



Will the salary contribute to the team's Win?

(*feat : Relation with Salary and Winning*)



Yes It's Sports statistics

Movie : "Money Ball"

→ It's true Story!



- 02' Oakland Athletics original weak Team
: Because of Small Market Team
- Using team sports statistics (on-base percentage) to bring a new trend to the MLB with low-cost, high-performance players
- Sports statistics are actively used since this point

How much do you know about NBA?



A short summary of NBA

: base on NBA 17-18 Season

1) *Players*

: 5 vs 5 on floor

2) 12 minute per Quarter

: Total 48 min / G

3) 82 Games per Team

4) Total Teams : 30 Teams

: Eastern 15 vs Western 15

5) After Regular Season , Play-off

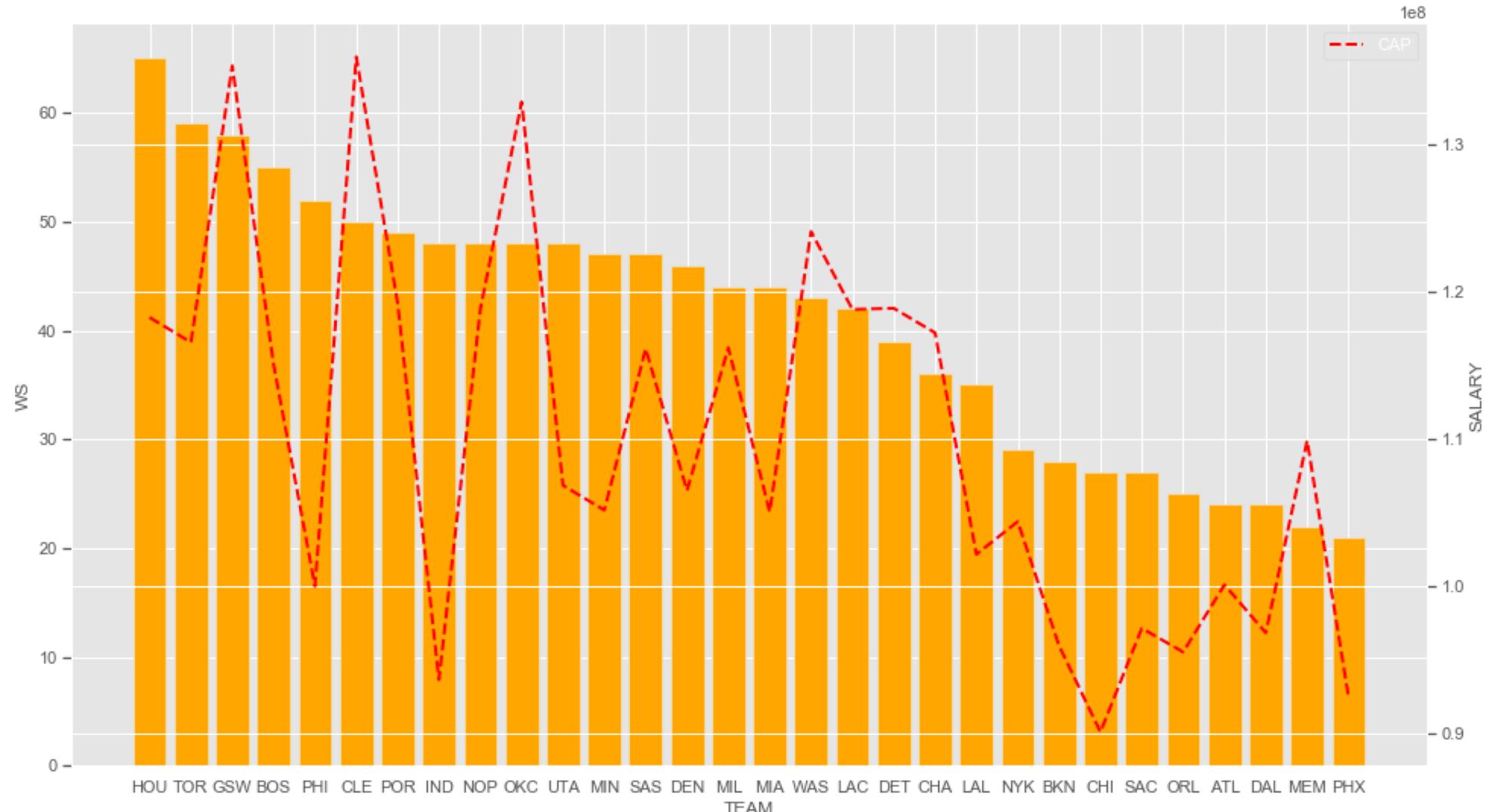




- NBA official Stats
: <https://stats.nba.com>
- Win Share Stats
: <https://www.basketball-reference.com>
- Player's Salary Info
: <https://hoopshype.com/salaries/players/2017-2018>

