2023 NBA'S MOST VALUABLE PLAYER JOEL EMBIID

INFS 3080 UO Data Visualization – Final Report

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Scoring Efficiency

Measure Names
- FG% (Game Log)
- PTS (Game Log)
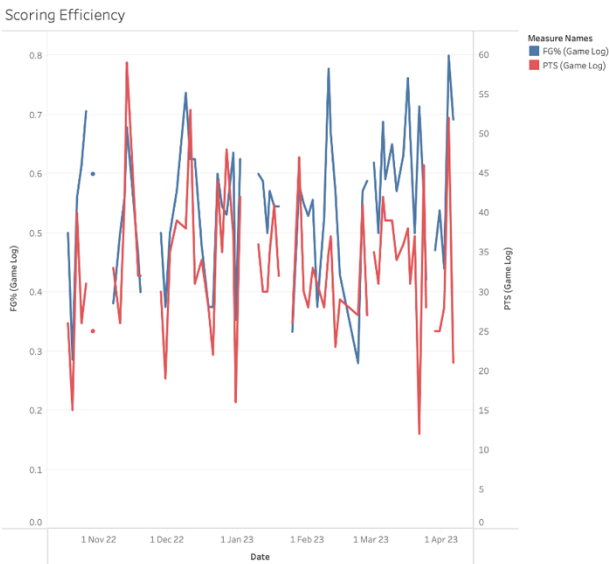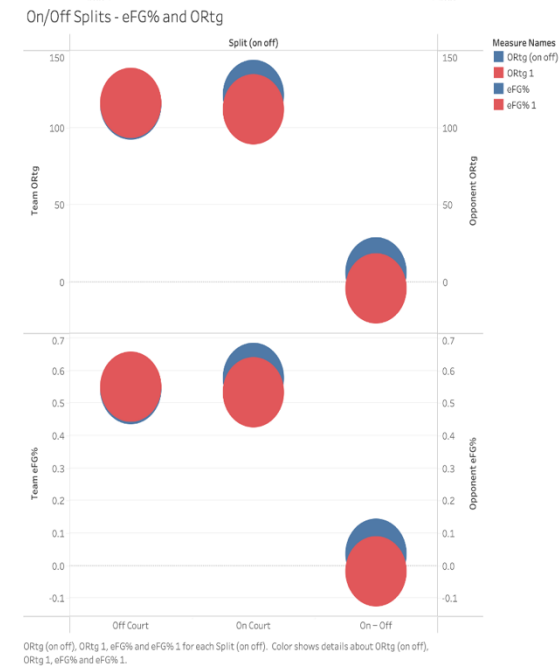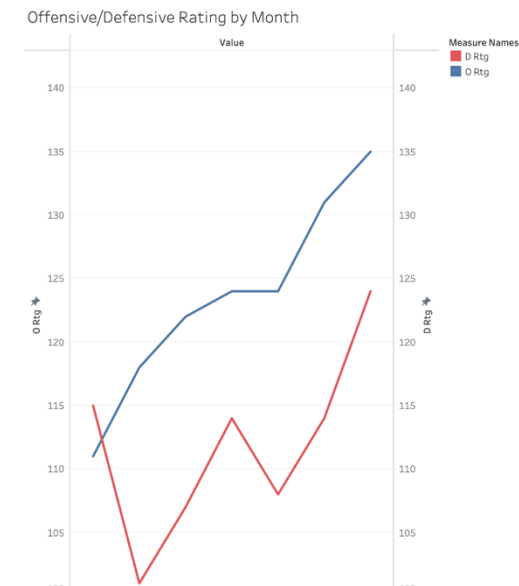
The trends of FG% (Game Log) and PTS (Game Log) for Date. Color shows details about FG% (Game Log) and PTS (Game Log).

Sum of PTS for each Value. The marks are labeled by sum of G.

Joel Embiid.
2023 NBA MVP.

| 33.1 ppg 1st | 10.2 rpg 7th | 1.7 bpg 7th | 119 ortg 2nd | 37% usg% 3rd |

| 31.4 PER 2nd | *Rankings among 450+ NBA players | 6.4 VORP 3rd |

Offensive/Defensive Rating by Month

Value

Measure Names
- D Rtg
- O Rtg

On/Off Splits - eFG% and ORtg

Split (on off)

