Richard Masi, Joanna Ksiazek, Simon Clarke

NBA Salary

INTRODUCTION

Our project is researching NBA salaries of players based on their race. We even included their positions and their teams. We have found that black players get paid more than white players in the NBA. Our data sets will show all of this information. Some players who have better stats than other players get paid less than the ones that they are better than, because certain teams have more or less money to spend on players, due to how much money is on their cap space. Also, certain players get better stats in different columns depending on which position they are. You need to get a certain amount of stats in a certain stat area in order to be considered better in order to get more money. You will see with our data the correlation between statistics, race and salary in the NBA.

ECONOMIC DIAGRAM
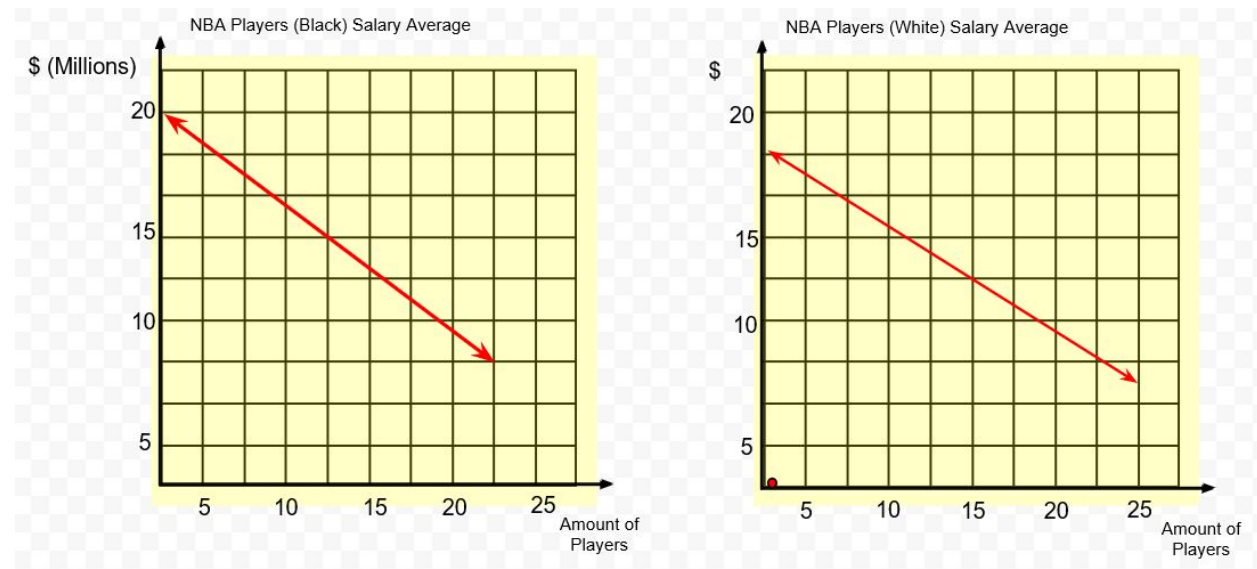
This graph shows the amount of players that get paid a certain amount of salary in the NBA. As you can see there are more Black players that have 20 million plus salaries, while White players don't have one. Therefore, Black players get paid more than White players in the NBA, indicated by the diagram.

RESEARCH QUESTION

Our research question was to find out if there was a correlation between an NBA players race and their salary. We knew that in this time period that race most likely wouldn't be a big factor in

salary as it was decades ago. Due to that fact, we decided to include player's statistics, position and team, just to see if those variables would make a difference in a player's salary amount.

LITERATURE REVIEW

The main idea that we noticed in our literature review was that these articles gave insight as to how and why NBA players get paid the salaries they do.One article we read investigates the determinants of game-day attendance for the National Basketball Association for the 2009/2010–2011/2012 seasons. Six different measures of short-run league-level competitive balance and game uncertainty for two rivals are incorporated at the same time in a Tobit model. The results for the effect of league-level uncertainty support the hypotheses of outcome uncertainty, but the effect of game-level uncertainty does not. Closer wins by the competing teams within a league and a larger gap in terms of the point spread between two teams in the betting market lead to higher attendance.

