Clutch Performance in the Modern NBA: A Statistical Breakdown

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Abstract: This research will investigate the existence and relevance of clutch performance in the 2024 NBA regular season. Players will be analyzed both individually and against league averages to determine their clutch performance levels. This research aims to answer the questions of whether clutch performance is a real phenomenon, how performance is affected in clutch time, and to determine the most relevant player statistics in measuring clutch performance. The findings and formulas developed in this research will help to shed light on the numbers behind clutch performance, which has largely been considered an immeasurable trait in the past.

Introduction:

This study aims to provide specific findings regarding clutch player performance in the modern NBA, including which player statistics are most affected in the clutch, how decision-making and shooting tendencies change in the clutch, and an overview of the best and worst clutch-time performers in the league based on comparison to their regular-time statistics. This analysis will provide value to NBA coaches, players, and fans alike by offering insights on the most effective late-game strategies and utilizations of players available for NBA teams to employ.

The average offensive efficiency in the NBA stood at an all-time high in 2023 regular season (Schumann, 2024), largely due to the impressive individual efforts put forth by modern NBA players. Factors such as optimized player diets, efficient training programs, and more player-friendly schedules have allowed a greater number of players to fulfill their potential in recent years (Reynolds, 2021), thus raising the overall skill and performance level of the league. Due to the recent influx of available talent in the league, NBA teams have seemingly placed an emphasis on acquiring players who not only can contribute to overall team success but are also capable of individually being a ‘difference-maker’ in the clutch. In the NBA, clutch time is defined as the final five minutes of the fourth quarter or an overtime period where the score differential is five points or below. Being productive in clutch time is a crucial aspect of a successful team, as dominating during this time frame and situation grants a team a greater chance to win close games.

Due to the heightened average skill of modern NBA players, clutch performers have never been valued higher than in the present. NBA teams are eager to draft and sign players that can rise above the heightened competition and dominate close games to secure their team a win. The introduction of the Clutch Player of the Year award in the 2022 regular season is a product of the newfound league-wide emphasis placed on clutch performance (Quinn, 2021) . NBA executives know that clutch performances are a vital part of a successful championship team, but there has not yet been sufficient research conducted to determine the most effective ways of measuring the ‘clutch level’ of players and how to effectively implement the findings from these analyses into late-game scenarios.

Currently, clutch analysis is often focused on viewing how many points a player scores, or the point differential total while they are on the court during clutch time. While these statistics are undoubtedly a crucial aspect of investigating clutch performance, this study aims to provide a more holistic understanding of how to accurately measure and rank clutch performers, as well as the value that they provide to their respective teams.

Literature Review

There has been an influx of discussion regarding clutch play in the NBA in recent years, which is one of the main factors contributing to the creation of this research. Existing research provides a solid template of how to measure and rank player clutch performances but lacks a certain level of thoroughness and cohesiveness. Though statistical analysis appears to be the most practical way of measuring changes in performances under varying circumstances of pressure, previous literature on this topic also highlights the importance of incorporating the impact of player mentality and confidence into clutch time research.

In one study which looked at how a player’s reputation as a clutch player translated to their clutch performance (Solomonov, 2014), it was found that players with a reputation for being clutch due to previous clutch performances do tend to perform better in the clutch. The methodology used in this research was a case study conducted on 16 NBA players which rated their performance based on pre-determined metrics and teammate performance. Another journal article looked at the most effective ways to determine clutch levels in a player, and then used that information to measure how the chances of success on clutch shots changes depending on which player shoots it (Eppel, 2022). This research found that by optimizing which players take the shots in clutch time, teams could expect to increase their success rate on clutch shots by up to 10%. Additionally, an article by Mattie Toma investigated how the chances of success for free throws changes in ‘clutch time’, and the findings suggested that free-throw percentage drops on average 5% for NBA players in the clutch. Together, these articles help to explain how overall performance of players changes in the clutch, as well as provide suggestions on how to best optimize lineup decisions in clutch time. By providing findings in a similar manner to these articles, this research has the potential to not only determine relevant statistics and factors in the clutch, but also provide meaningful recommendations regarding individual player usage and tendencies.