Measure Names
- ORtg (on off)
- ORtg 1
- eFG%
- eFG% 1

ORtg (on off), ORtg 1, eFG% and eFG% 1 for each Split (on off). Color shows details about ORtg (on off), ORtg 1, eFG% and eFG% 1.
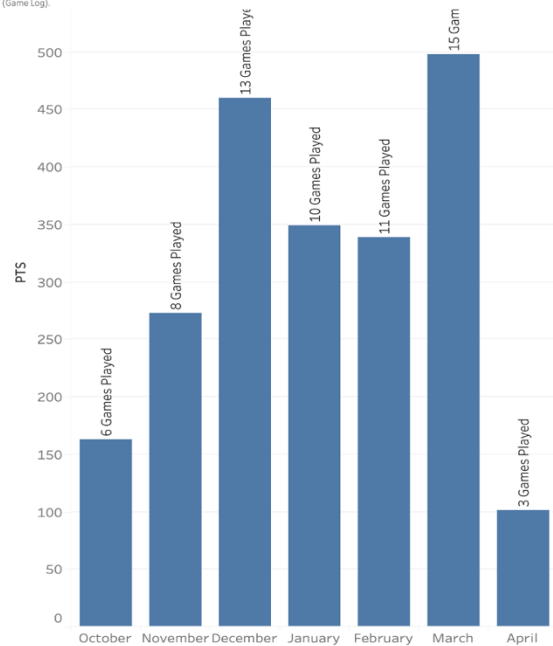
Introduction

Embarking on a thorough exploration of Joel Embiid's performance during the 2022-23 NBA season, the focal point of this analysis is undeniably his exceptional scoring prowess. Standing atop the league with an average of 33.1 Points Per Game (PPG), Embiid's impact on the Philadelphia 76ers' offensive dynamics is monumental. Delving beyond the sheer numerical dominance, this analysis employs a multi-faceted approach, utilising data meticulously collected from the official NBA website and refined by the basketball analytics providers at Basketball Reference.

With an emphasis on the intricacies of Embiid's scoring patterns, efficiency metrics, and their evolution across an 82-game season, we aim to unravel the layers of his influence on the court. By leveraging powerful visualisation tools like ggplot and Tableau, this study is poised to provide nuanced insights into how Embiid's scoring proficiency shapes the broader narrative of the team's performance.

Data Sources and Tools

To conduct a comprehensive analysis of Joel Embiid's performance throughout the NBA season, I utilised a combination of data sources and analytical tools. The dataset, primarily sourced from the official NBA website and enhanced by basketball analytics providers like Basketball Reference, provided a robust collection of game logs and statistics. This data was crucial for evaluating Embiid's performance across 82 games, considering variations due to factors like injuries.

The data, organised into 29 columns for each game, encompassed a range of counting statistics such as points, assists, rebounds, field goals made and attempted, steals, blocks, and turnovers. Additionally, the dataset included advanced metrics like field goal percentage, box score plus/minus, offensive and defensive rating, offering a nuanced perspective on Embiid's contributions.

By integrating the 'splits' data into the analysis, the visualizations and dashboards offer a more comprehensive and context-specific view of Joel Embiid's performance throughout the NBA season. It highlights his performance broken down and contrasted by month, opponent, and team performance with him on and off the court.

Integrating ggplot for in-depth and customized plots and Tableau for interactive and dynamic dashboards, was effective in providing a comprehensive analysis of Joel Embiid's performance metrics throughout the NBA season. These tools synergistically contributed to the clarity and depth of the visualizations, making the exploration of Embiid's contributions accessible and insightful.

Key Statistics (NBA Ranks)

33.1 ppg	10.2 rpg	1.7 bpg	119 ortg
1st	7th	7th	2nd

| 31.4 PER	37% usg%	6.4 VORP
2nd	3rd	3rd
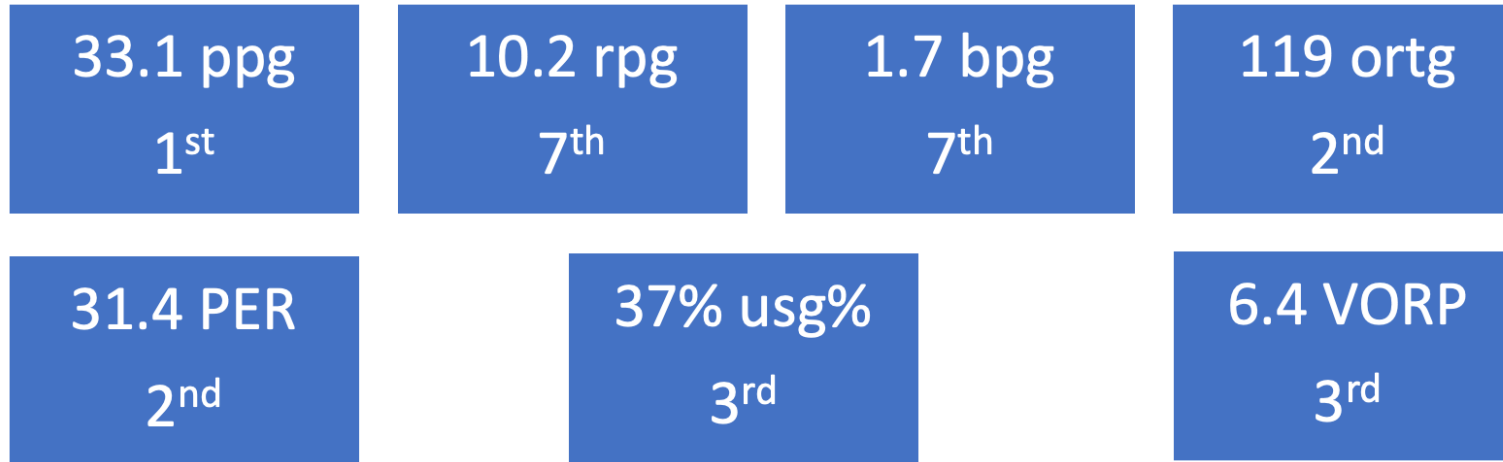
Joel Embiid's key performance statistics paint a comprehensive picture of his impact on the basketball court. Leading the league with an impressive 33.1 Points Per Game (PPG), Embiid stands out as a prolific scorer, showcasing his offensive prowess and ability to carry the scoring load for his team. Additionally, his strong presence in rebounding is evident with a 10.2 Rebounds Per Game (RPG) and 1.7 Blocks Per Game (BPG), emphasising his contributions on both ends of the floor.