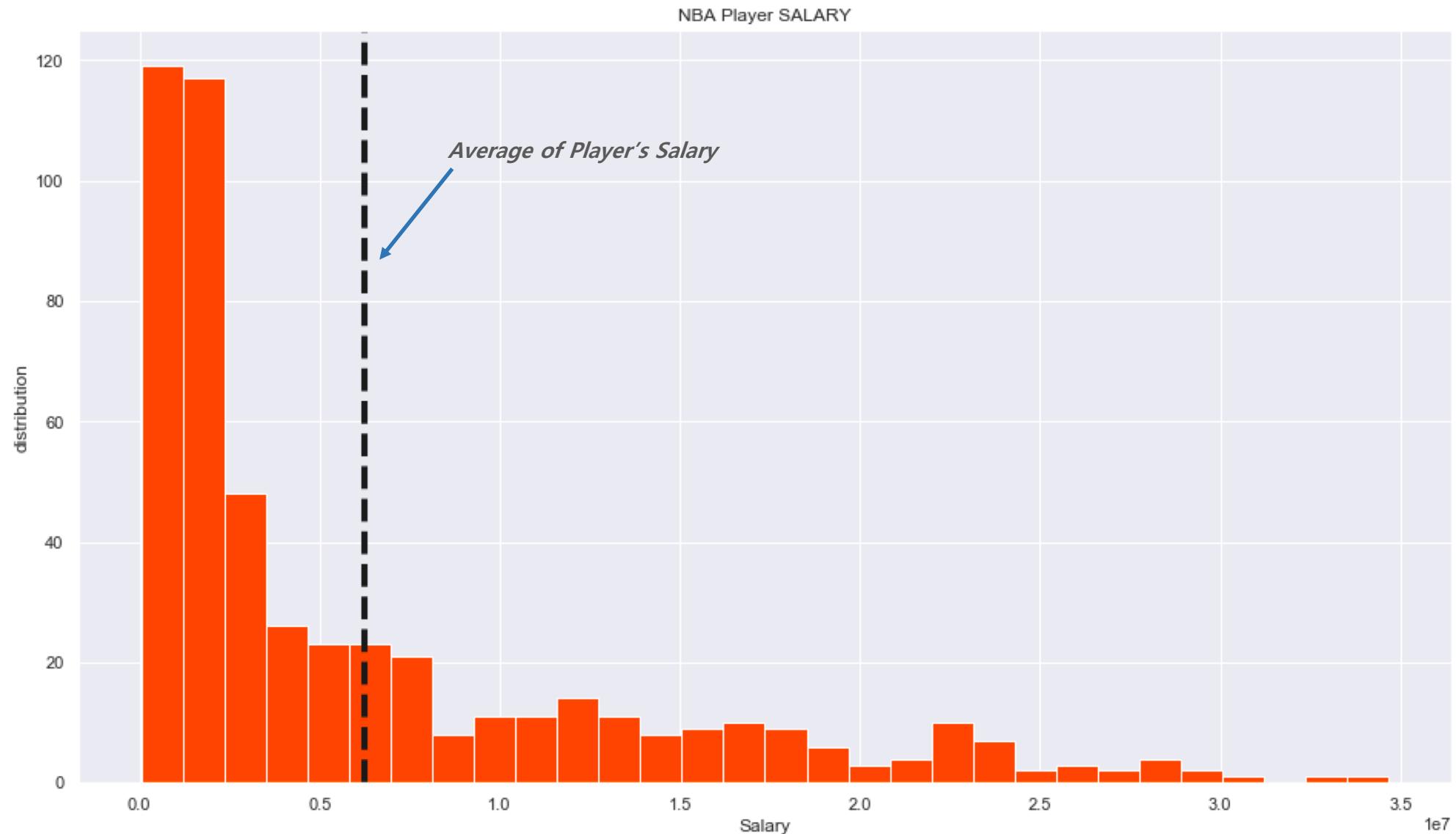
17-18 Team Record (Team with Salary Cap)

Salary Cap is Total Sum of Player Salary
→ The Team Rank does not depend on the salary!



