Shifting Courts: Pay Equity Between the NBA & WNBA

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Abstract

This project analyzes the salary gap between NBA and WNBA players by looking at how salaries are distributed and how performance relates to pay. Using salary data, revenue figures, and multi season performance statistics, the study compares inequality across leagues and captures the connection between performance and salary in the NBA. The NBA shows extremely high salary inequality, while the WNBA's distribution is far more even. Performance strongly predicts NBA salary, but structural differences between the leagues account for the larger pay gap.

Introduction

The gender pay gap in professional basketball has become one of the most reported examples of inequality in sports. Although both the National Basketball Association (NBA) and the Women's National Basketball Association (WNBA) represent the highest level of competition in their fields, the financials of the two leagues differ. Public discussions often focus on the difference between a star NBA player's maximum contract and the salary cap for an entire WNBA roster, but these comparisons do not explain why these disparities exist or how they are created. Understanding these differences requires looking at the deeper structures that shape each league like their revenue systems, collective bargaining agreements, historical development, and the relationship between performance and player compensation.

Studying salary patterns in the NBA and WNBA offers a transparent way to look into pay inequity. Unlike many industries where earnings are private, both leagues publish salary information, creating a clear view into compensation. This allows for a precise analysis of how salaries are distributed across players and how performance is rewarded within each league. It also allows researchers to test long standing claims about women's sports. This could include

that lower pay is due to lower revenue, that performance plays a smaller role in salary, or that structural limits prevent women's leagues from offering pay that is comparable to men's leagues.

Despite growing attention to women's basketball and increasing visibility for the WNBA, there is limited empirical research that looks at salary inequality in both leagues using recent data. Much of the existing scholarship leaves out major shifts in media contracts, cultural visibility, and collective bargaining reforms that occurred in 2020. As a result, updated analysis is needed to understand how pay structures have evolved, whether the gap between the leagues has narrowed or widened, and how salaries reflect player performance.

This project contributes to this conversation by looking at league wide salary distributions in the NBA and WNBA and by modeling how performance relates to salary within the NBA. Using salary data, revenue figures, and player performance statistics, the study aims to look into how compensation is structured across the two leagues and identifies the factors that most strongly predict earnings. By combining tools that summarize inequality with statistical models that link performance to pay, the project provides an evidence based evaluation of the factors that shape pay in professional basketball today.

Background

Understanding the pay gap between the NBA and the WNBA requires looking back to consider how professional basketball leagues are built, how they generate revenue, how they compensate players, and how cultural and historical factors shape their financial landscapes. Although both leagues have elite athletes playing the same sport, they operate in different economic environments. These differences are not the result of individual performance or popularity, but reflect decades of unequal investment, distinct league structures, and social views of men's and women's sports. Prior scholarship reinforces this, studies show that gendered

disparities in visibility, media treatment, and resources shape financial outcomes in women's sports (Burton 2023; Kane & Maxwell 2018).

Structure of Professional Basketball Leagues

Professional sports leagues operate as interconnected systems. Each team operates as an individual organization, but the league acts as the body that governs rules, revenue sharing, salary limits, and broadcast agreements. The NBA, founded in 1946, has grown into a global sports enterprise with 30 teams, extensive international reach, and billion dollar media partnerships (NBA 2024). Its scale is supported by high ticket sales, global merchandising, corporate sponsorships, and long term broadcasting deals.

In contrast, the WNBA, founded in 1997, has existed for a much shorter period and operates on a smaller scale. The league has 13 teams, a shorter season, and historically smaller media contracts. Although the WNBA has recently experienced significant growth in viewership, cultural visibility, and social media engagement, scholars emphasize that women's sports remain underfunded in relation to their men's counterparts (Burton 2023). This means that even as interest in women's basketball grows, the league's financial structure continues to reflect decades of underinvestment.

How Player Salaries Are Determined

Player salaries in both leagues reflect a combination of league revenue, collective bargaining agreements (CBAs), and performance expectations. A CBA is a legally binding contract between the players' union and the league, outlining rules about minimum and maximum salaries, revenue sharing, and free agency. The NBA operates under a soft salary cap that allows teams to exceed the cap under specific exceptions, like resigning their own players

through Bird Rights. This contributes to high payrolls and creates options for large contracts earned by star players (Leeds & von Allmen 2017).

