

Predicting Avg. Points per game of NBA Players - Intro Draft (Project Part 2)

Het Patel (7972424)

Nov. 22 2023

```
# importing required libraries
library(kableExtra) # for kable()
```

Question

Response Variable:

The response variable that I would like to model is PTS, i.e., average Points per game of a NBA player in 2022-23 regular season.

Explanatory Variable:

Variable FGA, i.e., average field goals attempted per game and FTA, i.e., average field throws attempted per game for a NBA player in 2022-23 regular season.

The reason why I choose these two variables as my explanatory is because more the number of field and free throws attempted by a player, more the chances that a player will score more points.

Dataset

```
nba <- read.csv("nbaplayers.csv")
kable(nba, format = "markdown")
```

Rank	PLAYER	TEAM	GP	PTS	FGA	FTA
1	Joel Embiid	PHI	66	33.1	20.1	11.7
2	Luka Doncic	DAL	66	32.4	22.0	10.5
3	Damian Lillard	POR	58	32.2	20.7	9.6
4	Shai Gilgeous-Alexander	OKC	68	31.4	20.3	10.9
5	Giannis Antetokounmpo	MIL	63	31.1	20.3	12.3
6	Jayson Tatum	BOS	74	30.1	21.1	8.4
7	Stephen Curry	GSW	56	29.4	20.2	5.0
8	Kevin Durant	PHX	47	29.1	18.3	7.1
9	LeBron James	LAL	55	28.9	22.2	5.9

Rank	PLAYER	TEAM	GP	PTS	FGA	FTA
10	Donovan Mitchell	CLE	68	28.3	20.6	5.4
11	Devin Booker	PHX	53	27.8	20.1	6.8
12	Kyrie Irving	DAL	60	27.1	20.1	4.6
13	Jaylen Brown	BOS	67	26.6	20.6	5.1
14	Trae Young	ATL	73	26.2	19.0	8.8
15	Ja Morant	MEM	61	26.2	19.9	8.1
16	Zion Williamson	NOP	29	26.0	16.2	8.6
17	Anthony Davis	LAL	56	25.9	17.2	7.9
18	Lauri Markkanen	UTA	66	25.6	17.3	6.0
19	Julius Randle	NYK	77	25.1	18.6	6.9
20	De'Aaron Fox	SAC	73	25.0	18.2	6.0
21	Zach LaVine	CHI	77	24.8	18.0	5.6
22	Brandon Ingram	NOP	45	24.7	18.6	6.0
23	Anthony Edwards	MIN	79	24.6	19.5	5.3
24	DeMar DeRozan	CHI	74	24.5	17.6	7.1
25	Nikola Jokic	DEN	69	24.5	14.8	6.0
26	Pascal Siakam	TOR	71	24.2	18.5	6.7
27	Jalen Brunson	NYK	68	24.0	17.6	5.8
28	Kawhi Leonard	LAC	52	23.8	16.8	5.4
29	Paul George	LAC	56	23.8	17.9	5.3
30	LaMelo Ball	CHA	36	23.3	20.0	3.4
31	Bradley Beal	WAS	50	23.2	17.6	4.6
32	Kristaps Porzingis	WAS	65	23.2	15.7	6.4
33	Jimmy Butler	MIA	64	22.9	13.9	8.7
34	Jalen Green	HOU	76	22.1	17.9	6.1
35	Keldon Johnson	SAS	63	22.0	17.7	5.2
36	Klay Thompson	GSW	69	21.9	18.1	1.9
37	Darius Garland	CLE	69	21.6	16.4	4.7
38	Bojan Bogdanovic	DET	59	21.6	14.9	5.1
39	Desmond Bane	MEM	58	21.5	16.2	3.5
40	Kyle Kuzma	WAS	64	21.2	17.8	3.7
41	Terry Rozier	CHA	63	21.1	18.9	3.5
42	Anfernee Simons	POR	62	21.1	16.9	2.9
43	James Harden	PHI	58	21.0	14.5	6.2
44	CJ McCollum	NOP	75	20.9	17.9	3.2
45	Jordan Clarkson	UTA	61	20.8	16.9	4.0
46	Karl-Anthony Towns	MIN	29	20.8	14.8	4.7
47	Tyrese Haliburton	IND	56	20.7	15.0	3.6
48	Jerami Grant	POR	63	20.5	14.5	5.4
49	Dejounte Murray	ATL	74	20.5	17.8	2.6
50	Jordan Poole	GSW	82	20.4	15.6	5.1