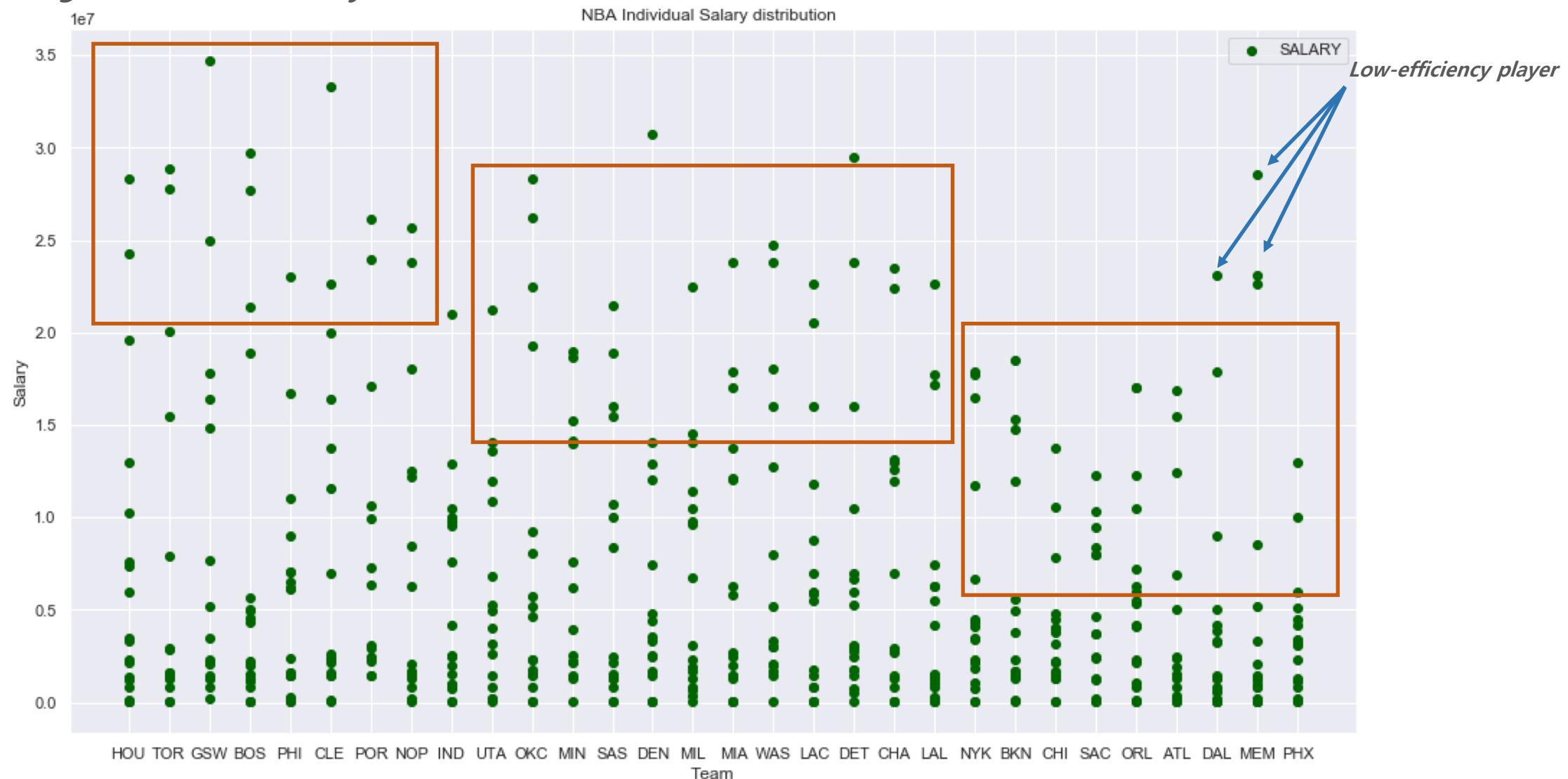
Salary Histogram

→ The Top Ranked Players occupies most of the salary.