The WNBA operates under a hard salary cap, which cannot be exceeded under any circumstances (WNBA CBA 2020). This structure leads to more uniform team payrolls and limits the highest possible salaries. Even the league's top players earn significantly less than NBA stars. This is not because of differences in skill or value, but because of league design.

Revenue Differences

A main reason for the pay gap is that leagues can only pay players from the revenue they make. The NBA brings in revenue from multiple platforms like media rights, ticket sales, sponsorships, and merchandise. Each of these far exceeds the WNBA. For example, the NBA's recent media rights agreement is one of the most lucrative in sports history, while the WNBA's contracts remain much smaller in scale (NBA 2024). Sports economists Fort and Quirk (1995) explain that leagues with higher revenues, broader fan bases, and global commercial partnerships naturally produce higher player salaries. Their framework helps explain why salary ceilings differ so dramatically between the NBA and WNBA.

Historical and Cultural Influences

Beyond economics, cultural and historical forces play a major role in shaping league revenues. Scholars have documented the disparity in media coverage between men's and women's sports (Kane & Maxwell 2018). Women's sports receive less broadcast time, are framed differently in coverage, and attract less high budget sponsors. This is not because of a lack of athletic quality, but because of cultural biases that affect pay. Burton (2023) argues that although women's sports are experiencing unprecedented growth in visibility, this visibility has not yet translated into financial parity.

Another factor is league longevity. The NBA has had nearly 80 years to expand its fan base and negotiate media contracts, while the WNBA is still in the early stages of long term financial development. As a result, the structural environment in which WNBA players work remains shaped by historical inequalities rather than current performance or fan interest.

Why it Matters

In many industries, wage gaps are hard to measure because job roles vary widely. Basketball is a unique exception. Since both leagues play the same sport, use standardized performance metrics, and operate with transparent salary rules, researchers can directly compare compensation structures across gender. Baker's (2020) salary comparison study shows the usefulness of this cross league analysis, although WNBA players earn far less than NBA players, the gap persists even when adjusting for revenue and structural differences. This project builds on that study by using updated data and statistical tools to examine whether the pay gap remains as large today as prior studies suggest.

The background above shows the core forces shaping compensation in professional basketball, league revenue, salary rules, performance metrics, media visibility, and cultural attitudes. These forces motivate the central research question of this project, how do performance and league structure explain salary differences between the NBA and WNBA?

By placing economic and cultural context with player level statistics, this project looks to not only show the existence of a pay gap, but to look at the structural conditions driving it. This allows the study to go beyond general claims and make a better understanding of the underlying reasoning wage inequality in professional basketball exists.

Ethical Considerations

Researching pay differences in professional sports requires careful attention to ethical issues, especially since the topic deals with questions about gender equity, public perception, and the use of salary information. Although the data used in this project is publicly available, the analysis must be done in a way that respects the individuals involved and does not reinforce harmful assumptions about women's sports.

A main ethical concern is framing pay disparities as the fault of athletes, fans, or organizations. Discussions about the gender pay gap in sports often oversimplify systems by putting responsibility on individual choices and not structural factors like media contracts, ownership investment, sponsorship patterns, or historical data. To keep fairness, this project focuses on structural explanations, league revenue, collective bargaining, salary caps, and performance metrics rather than suggesting that players themselves are responsible.

A second ethical issue is avoiding gender assumptions. The purpose of this research is not to claim that male athletes are inherently more valuable or that women's sports are naturally less profitable. The analysis follows the approach by scholars in media and sports studies, who show how differences in revenue and salary often happen from historical disparities in visibility, investment, and cultural attitudes rather than athletics (Burton 2023; Kane & Maxwell 2018). The project tries to purposely analyze league structures without describing differences in worth between men's and women's basketball.

There are also ethical concerns about the use of salary data. While the salaries of athletes are public, they are financial information connected to individuals. This project avoids highlighting contracts unless necessary for highlighting general trends. Most analysis is done using aggregated data, averages, distributions, and league wide totals, to prevent attention on any

single player's earnings. When individual examples are used, they are from well kept public sources and in contextualized ways.

Another ethical consideration is the interpretation of statistical results. Since the available data cannot explain every underlying cause of salary differences, like the effects of visibility, sponsorship decisions, or negotiations, the study does not make causal claims that extend beyond what the evidence supports. Areas where the data is incomplete are talked about. Rather than speculating about the motivations of leagues, the analysis sees these gaps as options for further research.