In 2024, a writer employed by the NBA published a mid-year report that looked at the clutch performance of the best players in the NBA; including a breakdown of the most relevant statistics and methods of ranking these players (Schuhmann, 2024). This study will help guide this research project by providing a modern perspective of what NBA staffers themselves consider the most important and relevant player statistics to focus on when conducting research on players’ clutch performance levels. There is also a recent research paper published in 2019 by student Evan Whitmore, which placed a large focus on determining the importance of clutch performance when considering the overall ‘greatness’ of an NBA player. The findings suggest that clutch performance is one of, if not the most vital considerations for fans when assessing the overall impact and legacy of a player (Whitmore, 2019). Both articles help to portray how modern viewers of the NBA digest and consider player performance levels and how these findings lead them to their overall beliefs and feelings toward said players, which is undoubtedly a vital aspect of measuring clutch reputation due to the largely subjective nature of the issue.

The next selection of sources can be used in conjunction with this project’s findings to create a working theory of how overall team performance and strategy is affected in the clutch. One source by Michael Allgrunn looked at optimal timeout choices in the NBA, which is a relevant topic for clutch time play as it allows teams to slow down, plan their next move, and decide who gets to take the big shot (Allgrunn, 2023). A research article by René Böheim looked at whether crowd size affects the performance of NBA players (Böheim, 2019). The study found that there is a strong correlation between audience size and negative player performance, regardless of whether the team is playing at home or away. Another article used the 2011 NBA playoffs as a case study to determine that the main cause of a clutch reputation is confirmation bias from fans and not due to consistent player performance (Wallace, 2012). Both of these studies suggested that while clutch performance may be easiest to analyze through statistical analysis, it is vitally important to also understand the mental aspects of clutch performance to cultivate a comprehensive understanding of the topic. This fuller understanding of the components of clutch performance will also contribute to the ultimate recommendations and strategy adjustments provided by this research.

Additionally, there is a journal article titled, “Does game pressure affect hand selection of NBA basketball players?”, which studied how the amount of pressure in a game changes players’ usage of their left or right hand (Giovanini, 2020). The research showed that players heavily rely on their dominant hand to shoot in the final minutes of a game, suggesting players turn to their most comfortable methods of scoring in the clutch. There is also an article written by Kevin Sigler which investigated if players who perform well in the clutch are paid more than those who perform poorly. This article found that players who perform in the clutch were paid better, and the most relevant statistic is shot volume (Sigler, 2020). These sources provide contextual information regarding clutch performance in the NBA while highlighting the plethora of factors that may impact clutch performance. With such a complex topic at hand, these clarifying sources will strengthen the overall cohesiveness of this research project and its findings.

Several articles studied the causes and effects of pressure on player performance but were not restricted to studying only the NBA or basketball. One article by Mark Otten investigated whether a players’ feeling of control and urgency in a situation influenced their performance levels and used experiments to back their findings. This data included professional basketball players but was not solely restricted to the NBA. Similarly, UCSD professor Matt Goldman published a study in 2012 which aimed to determine whether effort or concentration has a bigger impact on clutch performance in the NBA. Both sources focused on which mental aspects of pressure are most relevant for studies such as this one; the amount of additional effort displayed when under pressure, or the change in focus caused by increased pressure.

There are also two studies completed by Mattew Schweickle, both published in 2021, which sought to find the most relevant performance indicators for players under pressure in basketball. These studies help to explain the benefits and drawbacks of using objective and subjective performance indicators to measure clutch performance. Depending on the definition of clutch being used, factors such as expectations, team performance, and player role must also be considered when investigating performance under pressure (Schweickle, 2021). The overall findings of these studies were that research of clutch performance should consider not only objective indicators such as statistics, but also subjective indicators like an athlete’s perceived performance and how their levels of effort and concentration may change under pressure.

By using statistical data analysis while also considering the subjective aspects of clutch performance, this research project will provide a modern perspective of what defines clutch players in the NBA. The study will determine which player statistics are most greatly affected in the clutch, as well as examining the efficiency of player usage and tendencies in late-game scenarios. Though there has been a multitude of studies related to clutch performance in the NBA in the past, there is a gap in knowledge when it comes to determining the statistics that are most relevant and prone to change when measuring clutch performance levels in the modern NBA.

The findings of this research will provide value to viewers, coaches, and players of the NBA by aiding in the understanding and measuring of the efficiency of players’ clutch performances. It does not appear that any studies with this particular focus and magnitude have been conducted in the last five years, meaning there is a serious gap in the public understanding of clutch performance in the modern NBA. With how quickly the trends and dominant strategies of the NBA change, it is important that current research is constantly being updated and improved as the league constantly shifts in new directions. Due to the massive amount of raw data provided by the NBA, an equally large amount of analysis, comparison, and recommendations can be formulated and provided to the public through this research.

