Boston Celtics Team Evaluation

Shruthi Harve · Week 6 · MSDS456 Assignment 2

OVERVIEW

The Celtics are one of the top teams this season, having improved from 8th rank to 4th rank since last year. Although we have improved in our rebounding and free throw statistics, we can benefit from acquiring players who specialize in steals, 3-pointers and assists in order to improve our offensive shooting ranking.

PART 1 – FOUR FACTOR MODEL

In the 2018-2019 season, the Celtics were ranked 8th in the NBA. While our shooting and turnover stats were competitive (both offensive and defense), our rebounds and free throws needed work (**Appendix A**). This year, our rebounds and free throws have significantly improved in ranking, moving from bottom-tier stats to mid-tier stats (**Appendix B**). However, our offensive shooting ranking dropped from 6th to 12th in the NBA. These shifts are likely a result of our changed roster, namely the loss of Kyrie Irving, Al Horford, and RJ Hunter, who all had high eFG%'s.

PART 2 – WIN PREDICTION

I conducted a multiple linear regression analysis of the four factors to determine the relative importance of each. I set aside 30% of the 2018 dataset for testing purposes, then ran multiple OLS regression models (**Appendix C**), excluding insignificant variables at the 5% confidence level at each step. Through this analysis, I found that "Rebounds" was highly insignificant. "Free Throws" became insignificant upon excluding "Rebounds". Although excluding "Free Throws" dropped the training R^2 value from 88% to 82%, the testing R^2 value improved from 81% to 86%, thereby reducing the risk of overfitting.

Using the following formula from these results, we can predict our expected wins:

$$Games\ Won = 41.50 + 397.98(EFG - OEFG) - 2.38(TPP - DTPP)$$

Team	Shooting	Turnovers	Rebounding	Free Throws	Wins	Wins Prediction
Boston Celtics*	0.02	-1.9	-55.4	-0.025	49	53

According to the model, the Celtics should have won 4 more games, which leads us to suspect if there are other factors contributing to win probability, such as personalities and off-court variables. Kyrie Irving was the top ranked player on the team last year. However, he explained that the death of his grandfather at the start of his season made it difficult for him to perform to his standards in Boston, as well as work well with his teammates. While there may have been high long-term hopes for Irving on the Celtics, he prioritized his personal matters to return to New York for the 2019-2020 season (Zillgitt).

PART 3 – PLAYER ARCHETYPES

I imported an NBA dataset from Kaggle that includes season stats by player from 1950-2018, originally scraped from Basketball-Reference (Goldstein). Given the rise of the 3-Point Revolution – essentially the higher reliance on 3-pointers compared to other scoring methods – I filtered the dataset to include only data from 2014 onwards (Shea). I also filtered the data to only include players in the 75th percentile of games played, to reduce noise from sub-par players, or those who played only in 1 year of the time period. This reduced my observations to 190 players. The dataset contains 45 variables, listed in the Basketball-Reference glossary (Sports Reference LLC).

I decided to use a k-Means clustering approach to classify players because it is simple to explain, unsupervised since we are creating new classifications, and efficient. The one drawback I faced was quantifying the number of desired clusters ahead of time, which required me to rerun the model several times until the output made sense. I used Principal Component Analysis (PCA) to reduce the complexity

of the model. Based on the Explained Variance Ratio output, I landed on using 6 PCA features for the model.

Through my reiterative analysis, I classified players into 9 clusters, as shown in **Appendix D**. The common behavior for these archetypes are as follows:

1. Hit or Miss – these players are generally mid-tier forwards or lower-end starters. They are classified as people with a lot of potential but inconsistent performance, as displayed by high minutes, decent PER, decent FGA, and decent TRB/BLK. *Example: Jeff Green*
2. Sharpshooter – these players are primarily backup guards specializing in 3-pointers. They have low FGA and low MP likely because they are backups, and they have low TRB and low AST because they are primarily guards. Due to their decently high 3PA and low FGA, you can say that they specialize in 3-pointers. *Example: JJ Redick, Jamal Crawford*
3. Floor General – these players are starters who are heavy ball-handlers, thereby dictate passing. They exhibit high PER, MP, and FTA. A high FTA stat indicates getting fouled by the opposing team in the act of shooting. Essentially these are all stats that are correlated with a large amount of time having possession of the ball and putting up points. *Example: LeBron James, James Harden, Steph Curry*
4. Footlong (aka Big Sub) – these players are backup big men because they do not have many minutes and have a higher number of rebounds and blocks. *Example: David West, Luis Scola*
5. Space Filler – these players are mediocre backup guards. They have low FGA and MP likely because they are backups, and they have low TRB and decent AST because they are primarily guards. Not much stands out about them. *Example: Mario Chalmers, Austin Rivers*
6. 3D – these players are starting shooters whose primary focus is shooting 3-pointers on offense and playing man-to-man against Floor Generals on defense. Sometimes their offense consists of

cluster shots, in which they have a hot streak of bucketing shots. This is exhibited by their high 3P and high STL numbers. *Example: Matt Barnes, Luol Deng, Lou Williams, Dion Waiters*

7. Tower – these players are starting big men. They are high on rebounding and blocking and have a decent number of 2-point FGA. Although they are starters, their low number of games is likely caused by the position's high risk of injury. *Example: Giannis Antetokounmpo, Anthony Davis*
8. Overachieving Facilitator – these players are not particularly remarkable in any one thing, but efficient in their play style. They have a low TOV-to-MP ratio, low PF, and decent AST. This means that they help pass the ball along to players that score. These players could be starters and are mostly guards (as exhibited by their low TRB). *Example: Lance Stephenson, Andre Miller*
9. Scorers – these players are starting scorers, exhibited by high FGA, 3PA and FTA. Their low PF implies that their defense is not as aggressive. These players have the 2nd most contact with the ball after the Floor Generals. *Example: Gordon Hayward, Bradley Beal*

PART 4 – ROSTER CONSTRUCTION

I imported the 2019-2020 Celtics player data from Basketball-Reference. Since many of our team members are new, their data does not exist in the dataset that was used to model the classifications. Therefore, I used my analysis from Part 3 to classify our current roster into one of the 9 archetypes (**Appendix E**). Overall, we have 2 Floor Generals, 3 Scorers, 2 Hit or Misses, 2 Sharpshooters, 2 Towers, 1 Footlong, and 5 Space Fillers.