Finally, the project notes the ethical importance of how media writings are written and read. Scholars have shown that sports media coverage often frames women athletes in ways that reinforce stereotypes (Kane & Maxwell 2018). When citing research, the goal is to highlight structural patterns in representation without reproducing bias. Noticing the difference between analyzing a writing and contributing to it is essential when writing about gender equity.

By including these ethical considerations, the project aims to provide an examination of pay disparities between the NBA and WNBA. The attempt on structural analysis, data transparency, and cautious interpretation ensures that the findings contribute to ongoing conversations about equity in professional basketball.

Data and Methods

Data Collection

Since no single public database contains complete information on salaries, contracts, and performance for both the NBA and the WNBA, this project uses several sources to build a dataset suitable for comparing the two leagues. The goal of the data collection process was to

create a dataset that covers multiple seasons, includes reliable salary information, and allows player performance to be linked to the salary a player earned.

For the NBA, the primary source of salary and contract information was Spotrac, a subscription based website that has detailed financial records for professional athletes (Spotrac 2024). Spotrac does not publish a single combined salary file, it provides separate spreadsheets for each season. To construct a more complete dataset, these spreadsheets were combined in Python by stacking them into a single table and standardizing formats so that player names, team identifiers, and salary values matched across seasons. The NBA salary[1] contains the 2012-2025 seasons and each player's salary, contract length, position, and team.

To add onto this historical data, additional salary information for the 2024-2025 NBA season was retracted from Basketball Reference[2], a public statistics website. Since Basketball Reference does not offer downloadable salary files, the table was extracted using a simple web scraping script written in Python. Web scraping refers to converting information displayed on a webpage into a file, the scraped values were checked, cleaned, and merged into the larger dataset.

Data collection for the WNBA followed a similar approach, but required additional steps since public information for women's salaries is more limited. Historical WNBA salary data was gathered from a combination of Spotrac and manually compiled records from Her Hoop Stats[3], which publishes the most accurate salary figures available for recent seasons (Her Hoop Stats 2024).

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[1] See GitHub repository for full documentation and file structure.
[2] See GitHub repository for full documentation and file structure.
[3] See GitHub repository for full documentation and file structure.

WNBA player performance statistics were collected from ESPN, which has the most consistent record of game by game and season level performance for WNBA athletes. These statistics were scraped from ESPN's player pages using Python and matched to the salary data by player name and season.

Across all of the datasets, the final compiled files for the two leagues contain player salaries, contract information, positions, and performance statistics like scoring, rebounding, assisting, and defensive metrics. Since these sources vary in structure, a big amount of cleaning was required to create files that could be merged and analyzed.

Data Cleaning

After collecting the raw files, the datasets were cleaned to ensure consistency across leagues and seasons. Cleaning involved several steps to remove errors like formatting differences, missing values, and incomplete reporting.

First, the separate yearly contract files for the NBA and WNBA were standardized so that each dataset used the same column names, date formats, and team identifiers. Duplicate entries were identified by player season and removed. Names were standardized to ensure that performance statistics could be matched to salary information, mainly in cases involving hyphenated names or name changes.

Second, unusually formatted variables, like values reported with commas or currency symbols, were converted into numerical form.

Third, since the study relates salary to performance from the prior three seasons, players with missing performance data over that period could not be included in the regression model. These cases involved new players entering the league, players returning from overseas, or

players with partial seasons due to injury. Removing these observations ensured that the analysis compared players fairly.

Finally, because early WNBA salary and performance data is incomplete and inconsistently reported, these seasons were excluded from the study. This decision allowed the analysis to rely on more reliable records. To keep consistency across files, all datasets created for this project were made to follow a structure. Variable names were converted to lowercase, values were changed to general numerical format, and blank entries were standardized. When appropriate, values were normalized or inflation adjusted. Detailed documentation of these formatting rules and the full cleaning and processing code was recorded[4].

Limitations of Data

Despite careful collection and cleaning, several limitations affect the dataset and should be considered when interpreting the findings. First, the performance metrics used in this study are actions that are in box score reporting, points, rebounds, assists, steals, and blocks, but do not reflect contributions that are not measured. For example, leadership, communication, off ball movement, rotational defense, and team specific roles have a significant effect on a player's value, but are not fully represented in performance data.

Second, although the NBA dataset covers a long historical period, the WNBA has much fewer recorded seasons and more irregular historical reporting. WNBA records from the league's earlier years have missing or inconsistent recorded salary and performance data. This incompleteness limits the ability to do a fully continuous longitudinal dataset.