Advanced metrics further highlight Embiid's significance. His Offensive Rating (ORTG) of 119 signifies exceptional offensive efficiency, showcasing his ability to positively influence scoring per 100 possessions. With a Usage Rate (USG%) of 37%, Embiid is heavily involved in his team's offensive plays, underscoring his central role in orchestrating the offense.

Joel Embiid's Player Efficiency Rating (PER) of 31.4 ranks him second among over 450 NBA players, reflecting his well-rounded and efficient playing style. The Value Over Replacement Player (VORP) metric, where he ranks third with a notable 6.4, emphasises Embiid's overall impact compared to a replacement-level player.

Scoring Totals & Efficiency

Points per Game Distribution


Minutes Played vs. Points Scored
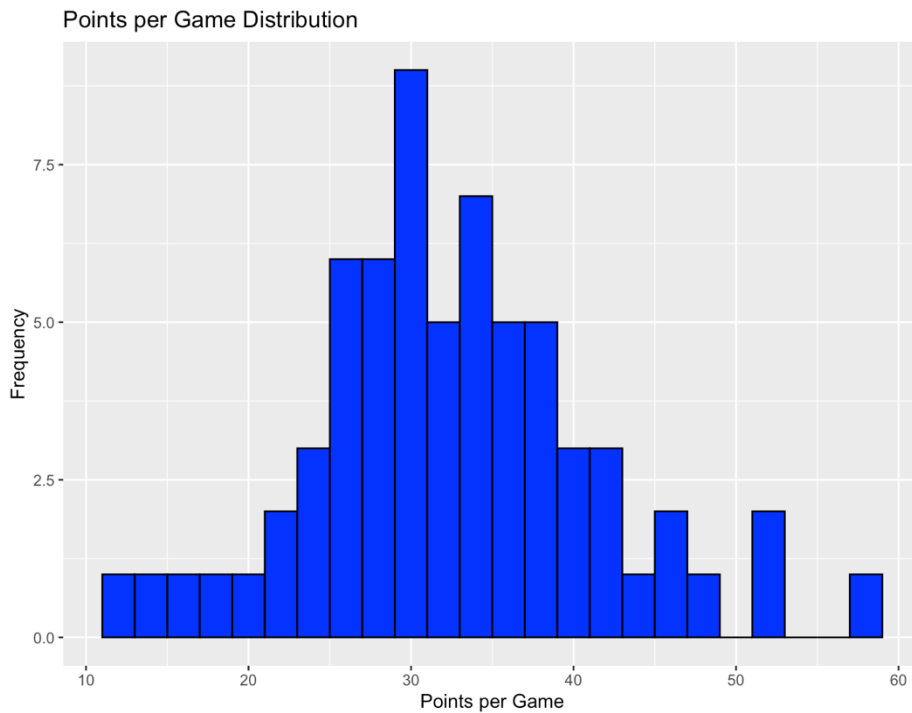
Firstly, we observe the distribution of points scored by Joel Embiid in individual games. The bar plot vividly illustrates that, more often than not, Embiid is a consistent scorer, with the majority of his games falling within the 25-40 points range. This consistency is a testament to his offensive prowess and reliability as a key offensive asset for the Philadelphia 76ers.
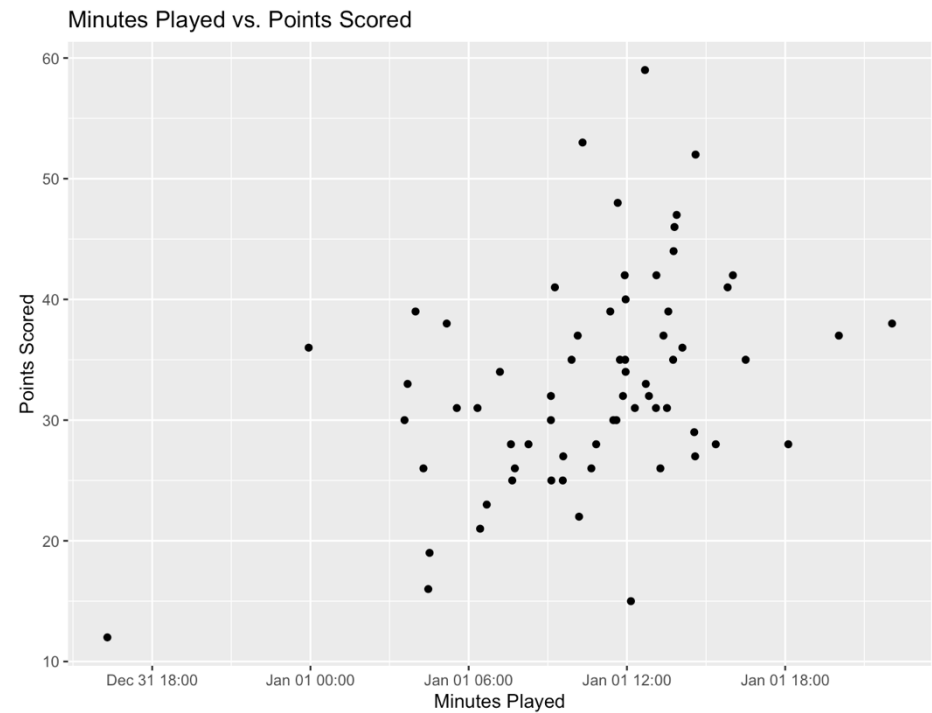
Transitioning from points to playing time, we delve into the correlation between minutes played and points scored in a game. The scatter plot provides an interesting insight – a positive correlation exists, indicating that as Embiid plays more minutes, he tends to score more points. However, the correlation is relatively weak, suggesting that factors beyond mere playing time contribute to his scoring output. This could be indicative of strategic resting during games or fluctuations in performance efficiency.