Methodology

This thesis will utilize 2024 NBA regular season data to analyze player performance to identify important clutch time statistics and create a comprehensive "clutch score" statistic to measure overall performance.

Dataset:

The data used in this study will be primarily provided by the official NBA website. The NBA relies on data collected by a third-party vendor called SportsRadar to conduct their professional analyses of player performance and to study league-wide trends according to player statistics. This data has been made easily accessible on the NBA website at no charge.

Furthermore, the data has already been divided into many different categories, including overall season statistics as well as clutch-time only statistics. No entity holds more authority and integrity than the NBA when it comes to player statistics, and having such an immense amount of reliable data for each player and team in the league will ease the burden of gathering accurate data for this project.

The official NBA website allows filtering of statistics by player, team, regular season, playoffs, as well as in a variety of modes; for instance, statistics can be measured per game, per 48 minutes, and per play, among other options. If even further specification is required, the site offers advanced filters which can isolate stats based upon which quarter the game is in, whether a team is ahead or behind, player position, and game location. It also allows clutch time statistics to be narrowed down depending on how much time remains in the game, point differential, and how much time is left on the shot clock. It is fortunate to have such an immense amount of customizable data readily available online, as it allows for the bulk of this project to focus on breaking down the data and providing useful findings.

While the official NBA website allows great freedom to customize statistics, it is anticipated that other data sources may also need to be relied upon at times. For these instances, a website named ‘Basketball Reference’ will be used; this site uses the same statistics provider as the NBA, SportsRadar, but is capable of showing more advanced statistics such as player shooting efficiency. While the use cases of this source may be rare, it is a luxury to have a secondary source to not only provide data unavailable on the official NBA website, but also to confirm the accuracy of the original data provided.

If neither of the aforementioned sites are able to provide the statistics required for proper analysis, there are a multitude of other reliable websites which record and share specific NBA data points. Some of these tertiary sources include dunksandthrees.com, pbpstats.com, and nbastuffer.com.

While it is not guaranteed that these sites will be individually utilized in this study, they are all viable options to fall back upon if the official NBA site proves to be lackluster regarding certain metrics. This study will utilize only data collected during the 2023-2024 NBA regular season in order to provide the most up-to-date and relevant findings for the modern landscape of the NBA.

Variables:

Many variables are considered relevant for this study. The large majority of variables utilized will be objective performance indicators in the form of in-game player statistics. Previous studies in this subject matter have heavily relied on statistical data points to measure player clutch performance as it is the most objective and consistent method of determining the efficiency of player performance. Some studies have also relied on subjective performance indicators to measure player clutch performance, but it remains unclear whether there is a realistic way to gather sufficient modern research on player mentality to incorporate it into this study.

The variables being analyzed in this study include: points, assists, rebounds, steals, blocks, turnovers, minutes played, field goals attempted & made, field goal %, three-point %, free throw %, player usage rate, win/loss rate, and +/- score. All of these variables are utilized in the formula created through this study that determines a player’s comprehensive ‘clutch score’.

The first six of these variables are the basic statistics measured in basketball. These statistics help to portray what a player is actively achieving during their time spent on the court. A player who tallies a higher number of points, rebounds, assists, steals or blocks in a certain period of time compared to a player who scores less of these stats in the same time frame will be considered a more successful player. Turnovers stand as the lone basic statistic which is considered a negative, and so a player with a higher number of turnovers would be less efficient than a player with a lower number of turnovers, assuming all other stats are held equal.

Variables such as FGA, FGM, FG%, 3P%, FT%, USG%, and +/- are a bit more complex to analyze. The benchmark for success for these variables can vary depending on player position, playstyle, and the role that they play on their team. For example, a three-point specialist who shoots only three-pointers may have a FG% of 40%, while a center who predominantly plays in the paint and catches lobs may have a FG% of 60%. Despite the large disparity in FG% between these two players, it is difficult to determine which player is performing better solely from these two variables due to their differences in role and playstyle. Due to this added complexity, these variables which look at efficiency in shooting can not be relied upon as the primarily values of this analysis, but rather as supplemental indicators which when paired with the previously mentioned statistics can provide useful insights.

The variables which will hold the most weight with regards to a player’s overall clutch performance include points scored, turnovers surrendered, and shooting percentage, as these are variables most crucial to a team’s success in a short period of time. These variables will be included in the clutch score formula created in this research, which will be further expanded upon in the Methods of Analysis section.