TABLEAU DATA VISUALIZATION
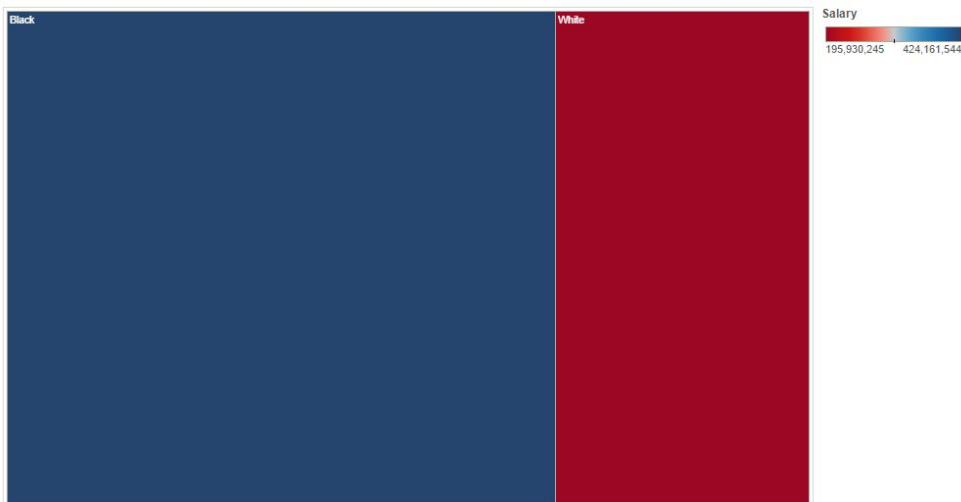
This graph shows the relationship between black players salaries (blue square) and white players salaries (red square). You can see that black players get paid more than white players by a large margin.
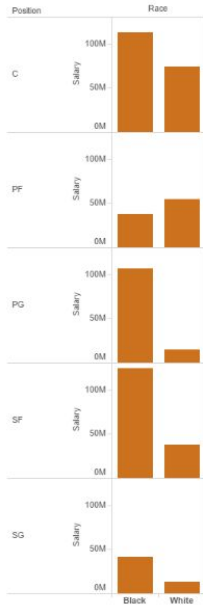
This graph represents the salaries of black players vs white players depending on what position they play. PG, SF & C are higher paying jobs for black players and for white players it tends to be PF & C. Center seems to be the highest paying position on average since it is sought after for both races.
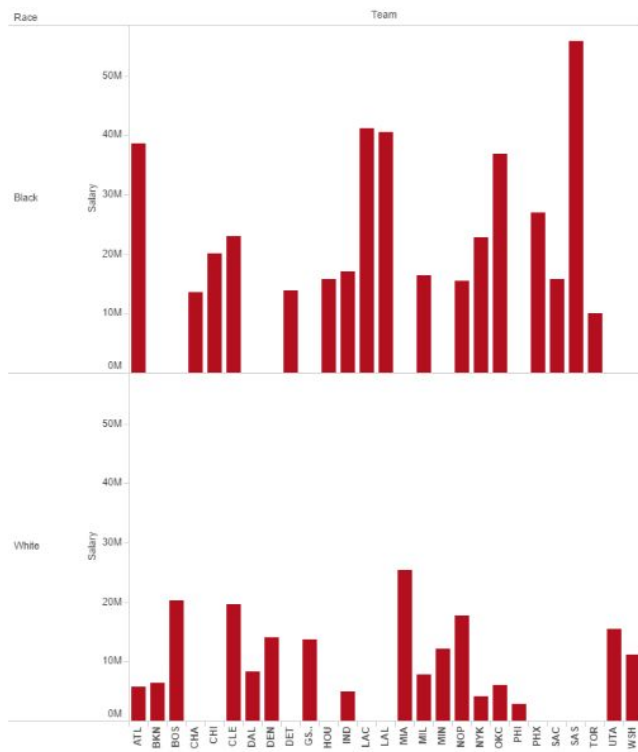
This graph depicts the salary of players on a certain team. A team can have multiple players or one player taken from a team. It just depends on the data sample. In this data sample, you can