Total Points by Month
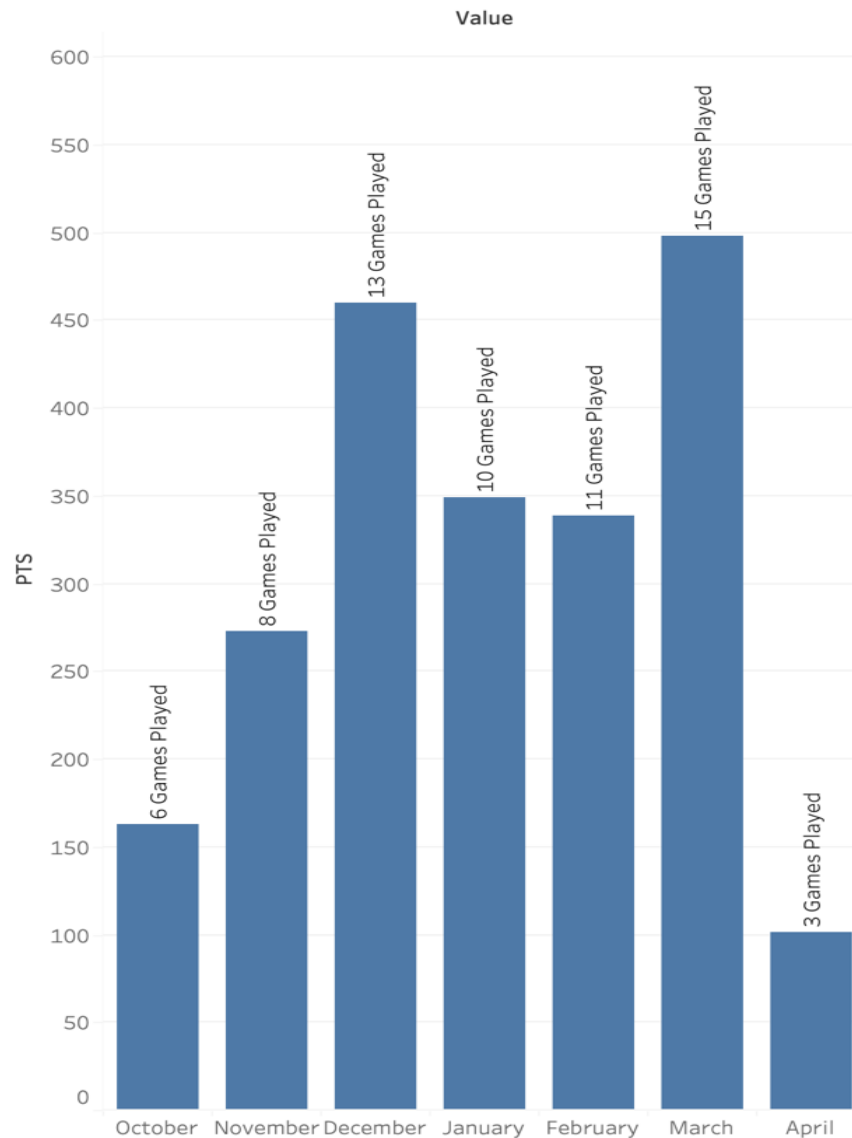
Value

Sum of PTS for each Value. The marks are labeled by sum of G.

