multi-method approach that combines statistical metrics, machine learning models, and time-series analyses. Through using Wins Above Replacement (WAR) and RAPTOR metrics from *FiveThirtyEight's NBA Player Stats*, we have examined both regular season and playoff performance in the 2020s. We used descriptive statistics to rank players, a Random Forest regression model to predict WAR, and a time-series method to evaluate how well the players played. Our findings highlight **Nikola Jokic**, **Giannis Antetokounmpo**, and **Stephen Curry** as standout performers, each of which have shown dominance through different play styles and metrics. These results emphasize analytics as tools for understanding player value, informing talent assessment, and league strategies moving forward.

## 1. Introduction

The NBA of the 2020s presents a diverse landscape, driven by the convergence of diverse playing styles (such

as small ball, "big man" heliocentrism, etc.), international stars, and data-driven decision-making. As the league evolves, so too does the approach to player evaluation. Traditional statistics, while valuable, often fall short in capturing the full scope of a player's impact on the court. Advanced metrics such as RAPTOR and WAR have emerged as critical tools, providing nuanced measures of player contributions on both ends of the floor.

In this research, we leverage a combination of descriptive analytics, predictive modeling, and time-series analysis to identify the most impactful NBA players of the decade. By doing so, we aim not only to rank top performers but also to understand the underlying factors that contribute to their sustained success. It is becoming standard to value players based on their year to year statistics - we aim to take a deep dive into this and figure out once and for all who will become the true "Goat" of this generation.

## 2. Data and Methods

Our analysis is grounded in publicly available data from *FiveThirtyEight's "NBA Player Stats"*, focusing on the period starting from the 2020 season. Key variables include

WAR, which quantifies a player's value above a replacement-level competitor, and RAPTOR metrics, which encompasses offensive, defensive, and overall impact.

## **2.1 Data Collection and Preparation**

We filtered the dataset to include only seasons from 2020 onward, separating regular season and playoff data. Missing values were removed, player names were standardized, and only relevant columns were used in our analytics. This cleaning process allowed us to be confident in the quality of our results throughout this project.

## **2.2 Descriptive Analysis**

Initial descriptive statistics were computed for both the regular season and playoffs. These included means, standard deviations, and distributions for WAR and RAPTOR scores. This step created a baseline understanding of player performance before more complex methods were applied. After formulating a benchmark like this, we were able to better contextualize the results discovered in our advanced Machine Learning models.

## **2.3 Machine Learning Model**

To predict WAR from various RAPTOR components, we developed a Random Forest regression model. After splitting the data into training (80%) and testing (20%) sets, we tuned hyperparameters and evaluated the model using Mean Absolute Error (MAE). This predictive modeling step helped identify which metrics are most influential in determining player value.

## **2.4 Time-Series Analysis**

We then conducted time-series analysis to examine WAR trends over multiple seasons for top players. By visualizing WAR trajectories, we aimed to detect patterns in consistency, improvement, or decline, providing insights into players' long-term impact. This supplemented both our statistical and machine learning analysis as it showed trends over time rather than just averages and predictions. We were able to develop more accurate results from this as more nuanced topics like injuries, player slumps, and team trades became more apparent.

## **3. Results**

### **3.1 Descriptive Statistics and Player Rankings**

Descriptive analysis revealed a mean regular-season WAR of approximately 1.37 (SD = 2.41) and a mean RAPTOR of -1.72 (SD = 6.40). Playoff distributions were narrower, with a mean WAR of 0.437 (SD = 0.875) and a mean RAPTOR of -0.0842 (SD = 3.58). These findings suggest that the postseason environment is more competitive and features more evenly matched player performance.

Ranking players by WAR and RAPTOR identified familiar names at the top. Nikola Jokic, Giannis Antetokounmpo, and Luka Doncic led in the regular season, while Stephen Curry, Jamal Murray, and LeBron James stood out in the playoffs. Combining WAR and RAPTOR metrics further validated these rankings. These results make sense as Giannis, Jokic, and

Luka have been consistent front runners for regular season awards such as the All NBA or MVP honors. Additionally, more experienced players such as LeBron and Curry continue to dominate in the postseason due to the large gap in experience between them and everyone else.

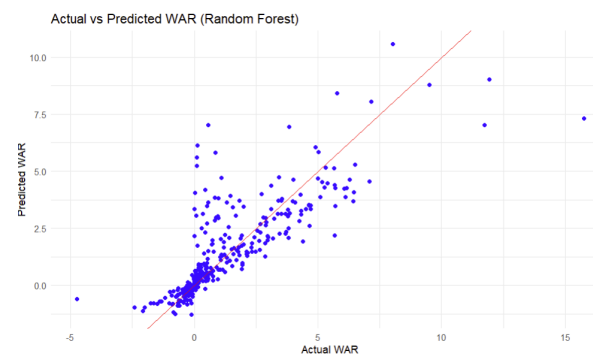
player_name	mean_war	mean_raptor
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1 Nikola Jokic	15.9	9.63
2 Giannis Antetokounmpo	11.3	7.81
3 Rudy Gobert	11.2	6.77
4 Kawhi Leonard	10.7	8.73
5 Luka Doncic	9.77	6.19
6 Jayson Tatum	9.62	4.61
7 James Harden	9.53	6.06
8 Joel Embiid	9.08	6.73
9 LeBron James	8.67	6.36
10 Jimmy Butler	8.12	5.90