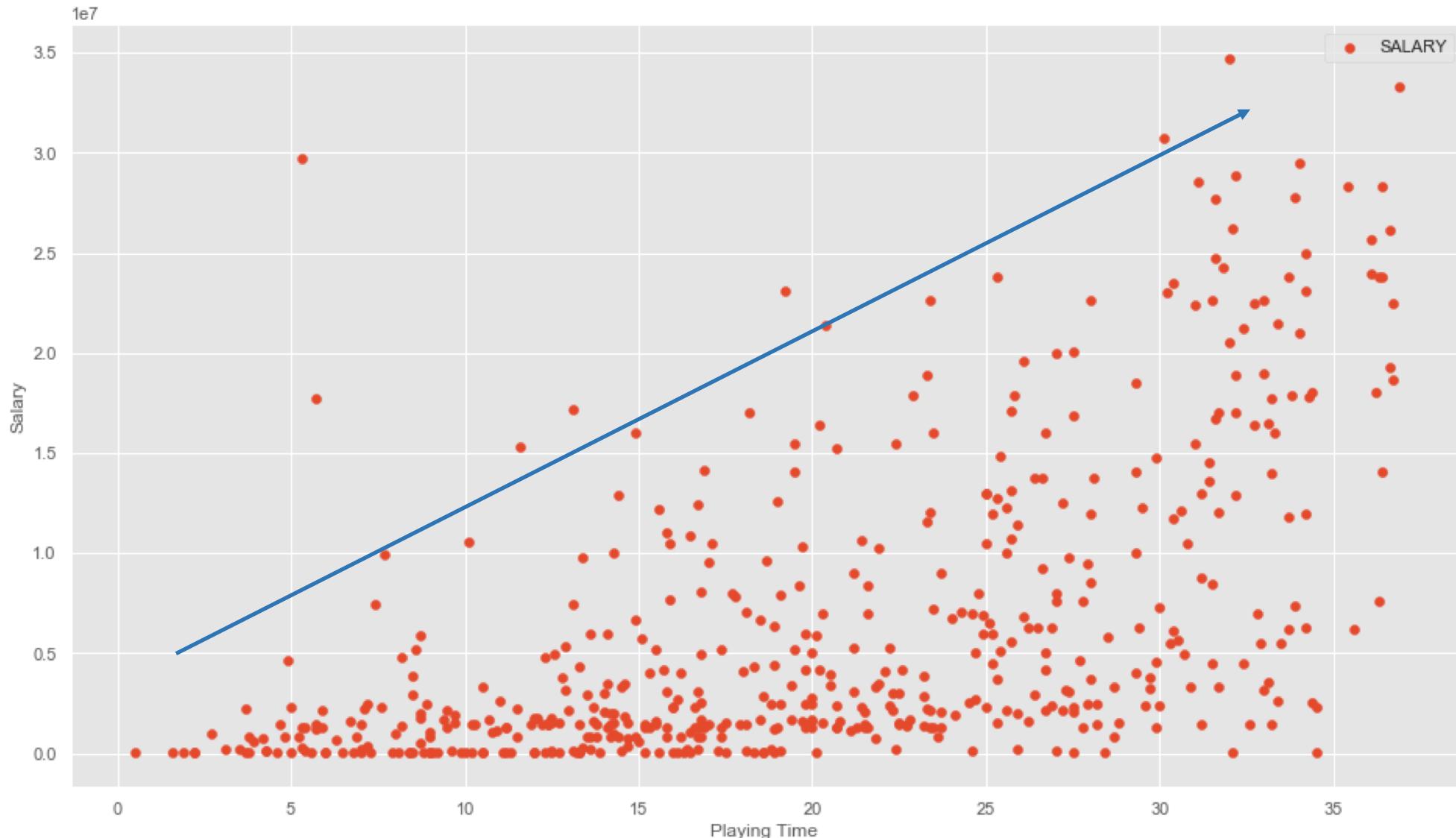
Salary Scatter (Player / Team)