Zooming out to a monthly perspective, the bar plot showcases the total points scored by Embiid each month. December and March emerge as standout months, where he not only scored the most points but also played a higher number of games. This trend signifies a gradual ramp-up in performance from the start of the season into December, perhaps reflecting a process of playing his way into peak condition. Similarly, the spike in March indicates a strategic preparation for the playoffs, showcasing the nuanced approach to managing player performance over the course of an 82-game NBA season.

Scoring Efficiency
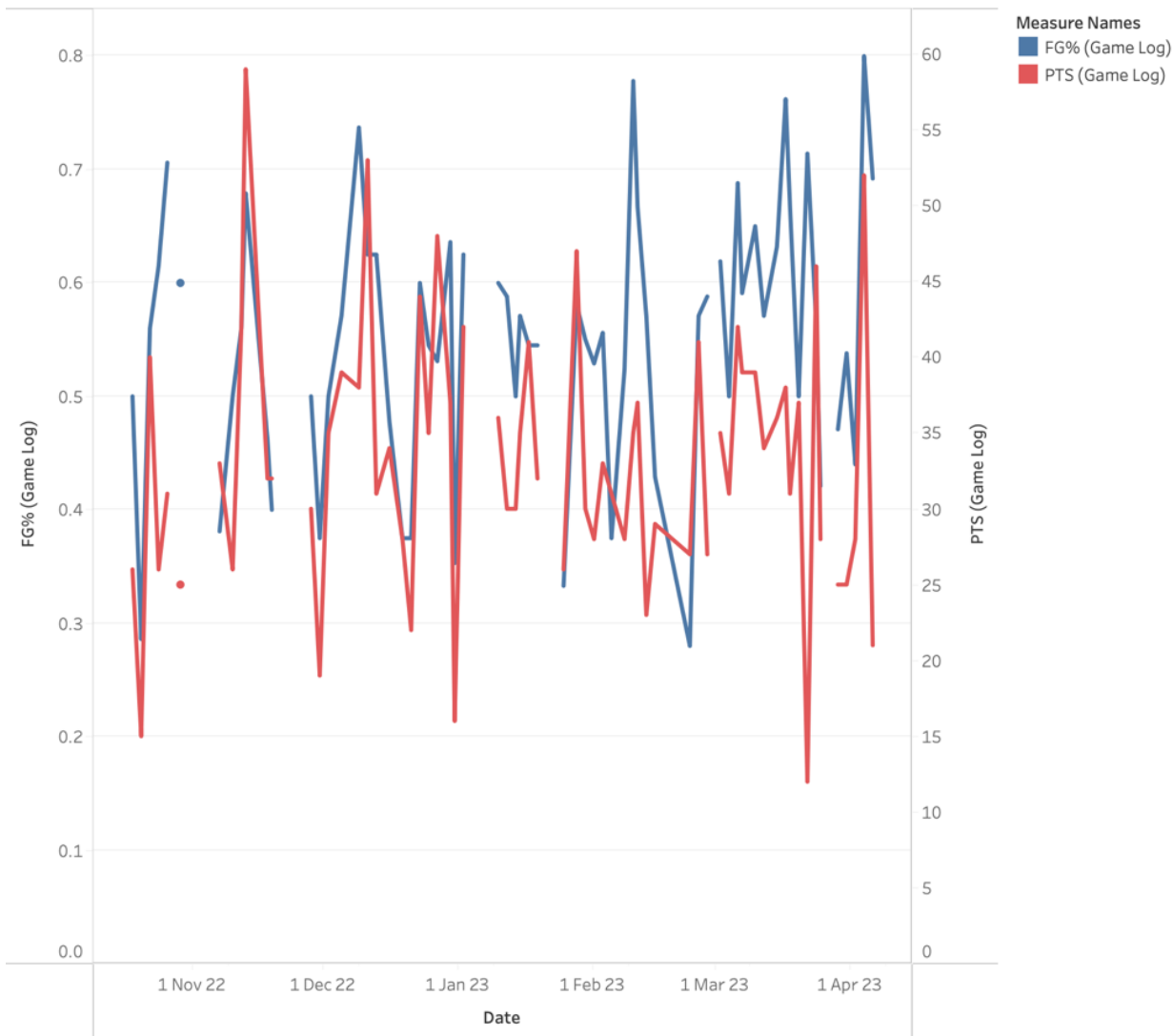
The trends of FG% (Game Log) and PTS (Game Log) for Date. Color shows details about FG% (Game Log) and PTS (Game Log).