Third, the analysis uses only reported league salary data and does not include outside earnings. Many NBA players receive substantial income from endorsements, sponsorships,

[4] See GitHub repository for full documentation, datasets, and code.

incentives, or bonuses not included in publicly available salary files. Similarly, many WNBA players earn a significant portion of their income from overseas leagues during the off season. Since these additional earnings differ between leagues and are not publicly documented, they are excluded from the dataset. As a result, the analysis focuses on league salary and not total income.

Finally, since the study links contracts to performance from the three preceding seasons, players with incomplete records had to be removed. This means certain contracts are not represented in the performance salary model.

These limitations do not undermine the central comparisons in the study, but they show the negatives of publicly available data and the structural differences in how each league reports its records.

Methods

The methods used in this project were used to look at two major questions:

1. How salaries are distributed within the NBA and WNBA.
2. How closely player performance relates to salary within the NBA.

Since these questions involve both descriptive comparisons and statistical modeling, the analysis combines several approaches. Each method was chosen for its ability to answer a clear, straightforward question about salary patterns or performance based pay.

Salary Distributions

The first part of the analysis focuses on how salaries are spread out across players in each league. Professional basketball features wide differences in compensation, some players earn the league minimum while others sign multi million dollar contracts, and understanding these patterns requires tools that describe the entire distribution, not only averages.

Percentile Tables

Percentile tables were used to summarize salary levels across the earnings spectrum. A percentile represents the point below a certain percentage of players who fall in that group. For example:

- The 25th percentile shows what a lower paid player typically earns.
- The 75th percentile reflects what a higher paid player earns.

These tables reveal how clustered or spread out player salaries are and help identify whether one league has a tighter salary range than the other.

Lorenz Curves

To visualize inequality more directly, Lorenz curves were created for both leagues. A Lorenz curve is a simple plot showing how much of the total league salary is earned by the bottom percentage of players. If every player earned the same amount, the curve would form a straight diagonal line. The more the curve bends away from that line, the more unequal the distribution becomes.

Gini Coefficients

The Lorenz curves were summarized using Gini coefficients, a widely used measure of inequality. The Gini coefficient ranges from 0 being perfect equality, every player earns the same salary, to 1 being perfect inequality, one player earns everything.

Since inequality statistics can vary from sample to sample, this study also used bootstrap confidence intervals, a resampling technique that estimates how precise the Gini values are. This step allows for a statistical comparison between the NBA and WNBA, identifying whether observed differences are meaningful or due to chance.

These descriptive methods provide a foundation for comparing the structural differences in salary inequality between the two leagues.

Performance and Salary

The second part of the analysis examines whether players who perform better earn more money. This part of the study focuses on the NBA, where performance and salary data are more complete and consistent over time.

Performance Index Construction

Since individual statistics only show a little bit of a player's contribution, the study created a single performance index. This index combines major box score statistics into one measure so that overall player productivity can be compared more easily.

To ensure the index reflects performance at the time of contract signing, each player's score was calculated as an average of the three seasons before the contract year. This approach follows common practices in basketball research, where recent performance is considered the most relevant predictor of contract value.

Regression Model

A regression model was created to look at how salary changes as performance changes, while holding other factors constant. In simple terms, a regression model helps answer the question, if two players are the same age and play the same position, does the one with better performance earn more?

In this study, the model predicts a player's log salary, which is a standard transformation that makes comparisons more accurate. Along with the log salary, the model uses the performance index, age, and position to account for differences between roles. This allows the analysis to separate the performance from other variables that might influence earnings.

Scatterplot Visualization

To go along with the statistical model, a scatterplot was created showing each NBA player's performance index and salary. Each point on the plot represents a single contract. The scatterplot is a visual tool that helps show overall patterns. This visual confirms that the relationship seen in the model also appears in the full data.

Integrating the Methods

Together, these methods create a detailed look at the two research questions. The descriptive tools (percentiles, Lorenz curves, Gini coefficients) reveal how unequal salaries are within each league and allow for direct comparison between the NBA and WNBA. The statistical model and scatterplot extend this by showing how performance relates to pay within the NBA. By combining these approaches, the study provides a picture of salary structures and how individual performance affects earnings.

Results

Salary Distributions

Percentage of Highest Earning WNBA Players	Earnings	Percentage of Total Payroll
Top 5%	$11,529,216	13%
Top 10%	$21,062,771	24%
Top 20%	$34,201,008	39%
Top 30%	$43,556,491	49%
Top 40%	$51,534,522	58%
Top 50%	$58,892,082	67%

Table 1. Salary Percentiles for WNBA Players.