Dataset Citation

National Basketball Association.(2023). NBA Advance Player Stats(2022-23 Season)[Data set]. NBA Media Ventures. <https://www.nba.com/stats/players/traditional?PerMode=Totals&sort=PTS&dir=-1&Season=2022-23>

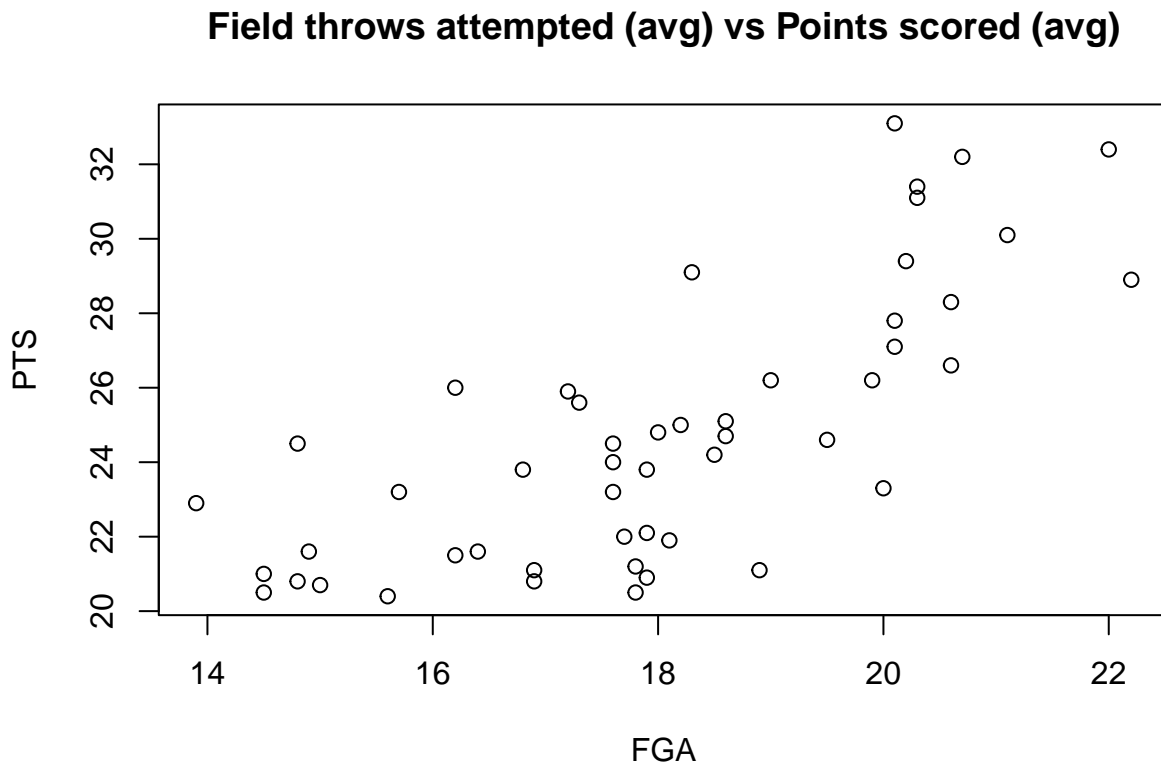
Variables

The dataset contains total of 7 variables and the details for each is as follows:

- 1) The **Rank** variable is the standing of player in order of average points scored in 2022-23 regular season.
- 2) The **PLAYER** variable is the name of NBA player.
- 3) The **TEAM** variable is the name of team in which player played the 2022-23 regular season.
- 4) The **GP** variable is the number of games played by the player in the 2022-23 regular season.
- 5) The **PTS** variable is the average number of points scored per game by a player in 2022-23 regular season.
- 6) The **FGA** variable is the average number of field throws attempted per game by a player in 2022-23 regular season.
- 7) The **FTA** variable is the average number of free throws attempted per game by a player in 2022-23 regular season.