→ *The higher Rank,
The higher cluster of Salary*



1. Correlation between Salary and Playing Time

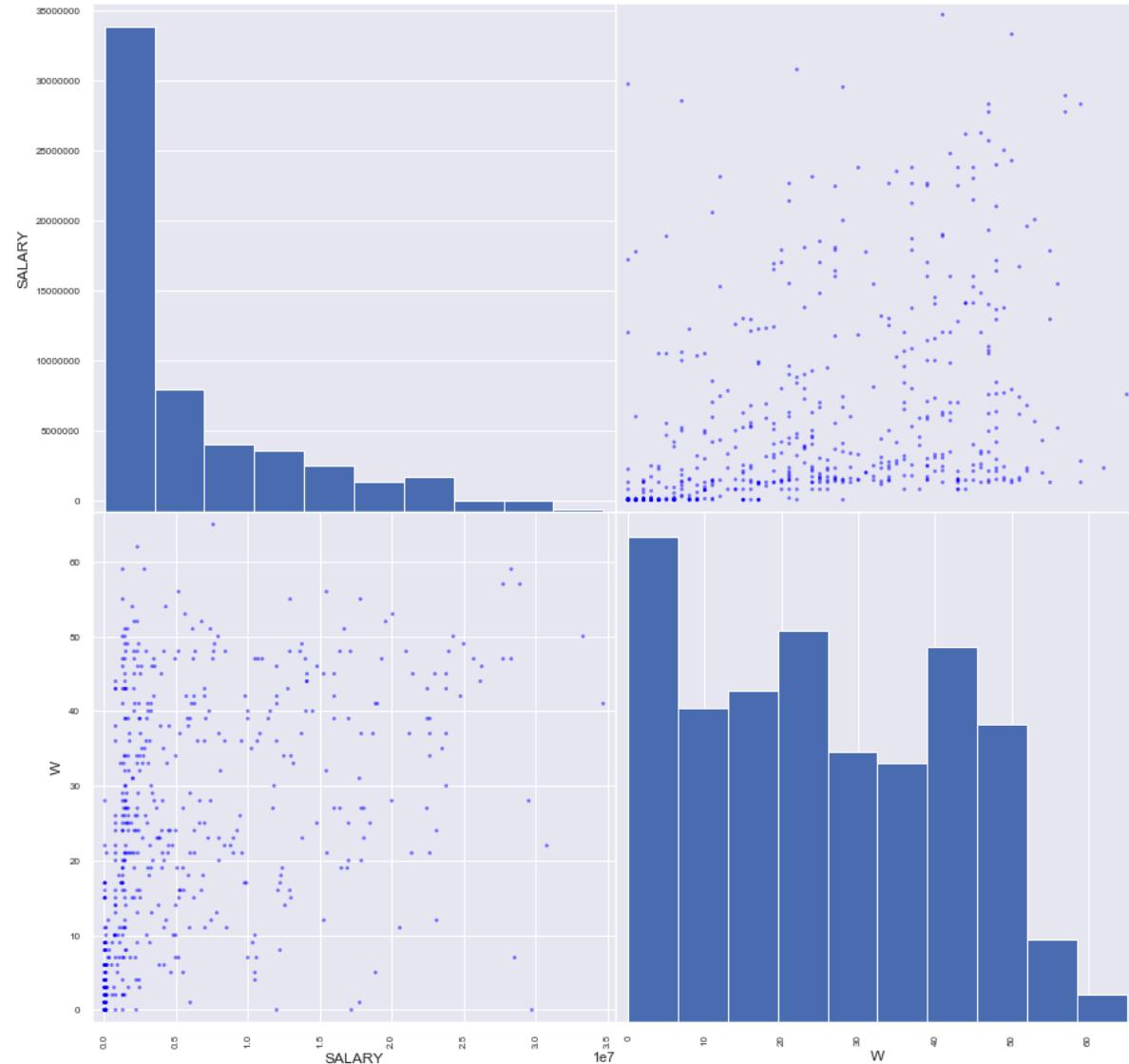
The higher the salary, the higher the playing time.



2. Correlation between Salary and WIN

→ The high salary does not contribute to winning the team.

SALARY	W
SALARY	1.000000 0.381587
W	0.381587 1.000000



Win Share

: One of the way to measure how you contribute to team win

NBA Win Shares

I. Introduction

Win Shares is a player statistic which attempts to divvy up credit for team success to the individuals on the team. Full details are available below, but the important things to note are that it is calculated using player, team and league-wide statistics and the sum of player win shares on a given team will be roughly equal to that team's win total for the season.