This table reports salary percentiles for WNBA players, showing how earnings are distributed across the league. The percentiles reflect the narrower salary range and more compressed distribution of the WNBA's compensation structure.

Percentage of Highest Earning NBA Players	Earnings	Percentage of Total Payroll
Top 5%	$9,184,073,349	41%
Top 10%	$12,905,498,317	58%
Top 20%	$16,335,457,013	74%
Top 30%	$18,100,739,518	82%
Top 40%	$19,384,085,548	87%
Top 50%	$20,350,190,104	92%

Table 2. Salary Percentiles for NBA Players.

This table reports key salary percentiles for NBA players, showing how earnings are distributed across the league from lower paid to higher paid players. The percentiles highlight the wide range of NBA salaries and provide a summary of the overall shape of the league's salary distribution.

The salary distributions show differences between the NBA and the WNBA. Percentile tables for each league indicate that NBA salaries (table 2) have a wide range, from league minimum contracts to extremely large maximum contracts. In contrast, WNBA salaries (table 1) have a much smaller range, with smaller differences between the lowest and highest paid players.

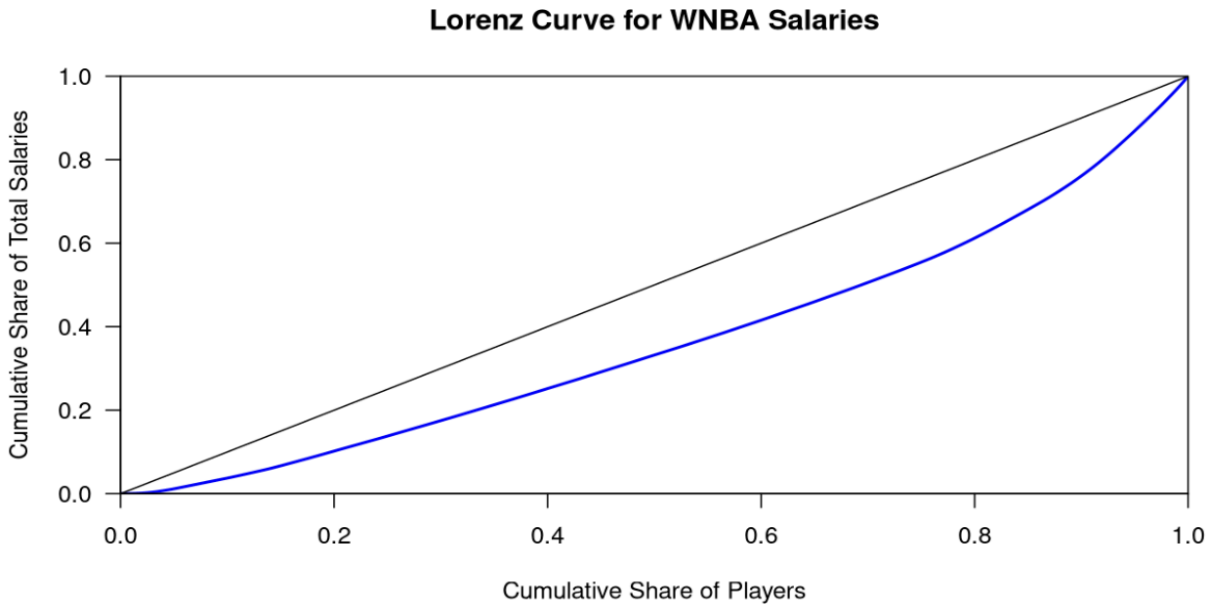

Figure 1. Lorenz Curve for WNBA Salary Distribution.

The Lorenz curve shows the distribution of salaries within the WNBA. The curve is closer to the line of equality, meaning a more even distribution of salaries across players.