### 3.2 Machine Learning-Based WAR Prediction

The Random Forest model highlighted total RAPTOR and its box-score components as key predictors of WAR. Offensive RAPTOR, in particular, emerged as a strong predictor, underscoring the importance of scoring and playmaking in the modern NBA. Defensive RAPTOR provided complementary value, confirming the significance of two-way impact. We found it important to consider both offense and defensive impact as both sides are needed to determine a true superstar. Even though players such as Luka showed dominance in their offence, they might now be as impactful to a team winning due to their lack of defensive presence.

Hyperparameter tuning and cross-validation reduced MAE, improving

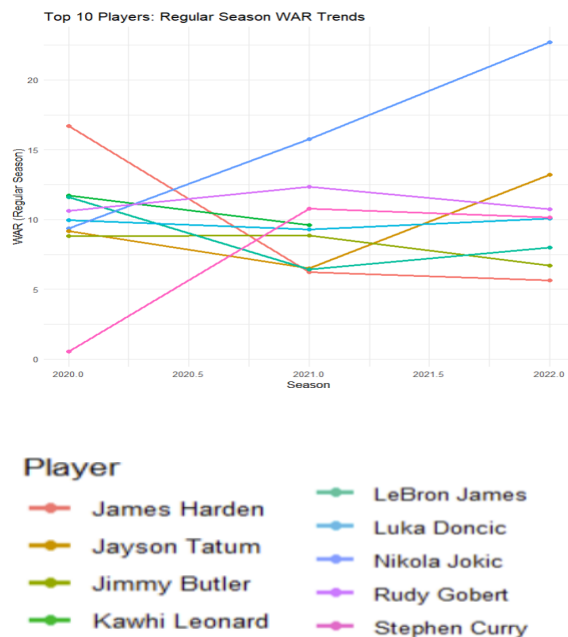
model reliability. This approach not only explained current player performance but also offered insights for teams seeking to identify undervalued talent or prioritize certain skill sets.



### 3.3 Time-Series Analysis of Sustained Excellence

Time-series analyses illuminated how players maintain, improve, or decline over multiple seasons. Nikola Jokic and Giannis Antetokounmpo exhibited consistent regular-season dominance, while Luka Doncic's upward trajectory signaled his ascendance as a defining star. In the playoffs, Stephen Curry and Jamal Murray shone as players who elevated their performance under postseason pressure; this is reaffirmed as both Curry and Murray's teams have won Championship rings in the 2020 decade.

The time-series dimension underscored the importance of sustained excellence, with elite players demonstrating resilience, leadership, and adaptability amid evolving league dynamics.



## 4. Discussion

These results offer an unbiased perspective on what defines impact in the 2020s NBA. Players like Jokic and Giannis stand out due to their all-around contributions, while Curry's postseason performance defines his legacy as a clutch performer. The machine learning model's emphasis on offensive RAPTOR suggests that offensive creation is particularly valuable, aligning with the league's shift toward pace-and-space offenses and three-point shooting.

The time-series component affirms that sustained excellence, rather than short lived success, distinguishes the truly impactful players. Contextual factors like as team strategy, player roles, injuries, and sample size must also be considered, especially when evaluating playoff performance. However, given the NBA is a

star-driven league where one player has the ability to drag a bad team to wins, contextual factors such as team strategy and player roles hold less overall importance.

From an even larger perspective, the prominence of international players and the increasing reliance on analytics reflect the NBA's spread throughout the world and its embrace of data-driven decisions. These findings highlight an evolving league where teams use advanced metrics and modeling to guide rosters and optimize each players performance.

## 5. Conclusion

By integrating statistical evaluation, machine learning, and time-series trends, this study presents a multifaceted understanding of player impact in the 2020s NBA. Our research has determined that **Nikola Jokic** has been the best player this decade and is on course to continue his dominance. There might be some players that do certain things better than him, but no one is able to match his well-rounded style of play which is currently at a historically high level. This is reinforced with the fact that Jokic has just moved up the second place in the Triple-double statistic ranking (which typically shows how well rounded a player is on offense).

From a viewer's perspective, it might have seemed obvious the answer to our question was Jokic given the fact that he has already won three MVPs and a championship. It was interesting to see that analytics confirmed this sentiment, and even

was able to dive into bigger nuances of his game that make him so successful.

As the NBA continues to evolve, ongoing analyses will be essential for capturing the emergence of new stars and understanding how changing league dynamics influence player performance. Ultimately, advanced analytics, predictive modeling, and longitudinal approaches will guide future assessments of player impact, shaping how we define greatness in the game we love.

## 6. References

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