Kareem Abdul-Jabbar's total of 25.4 Win Shares in 1971-72 is the all-time [single-season record](#) and his 273.4 career Win Shares are the [all-time career record](#). Abdul-Jabbar played long enough to compile many such career records. The all-time leader in [Win Shares per 48 minutes](#) is [Michael Jordan](#) (which falls in line with the prevailing wisdom on Jordan's G.O.A.T. status).

This article will describe how I came up with the Win Shares system for basketball (stealing a page from baseball's Bill James). If you believe that any attempt to attribute team success to individual players is an abomination, then read no further, as this article will be of no interest to you.

Ex) one of offensive win share formula

```
-0.0005075172 * (minutes played) * (player age)
- 0.0873982755 * (field goals)
+ 0.0925506598 * (field goal attempts)
+ 0.1566322510 * (free throw attempts)
+ 0.0449241773 * (total rebounds)
+ 0.2321637159 * (assists)
+ 0.2040169400 * (personal fouls)
```

offensive WS (1) + defensive WS (2) = Win Share

WIN Share Top10 NBA 17-18 Season

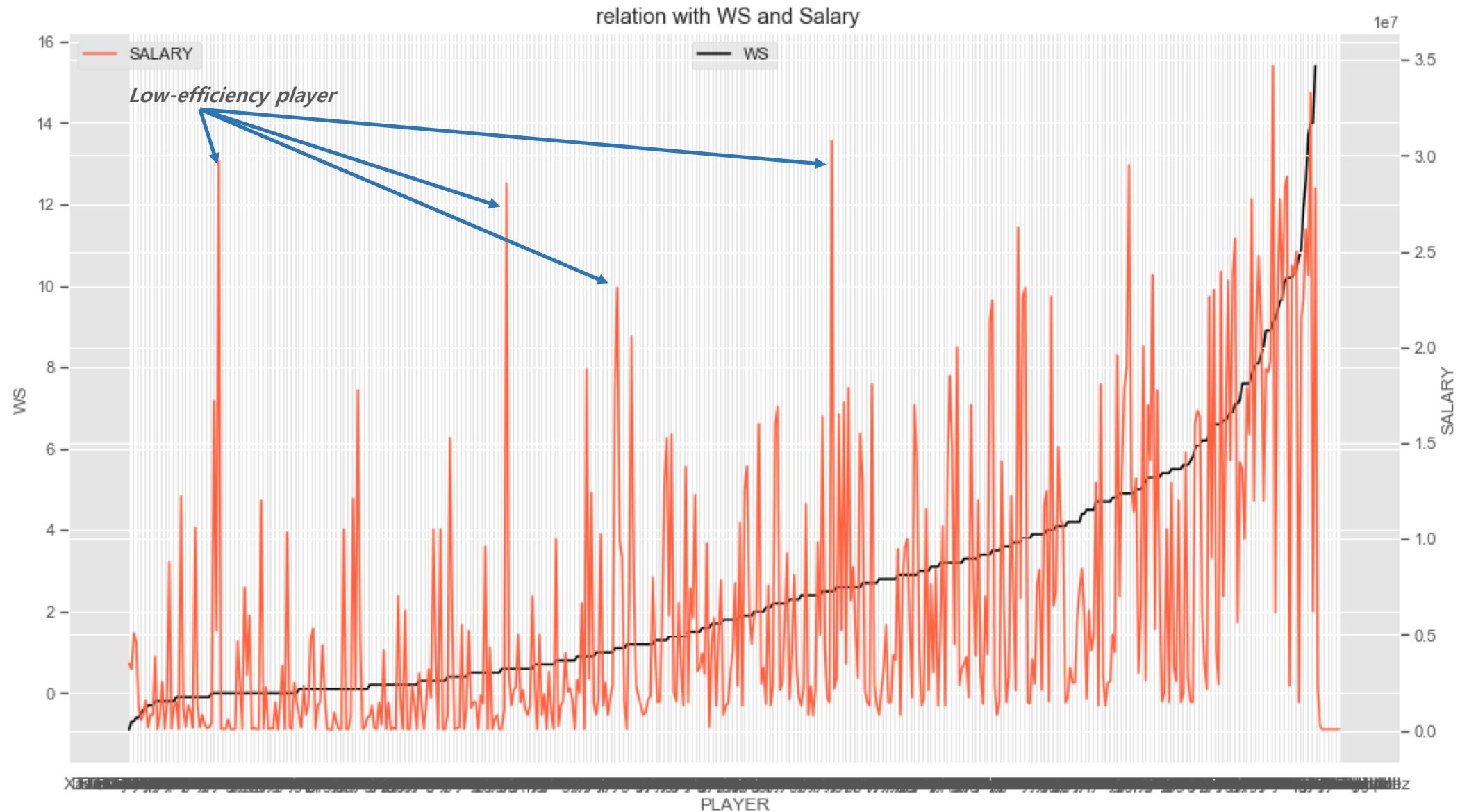
PLAYER	TEAM	SALARY	WS
James Harden	HOU	28299399.0	15.4
Karl-Anthony Towns	MIN	6216840.0	14.0
LeBron James	CLE	33285709.0	14.0
Anthony Davis	NOP	23775506.0	13.7
Damian Lillard	POR	26153057.0	12.6
Giannis Antetokounmpo	MIL	22471911.0	11.9
LaMarcus Aldridge	SAS	21461010.0	10.9
Nikola Jokic	DEN	1471382.0	10.7
Kevin Durant	GSW	25000000.0	10.4
Andre Drummond	DET	23775506.0	10.3