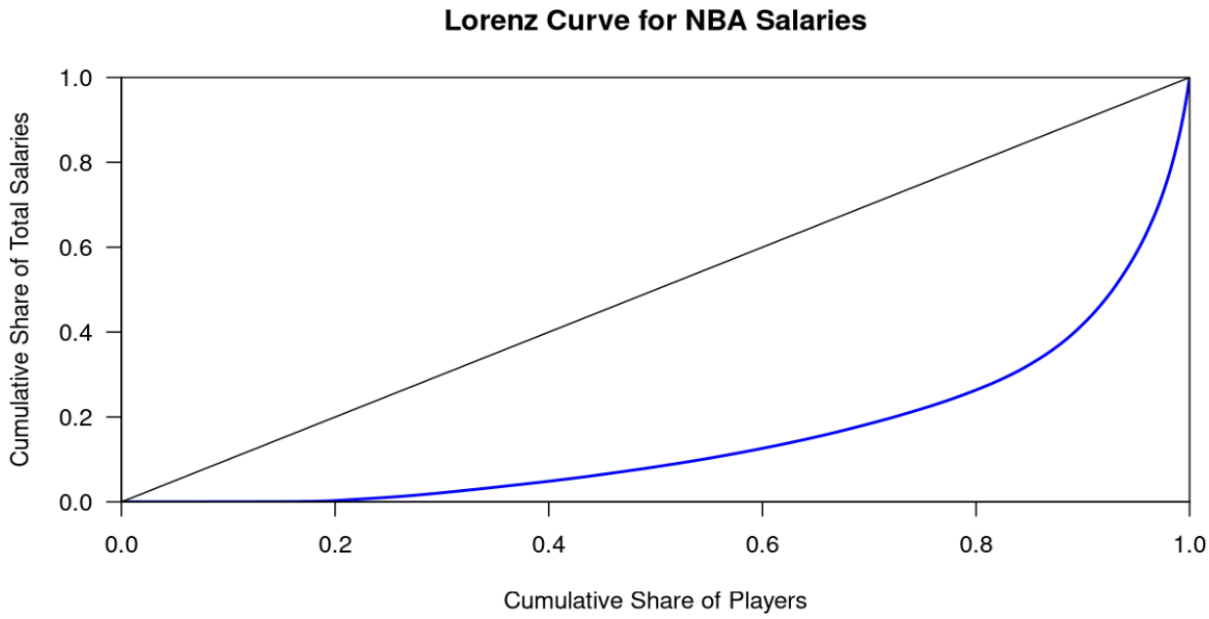

Figure 2. Lorenz Curve for NBA Salary Distribution.

The Lorenz curve illustrates the distribution of salaries among NBA players. The sharp curve away from the line of equality indicates a high degree of salary inequality within the league.

The Lorenz curves further illustrate these differences. The NBA Lorenz curve (figure 2) bends sharply away from the diagonal line of equality, showing that a small share of players receive a large share of total league salary. The WNBA Lorenz curve (figure 1) is much closer to the diagonal line, showing a more even distribution of salaries across players.

League	Gini Coefficient	95% Confidence Interval
NBA	0.6921302	(0.68-0.70)
WNBA	0.2661749	(0.25-0.27)

Table 3. Gini Coefficients and 95% Confidence Intervals for NBA and WNBA Salary Distributions.

Summary table reporting the Gini coefficients for each league, with bootstrap based 95% confidence intervals used to assess the statistical precision of the inequality estimates.

The Gini coefficients (table 3) summarize these patterns. The WNBA salary distribution has a Gini coefficient of 0.26, with a 95% confidence interval ranging from 0.25 to 0.27. The NBA salary distribution has a Gini coefficient of 0.69, with a 95% confidence interval from 0.68 to 0.70. These results show that salary inequality is low in the WNBA and very high in the NBA. Since the confidence intervals do not overlap, the difference between the two leagues is statistically significant. A comparison of the two coefficients confirms this conclusion. The difference between the WNBA and NBA Gini coefficients is –0.42, with a 95% confidence interval from -0.44 to -0.40, showing a clear and statistically precise gap in salary inequality between the leagues.

NBA Regression Model

The statistical model examining the relationship between performance and salary in the NBA shows several patterns. The performance index is strongly associated with salary, higher performance scores correspond to higher average earnings. The estimated coefficient for the performance index is 0.256, and it is statistically significant. Age shows a small but measurable relationship with salary. The coefficient for age is –0.020, indicating that older players earn slightly less on average than younger players with similar performance records.

Position variables show limited effects. Most positions do not differ significantly in salary once performance and age are accounted for. The only exception is the shooting guard position, which has a coefficient of 0.312. Other positional differences are not statistically significant. The model explains around 12% of variation in salary ($R^2 = 0.12$). This indicates that while performance contributes to salary differences, much of the total variation in NBA salaries remains unexplained by the variables included in the model.