The stacked line graph unveils the dynamic nature of Embiid's scoring efficiency throughout the season. Notable performances, such as the 59 points on 68% shooting and 52 points on 80% shooting, stand out as peak moments. These spikes, contrasted with occasional dips, highlight the rigorous and intense nature of the NBA season, where even a key player experiences fluctuations in performance. It serves as a reminder of the demanding physical toll the season takes on even the most valuable players.

Offensive & Defensive Rating – Advanced Metrics

## Offensive/Defensive Rating by Month
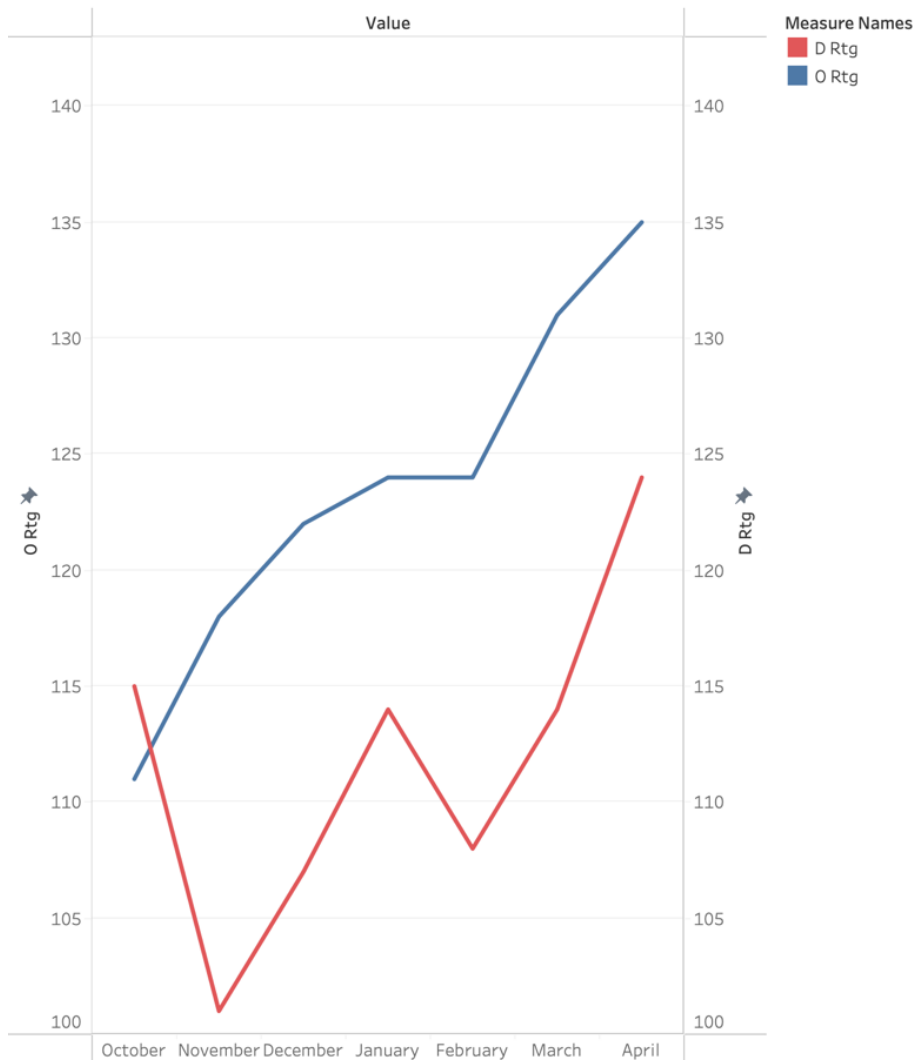
The trends of O Rtg and D Rtg for Value. Color shows details about O Rtg and D Rtg.

Continuing our exploration, we delve into the offensive and defensive ratings throughout the season. Offensive Rating is an advanced basketball statistic that quantifies a player's offensive efficiency. It represents the number of points a player or team scores per 100 possessions. Defensive Rating is the counterpart to Offensive Rating and measures a player or team's defensive efficiency. Like Offensive Rating, it represents the number of points allowed per 100 possessions.

The stacked line graph echoes the sentiment of the scoring efficiency graph, emphasising Embiid's gradual ascent. Starting the season relatively slow, he ramps up both offensively and defensively as the season progresses. His offensive performance consistently improves throughout the season, while his defence fluctuates until February where we see a steady uptick toward the end of the season indicating a ramp up toward the ever-important playoffs. This nuanced progression reinforces the physical and mental challenges of navigating the lengthy NBA.