Methods of Analysis.

The main methods of analysis for this study include hypothesis testing, data visualization, the creation of a clutch score formula, as well as the possibility of regression analysis and clustering. This research project utilizes the programming languages Python and R as the primary methods of breaking down and analyzing the large amount of NBA player data available and producing relevant findings regarding clutch performance for this study. These languages will be used to not only extract specific player data in an easily digestible way but will also enable the creation of a unique formula which calculates an overall ‘clutch score’ for each player studied.

Hypothesis testing will provide a clear insight into how player statistics are changing between normal time and clutch time in the NBA. This analysis will be a crucial part of the research, as further analysis will be impossible without knowing whether player statistics actually are changing in the clutch and if so, how they are changing. Findings such as percentage changes in statistics between regular and clutch time will be measured as part of this analysis. It is also anticipated that methods such as Z-tests and T-tests will be completed as a part of this methodology. These methods will show how levels of clutch performance are distributed among players and allow for effective grouping of clutch performers to be compared against one another.

Visualization will also be an important aspect of this research, especially when presenting the findings of the research to an audience that may not be very familiar with the sport of basketball or the research methods used in the study. Visualizations such as bar charts, line charts, and pie charts all have the potential to serve value to this research project by helping to display the differences and changes in performance during the clutch. Since this research will be based around many different methods of breaking down the data and analyzing it, portraying the findings in an easily digestible medium such as charts and graphs will be essential in ensuring that the findings of this research are accessible to people of all different backgrounds, knowledge, and experience within the realm of basketball. PowerBI is likely to be the main visualization tool used due to the large customization options offered and the research team’s prior experience with the software.

Another avenue of analysis that will play a vital role in this research is the creation of an original formula which combines many different player statistics into a single numeric value known as a clutch score. While there does not seem to be a specific name for this type of analysis, the plan is to test many different combinations of statistics being measured, as well as adjusting the weights of each different statistic until the most accurate and reliable formula is found. While this formula is likely to include some form as subjectivity regarding the weights of different statistics due to the complexity of measuring clutch performance in basketball, this issue is expected to be addressed by consulting with a professional within the field of basketball and providing him many different lists based upon similar yet different formulas. In other words, said expert will be provided ten different lists of the top ten most clutch players in the league based on the created formulas, and said expert would then rank the lists based upon what they consider to be most accurate. This will provide the research team with a second-hand opinion on the accuracy and effectiveness of the formulas created, and thus will reduce the amount of bias and raise the overall quality of the research project.

Regression analysis and clustering are other methods of analysis that could play a role in this research. While it is unclear what exactly these methods would be used to measure at this point, it is likely that as the research progresses their value will become clearer to the research team. Clustering could likely be useful in helping to categorize players based upon their clutch score and their team’s winning percentage, as it would help to visualize different groups of players based upon their clutch abilities as well as how impactful their clutch performances are in the context of overall team success.

Ethical Considerations

Due to the public nature of the statistics used in this research project as well as the celebrity status of the players whom these statistics concern, there are not many ethical considerations regarding privacy that must be addressed.

One of the main ethical concerns of this research is to limit the amount of personal bias shown by the research team in the classification, ranking, and grouping of players studied. Though this project is primarily data-driven, there are some aspects of the research which will require manual decision-making by the research team; one such example of this process is the weighting of statistics to be used in the clutch score formula. As previously mentioned, this potential source of bias will be addressed by consulting with a professional in the field of basketball who will discern which formula created is most accurate, effectively limiting the impact of subjectivity shown by the research team and confirming that the choices made for the clutch score formula are in the best interest of the research as a whole. Additionally, previous literature in this area of research will be reviewed and considered when deciding the importance of specific player stats.

Additionally, it is anticipated that the information gathered in this study as well as the formulas created could be used as a tool to aid in sports betting. While some may not consider this inherently unethical, it is important to clarify that the primary purpose of this study is to improve overall knowledge and understanding of the league for fans, players, and NBA staff; any sort of monetary wagers based upon this research are placed at one’s own volition and this practice is discouraged by the research team.

While this research does have the potential to cause harm by acting as a source of unreliable information, all necessary steps will be taken to ensure that the findings shared are statistically driven and use information gathered from a reliable source. By following a pre-defined process that adheres to the standards of reliable academic research, there is optimism that this research will be able to provide real positive value to NBA fans, players, coaches, and executives alike.

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