Scatterplot

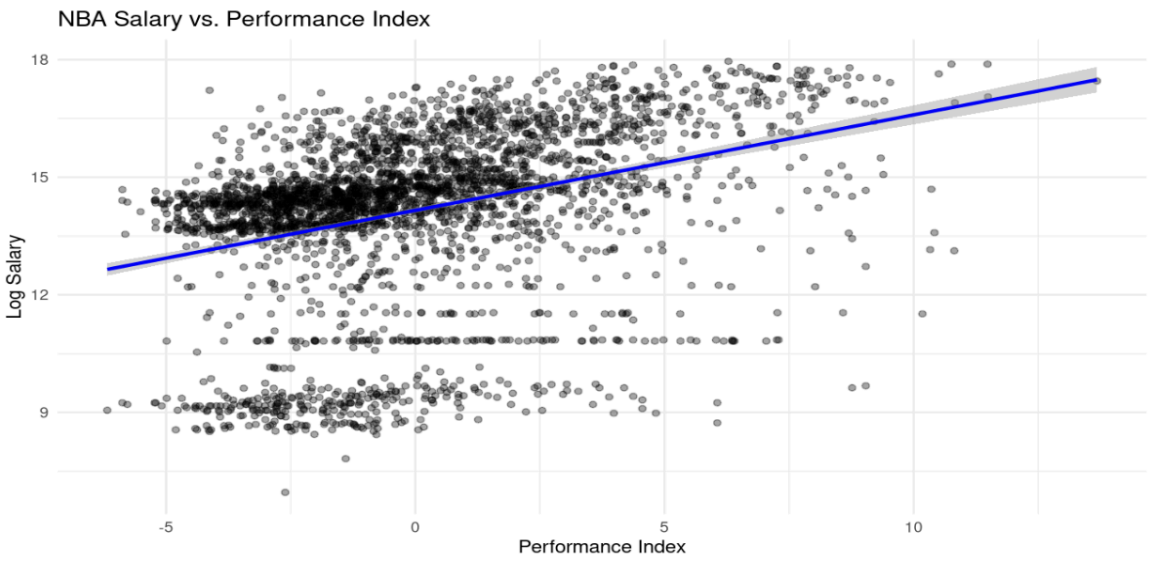

Figure 3. Relationship Between NBA Player Performance and Salary.

Scatterplot showing individual NBA player contracts, with the performance index on the y-axis and annual average salary on the x-axis. Each point represents one contract. A trend line is included to show the overall direction of the association between performance and salary.

The scatterplot (figure 3) provides a visual summary of the relationship between the performance index and salary in the NBA. Each point represents one player contract, with performance on the x-axis and salary on the y-axis. The figure shows that salaries vary widely at lower performance levels and higher performing players consistently appear in the upper salary ranges. A clear upward trend line goes through the figure, reflecting the positive relationship captured in the regression model.

Interpretation and Discussion

The results of this study show clear and measurable differences in how salaries are structured in the NBA and WNBA, and these findings reflect broader economic and cultural factors that shape professional basketball. When the pay relationship patterns are interpreted together, the data reveals that league structure is the primary driver of the pay gap between the

two leagues. This conclusion aligns closely with existing research showing that women's sports operate in financial and cultural environments that limit compensation (Burton 2023; Kane & Maxwell 2018).

Interpretation of Salary Inequality Patterns

The inequality measurements show a big divide between the two leagues. The NBA has extremely high salary inequality, with a Gini coefficient near 0.70, while the WNBA has less inequality, with a coefficient around 0.26. These differences are statistically significant after accounting for sampling uncertainty. The lower WNBA inequality reflects the strict salary cap and limited revenue streams, which compresses the salary distribution. This pattern matches the framework by Fort and Quirk (1995), who describe how leagues with abundant revenue and flexible payroll systems produce large differences in player earnings. Stronger media deals, bigger sponsorships, and a larger fan base make the NBA a high revenue league.

The WNBA's more compressed distribution reflects the opposite conditions. Scholars of women's sports describe decades of underinvestment, limited media exposure, and smaller sponsorship markets place limits on league revenue (Burton 2023). These restrict how much teams can pay players regardless of performance or popularity. The inequality results from this study provide evidence supporting the claims that the structure of the league and not the performance of its athletes, shapes the limits of pay.

Interpreting the NBA Performance & Salary Relationship

The regression findings show that performance is a meaningful predictor of salary in the NBA, but it explains only a small share of overall salary compensation. Players with higher performance scores earn more and the size of the performance effect is significant. The model's limited explanatory power shows that many other factors influence earnings also.