tell that certain teams can offer players higher or lower contracts depending on how good they are or what their expected salary would be and if that team can afford to pay that players salary amount.
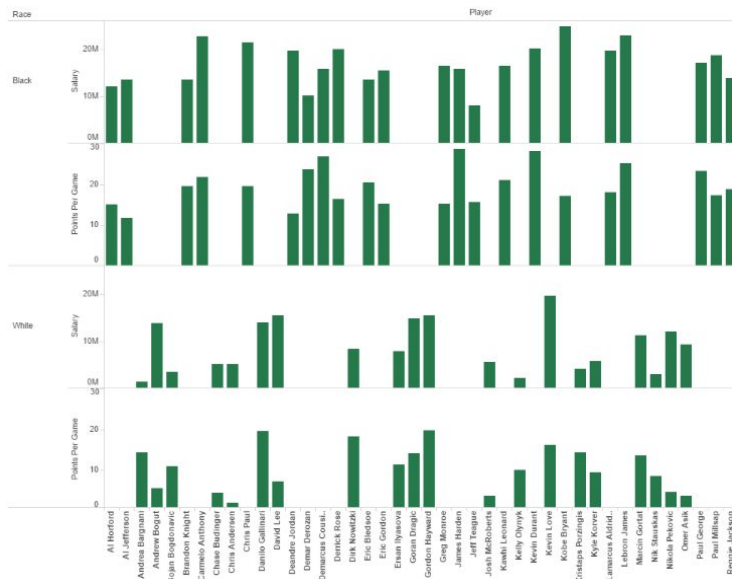
This graph shows the amount of points scored per game on average by each player. We go in depth when we include their race and salary. Correlations can be made to see if salary gets higher or lower depending on a player's average amount of points per game.
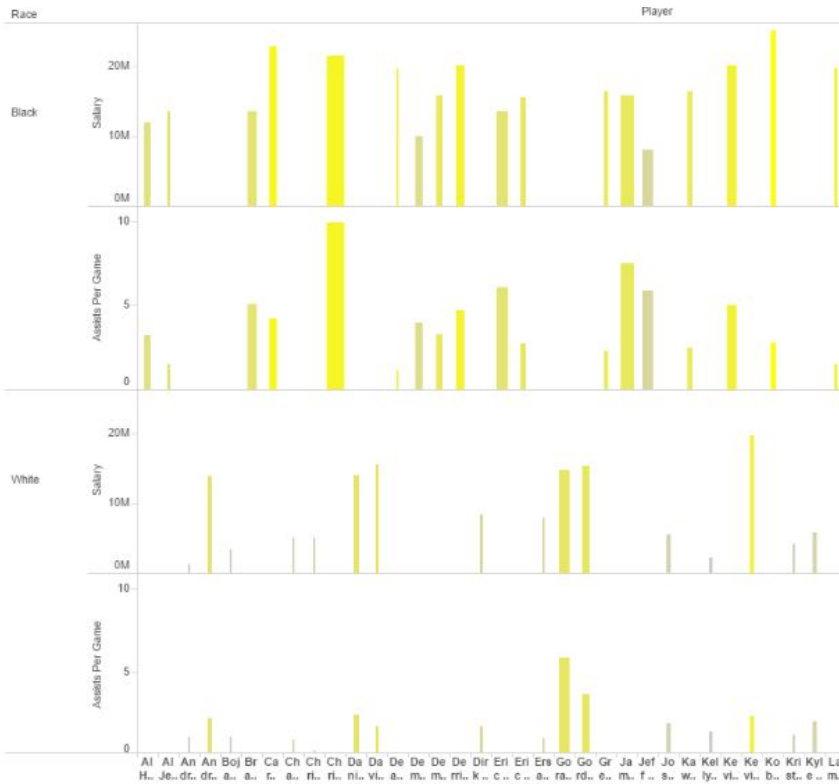
Similar to the graph above this data includes the average amount of assists per game. We are trying to find a correlation between this statistical set and salary in order to see if it makes an impact on salary amount.
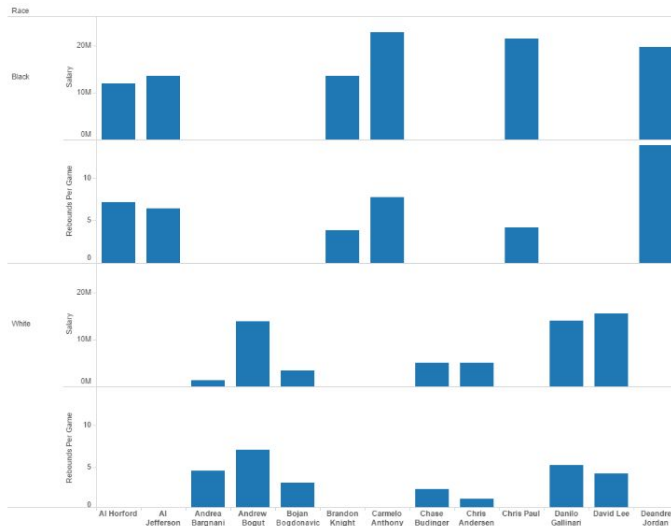
This data set shows the average amounts of rebounds per game and if it affects salary amount. In previous graphs that can be viewed above, (specifically the second Tableau visualization) Centers seem to be one of the more valuable position for each race. Centers are mainly there to get rebounds. This graph shows that Centers with higher rebound amounts tend to get paid more.