- *James Harden WS : 15.4 : MVP!!!*

- *All player in the table is Super Star*



Relation with WS and Salary



Let's Find Most cost effective Player

- fomular
 - WPS = Win share / Player Salary
 - WPS Sort by Desc
 - Play Game More than Total (82 Game) 70%
 - more than 57G
 - Avg Play Time More than 24 min per game (50 %)

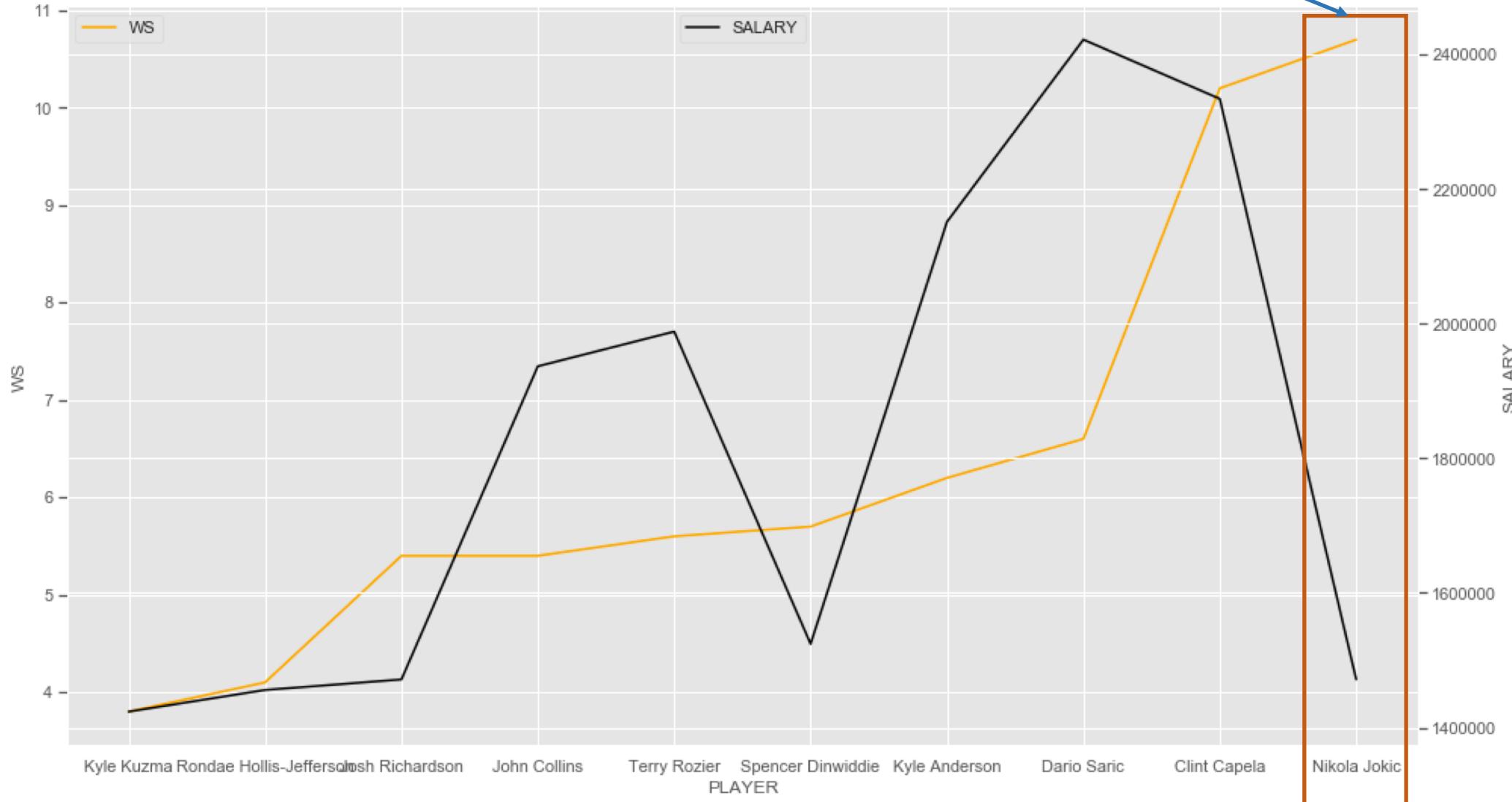
PLAYER	TEAM	SALARY	WS
Nikola Jokic	DEN	1471382.0	10.7
Clint Capela	HOU	2334528.0	10.2
Spencer Dinwiddie	BKN	1524305.0	5.7
Josh Richardson	MIA	1471382.0	5.4
Kyle Anderson	SAS	2151704.0	6.2
Rondae Hollis-Jefferson	BKN	1455720.0	4.1
Terry Rozier	BOS	1988520.0	5.6
John Collins	ATL	1936920.0	5.4
Dario Saric	PHI	2422560.0	6.6
Kyle Kuzma	LAL	1423560.0	3.8