Scatterplots

```
plot(nba$FGA, nba$PTS, main = "Field throws attempted (avg) vs Points scored (avg)",  
     xlab = "FGA", ylab = "PTS")
```

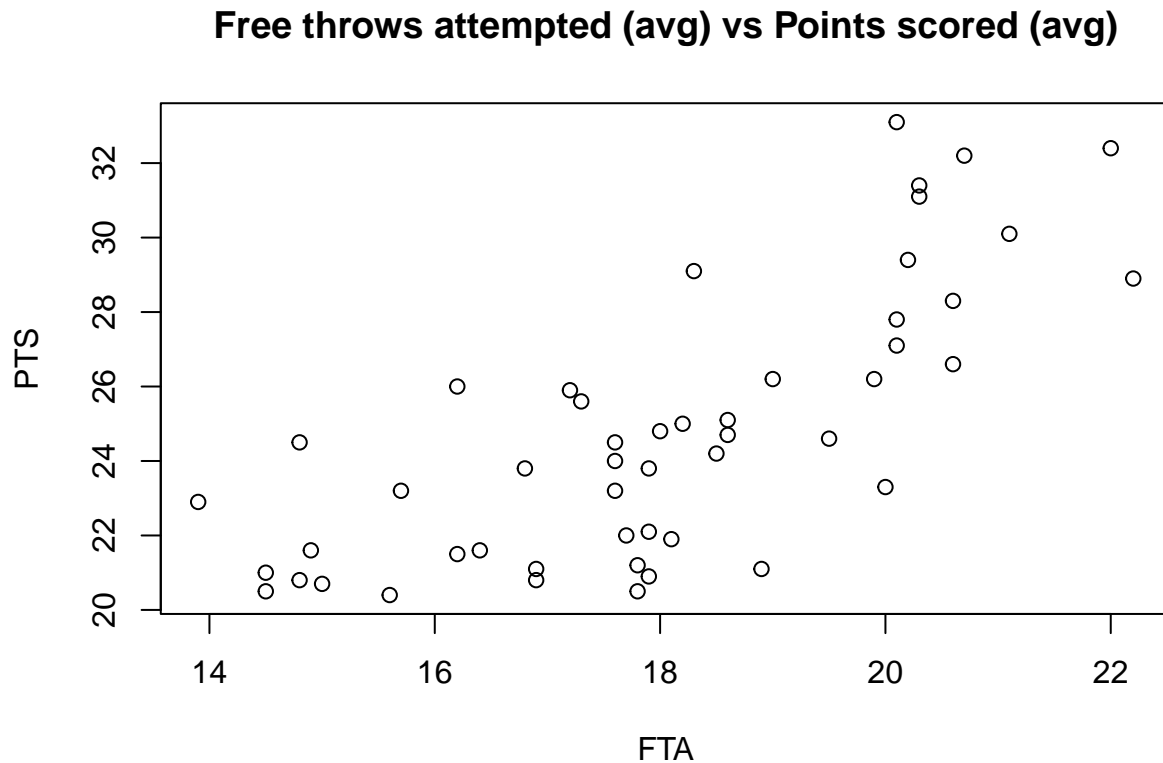


```
rsqr1 <- cor(nba$FGA, nba$PTS)^2
rsqr1
```

```
## [1] 0.555407
```

The $r_{Y \sim X_1}^2 = 0.555407$, which shows that they appear to be in relationship.

```
plot(nba$FGA, nba$PTS, main = "Free throws attempted (avg) vs Points scored (avg)",
     xlab = "FTA", ylab = "PTS")
```



```
rsqr2 <- cor(nba$FTA, nba$PTS)^2
rsqr2
```

```
## [1] 0.5949966
```

The $r_{Y \sim X_2}^2 = 0.5949966$, which shows that they are correlated with each other.