MINITAB RESULTS

Descriptive Statistics: SALARY

```
Variable   RACE    N  N*     Mean   SE Mean StDev  Minimum       Q1    Median       Q3
SALARY Black  25    0  16966462   823157  4115784  8000000  13706522  16407500
19891032
       White  25    0   7837210  1066015  5330075  1362897   3147475   5746479
12950000


Variable   RACE    Maximum
SALARY Black  25000000
       White  19689000
```

Regression Analysis: SALARY versus RACE

Method

Categorical predictor coding (1, 0)

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	1.04179E+15	1.04179E+15	45.95	0.000
RACE	1	1.04179E+15	1.04179E+15	45.95	0.000
Error	48	1.08839E+15	2.26747E+13		
Total	49	2.13018E+15			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
4761795	48.91%	47.84%	44.56%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	16966462	952359	17.82	0.000	
RACE					
White	-9129252	1346839	-6.78	0.000	1.00

Regression Equation

SALARY = 16966462 + 0.0 RACE_Black - 9129252 RACE_White

Fits and Diagnostics for Unusual Observations

Obs	SALARY	Fit	Resid	Std Resid	
26	19689000	7837210	11851790	2.54	R

R Large residual

Two-Sample T-Test and CI: SALARY, RACE

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Two-sample T for SALARY

RACE    N      Mean   StDev   SE Mean
Black  25  16966462  4115784    823157
White  25   7837210  5330075   1066015