Offensive/Defensive Rating by Opponent
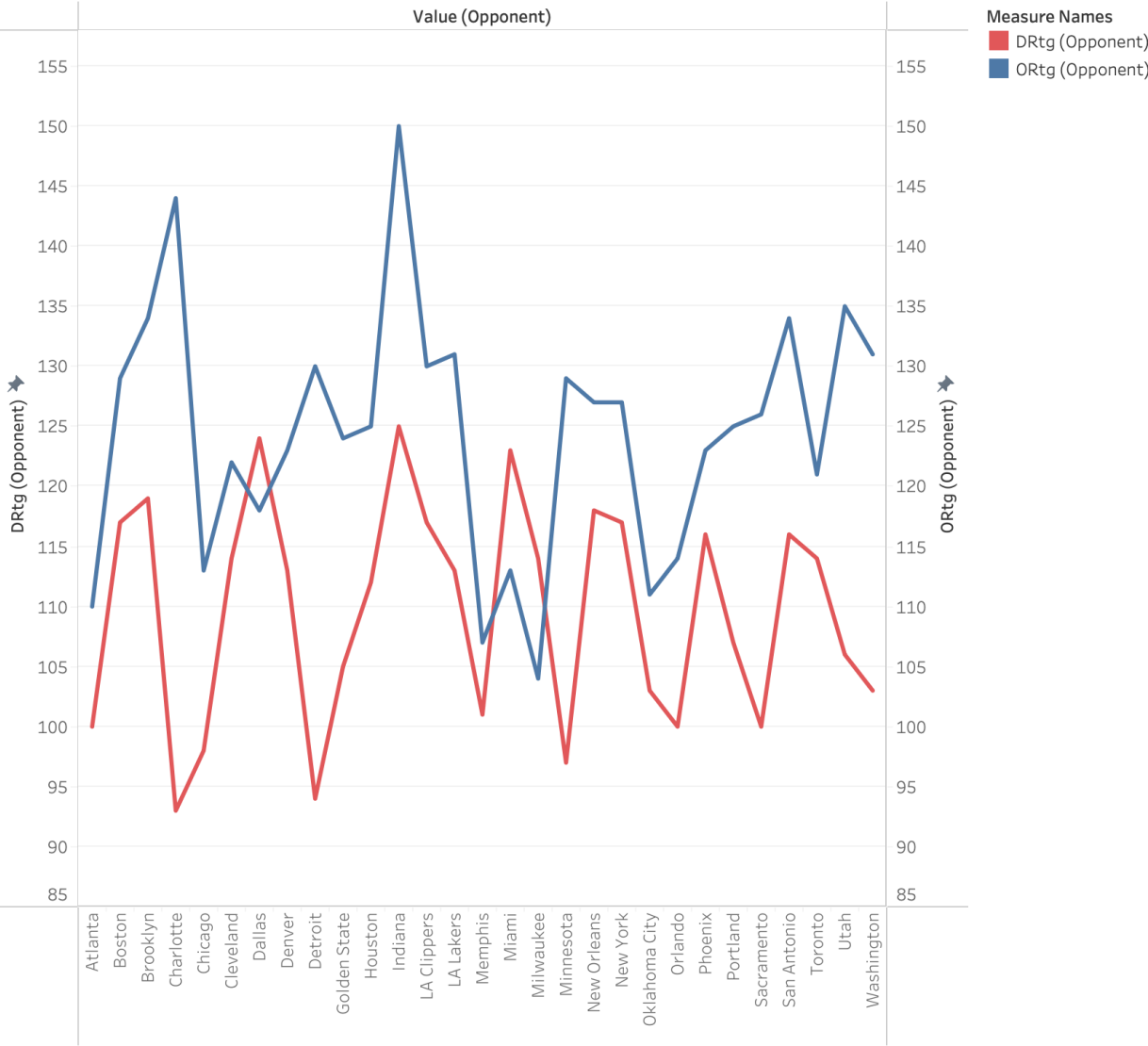
The trends of DRtg (Opponent) and ORtg (Opponent) for Value (Opponent). Color shows details about DRtg (Opponent) and ORtg (Opponent).

Examining performance against different opponents reveals interesting patterns. Notable effectiveness against teams like Charlotte, Detroit, Indiana, and Utah might indicate favourable matchups or a particular strategic advantage against these opponents. Unpacking these nuances could provide insights into Embiid's adaptability and strategic importance against specific teams.