Sports economics scholarship helps explain these patterns. Leeds and von Allmen (2017) write that NBA salaries are shaped by a combination of performance, marketability, timing in free agency, positional demand, and reputation. These additional influences help account for why the model does not fully capture the wide range of salaries observed in the data. The slight negative effect of age is consistent with patterns in sports because teams often do not rely on older players for concerns about long term durability or declining performance (Noll 2007). The lack of major differences across positions highlights how modern NBA play is in favor of versatility in its players.

Connecting Salary Inequality and Performance Findings

When the inequality results and the NBA performance model are considered together, a conclusion comes together, while performance helps explain differences in salary within the NBA, league structure influences the larger differences between the NBA and WNBA. The NBA's finances allows for variation in salaries because the league has enough revenue to support both high earning stars and lower earning role players. The WNBA operates with tighter financial constraints that shrinks the range of salaries, regardless of performance differences.

This matches the explanations in prior research. Baker's (2020) salary comparison study shows that even when adjusting for revenue, the WNBA pays players a smaller share of league income than the NBA does. Other research helps explain why these revenue differences exist. Gendered biases in media and sponsorship continue to limit financial growth in women's sports (Kane & Maxwell 2018). The findings of this project reinforce these arguments by showing the consequences of these disparities in measurable figures.

Broader Implications

The results of this project contribute to scholarly debates about fairness, equity, and visibility in women's sports. The data shows that WNBA salaries do not reflect a lack of skill, but the limits of a league that historically received less investment and attention. These findings also highlight that the gender pay gap in professional basketball cannot be understood simply as a matter of comparing average salaries. Instead, it shows the intersection of league economies, visibility, and league design. Understanding the pay gap requires recognizing how these factors shape opportunities and outcomes for players in each league.

Conclusion

This study examined how salary structures in the NBA and WNBA differ and what these differences reveal about broader patterns of inequality in professional basketball. By analyzing league wide salary distributions, measuring inequality through Lorenz curves and Gini coefficients, and modeling the relationship between performance and salary within the NBA, the project provides a data driven representation of how compensation is shaped in each league.

The results show that the NBA has an extremely unequal salary distribution, with a small group of players earning a large share of total income. The WNBA has a much more compressed salary structure, shaped by a strict salary cap, lower league revenue, and more contract rules. The statistical comparison confirms that these differences are substantial and statistically significant. The regression analysis shows that performance does predict salary within the NBA, but many other factors also influence earnings.

Together, these findings support the broader claim that salary differences between the NBA and WNBA are not rooted in athletic ability and more in structural conditions like league revenue, collective bargaining rules, and visibility. As researchers like Baker (2020), Burton

(2023), and Kane and Maxwell (2018) have argued, women's sports continue to operate in environments shaped by unequal resource allocation. The evidence presented in this project aligns with this work by showing that even when performance is measured consistently, structural constraints remain the primary drivers of the gender pay gap in professional basketball.

Limitations

Several limitations should be known when interpreting the findings. First, the WNBA's historical record keeping is incomplete, especially for seasons between 1996 and the mid 2010s. Missing contract and performance data reduces the ability to construct a fully continuous dataset. Second, the performance index used in the regression reflects publicly available statistics, which do not capture all aspects of player value. Third, the models rely on league salary data only and do not include earnings from endorsements, bonuses, or overseas competition. Finally, the regression model explains only a portion of NBA salary variation, reminding us that compensation in professional sports is shaped by many factors that cannot be fully captured with available data. These limitations do not undermine the main findings, but they highlight areas where more complete data could help future analysis.

Future Work

Future work can extend this study in several ways. A key next step is to construct a performance salary model for the WNBA once historical data is constructed. This would allow direct comparison of how strongly performance predicts pay across leagues. A combined model that includes both NBA and WNBA data, with a league dummy variable, would allow statistical testing of whether league membership itself predicts salary after accounting for performance. While this model may show limited explanatory power, it would still provide a test of the gap measured throughout the project.

Additional visual tools could strengthen comparative analysis. Standardizing variables with z-scores or using log transformations could make side by side scatterplots easier to interpret. Finally, constructing Gini coefficients for each season would make it possible to track whether inequality is rising, falling, or remaining stable over time in both leagues. This would offer insight into how new media contracts, collective bargaining reforms, or cultural shifts affect compensation patterns.

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Appendices

https://github.com/indyworkman/Workman_401