Difference = μ (Black) - μ (White)
Estimate for difference:  9129252
95% CI for difference:  (6416579, 11841925)
T-Test of difference = 0 (vs ≠): T-Value = 6.78  P-Value = 0.000  DF = 45
```

SUMMARY & CONCLUSION

In our visualization you can see that Black players get paid more than White players on average by a high margin. Our graph represents the relationship between the salaries of Black players and White players, while noticing if their position makes an impact their salary. One can notice that Black players get paid more than White players on 4 out of the 5 positions. If the sample size was larger, Black players most likely, will have a higher salary in all 5 positions. You can also see that Point Guards, Small Forwards and Centers seem to be more valuable when it comes to Black players and Power Forwards and Centers seem to be more valuable when it comes to White players. By the looks of our graph it seems that in both races, the Center gets paid the most on average. Another one of our graphs shows each race and how their salary fares depending on which team they are on. Certain teams can afford to pay certain players more depending on their salary cap space. Another one of our graphs shows the relationship between a players salary and how many points they score per game on average. This data doesn't seem as consistent as we thought. Sometimes players who score on average more points per game, don't get paid as high as others.This could mean that other statistical areas are more important due to position.

There also are players who score a lot and get paid because of that, but it still comes down to your position. Although this stat is important, it doesn't seem to be a factor for all players and how much they get paid. Another one of our graphs represents the amount of assists per game a player has and

if it makes an impact on a players salary. Just like the points per game, assists depend on your position more often than not. For example, a point guard tends to always have the most assists on the team. This stat doesn't affect a player's salary as much, unless you are a point guard. Point Guards with more assists will most likely get paid higher than other point guards who don't have as many assists. Other position players with high assist amounts might get paid higher. As I mentioned before it really comes down to your position and how each position is supposed to play the game. Our final graph shows each player's rebounds per game.This stat usually is higher for Centers since they are taller, closer to the rim and one of the main parts of their game is to get rebounds. Once again this stat is inconsistent, because some players with higher rebound stats get paid lower than players with lower rebound stats. Just look at the first example of Al Horford (C) and Al Jefferson (C/F). Al Horford gets more rebounds than Al Jefferson, but gets paid less than Al Jefferson. It all matters what team you play for, what your position is and if your stats are high in the areas where your position should have high stats.

PLAYER	RACE	POSITION	TEAM	SALARY	Points Per Game	Rebounds Per Game	Assists Per Game
Lebron James	Black	SF	CLE	$22,970,500	25.1	7.5	6.8
Chris Paul	Black	PG	LAC	$21,468,695	19.6	4.2	9.9
Demarcus Cousins	Black	C	SAC	$15,851,950	26.9	11.5	3.3
James Harden	Black	SG	HOU	$15,756,438	28.8	6.2	7.5
Deandre Jordan	Black	C	LAC	$19,689,000	12.8	13.8	1.2
Carmelo Anthony	Black	SF	NYK	$22,875,000	21.8	7.7	4.2
Russel Westbrook	Black	PG	OKC	$16,744,218	23.6	7.8	10.4
Kevin Durant	Black	SF	OKC	$20,158,622	28.1	8.2	5
Demar Derozan	Black	SG	TOR	$10,050,000	23.6	4.4	4
Jeff Teague	Black	PG	ATL	$8,000,000	15.6	2.8	5.9
Derrick Rose	Black	PG	CHI	$20,093,064	16.4	3.4	4.7
Paul George	Black	SF	IND	$17,120,106	23.2	7	4
Al Horford	Black	C	ATL	$12,000,000	15.1	7.2	3.2
Paul Millsap	Black	PF	ATL	$18,671,659	17.3	9	3.3
Tim Duncan	Black	C	SAS	$19,689,000	8.5	7.3	2.7
Kawhi Leonard	Black	SF	SAS	$16,407,500	21.1	6.9	2.5
Lamarcus Aldridge	Black	PF	SAS	$19,689,000	18.1	8.6	1.5
Greg Monroe	Black	C	MIL	$16,407,500	15.3	8.9	2.3
Reggie Jackson	Black	PG	DET	$13,913,044	18.8	3.2	6.2
Al Jefferson	Black	C	CHA	$13,500,000	11.6	6.4	1.5
Kobe Bryant	Black	SF	LAL	$25,000,000	17	3.8	2.8
Roy Hibbert	Black	C	LAL	$15,592,217	6	4.9	1.2

Brandon Knight	Black	PG	PHX	$13,500,000	19.6	3.9	5.1
Eric Bledsoe	Black	PG	PHX	$13,500,000	20.4	4	6.1
Eric Gordon	Black	SG	NOP	$15,514,031	15.2	2.2	2.7
Kevin Love	White	C	CLE	$19,689,000	16.1	9.8	2.4
Gordon Hayward	White	SF	UTA	$15,409,570	19.7	5	3.7
Omer Asik	White	C	NOP	$9,213,483	3.5	6	0.4
Marcin Gortat	White	C	WSH	$11,217,391	13.5	9.9	1.4
Kristaps Porzingis	White	PF	NYK	$4,131,720	14.3	7.3	1.3
Ryan Anderson	White	PF	NOP	$8,500,000	17	6	1.1
Kelly Olynyk	White	C	BOS	$2,165,160	9.9	4	1.5
Bojan Bogdonavic	White	SG	BKN	$3,425,510	10.9	3.2	1.2
Andrew Bogut	White	C	GSW	$13,800,000	5.4	7.1	2.3
Dirk Nowitzki	White	PF	DAL	$8,333,334	18.2	6.5	1.8
Nikola Pekovic	White	C	MIN	$12,100,000	4.5	1.8	0.9
Chase Budinger	White	SF	IND	$5,000,000	4.4	2.5	1
David Lee	White	PF	BOS	$15,493,680	7.1	4.3	1.8
Tyler Zeller	White	C	BOS	$2,616,975	6.2	3	0.5
Andrea Bargnani	White	C	BKN	$1,362,897	14.3	4.6	1.2
Danilo Gallinari	White	SF	DEN	$14,000,000	19.5	5.3	2.5
Sergey Karasev	White	SG	BKN	$1,599,840	2.4	1.5	0.9
Kyle Korver	White	SG	ATL	$5,746,479	9.4	3.3	2.1
Ersan Ilyasova	White	PF	MIL	$7,900,000	11.3	5.4	1.1
Chris Andersen	White	PF	MIA	$5,000,000	1.9	1.3	0.4
Josh McRoberts	White	PF	MIA	$5,543,725	3.6	2.5	2
Goran Dragic	White	PG	MIA	$14,783,000	14.1	3.9	5.9
Nik Stauskas	White	SG	PHI	$2,869,440	8.4	2.5	1.9
Steve Novak	White	SF	OKC	$3,750,001	2.4	0.6	0
Steven Adams	White	C	OKC	$2,279,040	7.8	6.5	0.8

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