On-court & Off-court Splits

On/Off Splits - eFG% and ORtg
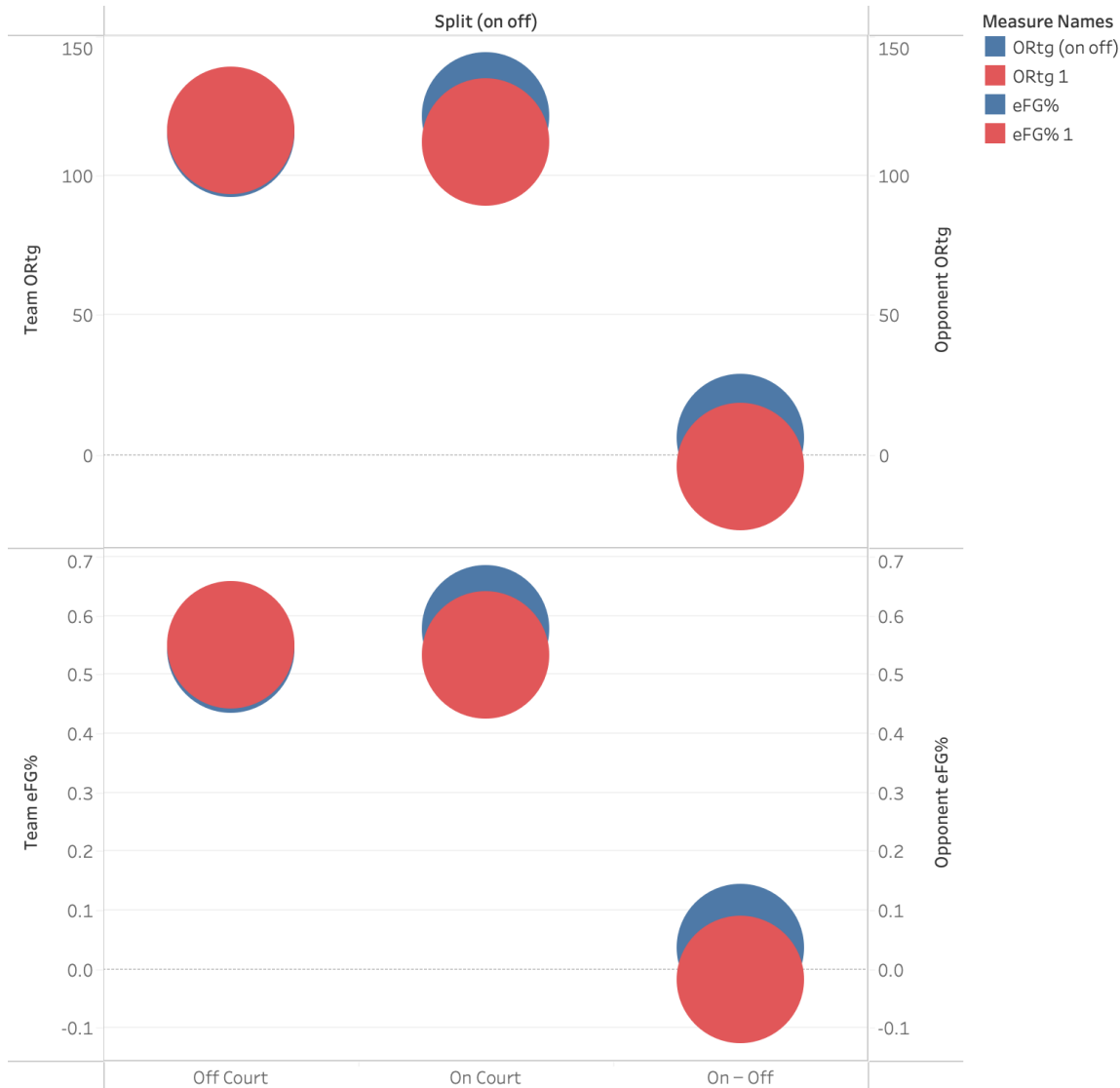
ORtg (on off), ORtg 1, eFG% and eFG% 1 for each Split (on off). Color shows details about ORtg (on off),
ORtg 1, eFG% and eFG% 1.

Our journey concludes with a circle plot exploring on-court/off-court splits in offensive rating and effective field goal percentage. The metrics resoundingly confirm Embiid's impact – the Sixers exhibit a positive net rating when he is on the court, emphasizing his pivotal role. This is further supported by advanced metrics, with his VORP ranking as the 3rd best in the league at 6.4 and a PER at 31.4, second only to Jokic at 31.5. These metrics underscore Embiid's exceptional value, not just in scoring but in overall team performance.

Conclusion

In culmination, the insights garnered from this in-depth analysis offer a comprehensive understanding of Joel Embiid's journey through the demanding NBA season. Beyond the raw numbers, the distribution of points in individual games reveals a consistency that underscores Embiid's reliability as a premier offensive force. The correlation between minutes played and points scored, though relatively weak, hints at the intricate balance between strategic resting and peak performance. Monthly trends unveil a calculated approach to the season, with a gradual build-up from the commencement into December and a strategic spike in March, setting the stage for playoff readiness.

Further peeling back the layers, defensive and offensive ratings unveil the taxing nature of an 82-game season, with Embiid's performance gradually ascending. Whether scrutinised on a monthly basis or against specific opponents, these metrics showcase the relentless demands of navigating the NBA landscape. The circle plot encapsulates the essence of Embiid's impact, illustrating a positive net rating for the Sixers when he's on the court, substantiating his pivotal role. In conclusion, this analysis not only celebrates Embiid's scoring prowess but also unravels the strategic and nuanced facets of managing an elite player throughout the intricate journey of an NBA season, offering a compelling narrative of resilience, strategy, and unparalleled contribution.

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