Nikola Jokic [Denver Nuggets]

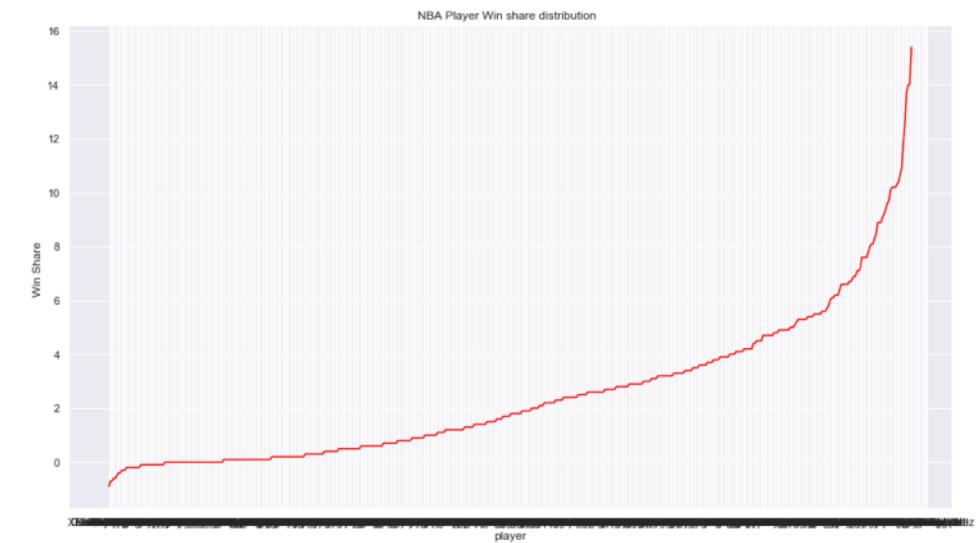
Let's Find Most cost effective Player

High-efficiency player



Conclusion & Limitation

1. Many investments can't win,
but the winning team has made a lot of investment
 2. A salary raised by scarcity
→ position or situation
 3. A record that can not be checked
(ex) Screen Play , Spacing)
 4. The higher the Win Share, the greater the scarcity.
→ Simple correlation and Avg has limitation





Thank you!

Let's Enjoy New NBA Season!