Based on this season's statistics in **Appendix B**, we could use help in our Offensive Shooting and Defensive Turnovers. We currently do not have any 3D's, who are great for stealing the ball on defense and putting up 3-pointers. Additionally, we have 5 Space Fillers who are not great contributors. If we could coach some of them (i.e. Javonte Green) to play more like Overachieving Facilitators, or trade for

one, we can improve our passing game and get the ball to the Floor Generals, Scorers and Sharpshooters to improve our Offensive Shooting.

APPENDIX A

2018-2019 STATS

	Team	Wins	Offensive Shooting	Defensive Shooting	Offensive TO's	Defensive TO's	Offensive Rebounds	Defensive Rebounds	Offensive FT's	Defensive FT's
1	Milwaukee Bucks*	60	0.55	0.503	12	11.5	20.8	80.3	0.197	0.162
2	Golden State Warriors*	57	0.565	0.508	12.6	11.7	22.5	77.1	0.182	0.205
3	Toronto Raptors*	58	0.543	0.509	12.4	13.1	21.9	77.1	0.198	0.19
4	Utah Jazz*	50	0.538	0.507	13.4	12.4	22.9	80.3	0.217	0.189
5	Houston Rockets*	53	0.542	0.525	12	13.4	22.8	74.4	0.221	0.21
6	Portland Trail Blazers*	53	0.528	0.516	12.1	11	26.6	77.9	0.21	0.195
7	Denver Nuggets*	54	0.527	0.521	11.9	12.3	26.6	78	0.175	0.194
8	Boston Celtics*	49	0.534	0.514	11.5	13.4	21.6	77	0.173	0.198
9	Oklahoma City Thunder*	49	0.514	0.523	11.7	14.4	26	78.2	0.19	0.206
10	Indiana Pacers*	48	0.53	0.516	12.4	14.1	21.9	76.2	0.182	0.184
11	Philadelphia 76ers*	51	0.532	0.512	12.9	11.1	24.5	78.6	0.241	0.206
12	San Antonio Spurs*	48	0.534	0.528	11	11	21	79.4	0.194	0.17
13	Los Angeles Clippers*	48	0.529	0.514	12.7	11.4	22	76	0.258	0.224
14	Orlando Magic*	42	0.518	0.515	11.9	11.8	22	79.7	0.168	0.186
15	Brooklyn Nets*	42	0.52	0.512	13	11.6	23.8	76.4	0.211	0.19
16	Miami Heat	39	0.515	0.51	13.1	12.7	24.8	77.6	0.172	0.201
17	Detroit Pistons*	41	0.509	0.526	12.3	12.8	24.8	78.7	0.195	0.211
18	Sacramento Kings	39	0.524	0.533	11.5	13.6	23.1	75.5	0.177	0.207
19	Dallas Mavericks	33	0.519	0.522	12.7	11.6	22.7	77.5	0.216	0.191
20	Minnesota Timberwolves	36	0.511	0.538	11.4	12.9	24.6	74.9	0.21	0.19
21	New Orleans Pelicans	33	0.529	0.532	12.6	11.6	24.1	76.8	0.193	0.193
22	Charlotte Hornets	39	0.514	0.538	10.9	12.1	21.7	77.1	0.205	0.179
23	Los Angeles Lakers	37	0.527	0.516	13.4	12.2	22.2	76.4	0.18	0.192
24	Memphis Grizzlies	33	0.508	0.521	12.9	13.9	20	77.6	0.21	0.232
25	Washington Wizards	32	0.531	0.546	12.3	13.5	21.3	74.1	0.204	0.199
26	Atlanta Hawks	29	0.522	0.541	14.3	12.8	24.7	76.4	0.192	0.237
27	Chicago Bulls	22	0.505	0.541	12.7	11.9	19.4	77.3	0.184	0.188
28	Phoenix Suns	19	0.514	0.545	13.8	13.5	20.5	72.5	0.202	0.236
29	New York Knicks	17	0.49	0.533	12.4	11.7	22.1	76.1	0.205	0.203
30	Cleveland Cavaliers	19	0.503	0.564	12.2	11.5	23.7	77	0.187	0.181

APPENDIX A (cont.)

2018-2019 RANKINGS

	Team	Wins	Offensive Shooting	Defensive Shooting	Offensive TO's	Defensive TO's	Offensive Rebounds	Defensive Rebounds	Offensive FT's	Defensive FT's
1	Milwaukee Bucks*	60	2	1	9	25	27	1	15	1
2	Golden State Warriors*	57	1	3	18	20	16	14	23	21
3	Toronto Raptors*	58	3	4	15	9	21	14	14	9
4	Utah Jazz*	50	5	2	27	14	13	1	4	8
5	Houston Rockets*	53	4	18	9	7	14	28	3	25
6	Portland Trail Blazers*	53	13	11	11	29	1	9	7	16
7	Denver Nuggets*	54	14	14	7	15	1	8	27	15
8	Boston Celtics*	49	6	8	4	7	24	17	28	17
9	Oklahoma City Thunder*	49	22	17	6	1	3	7	20	22
10	Indiana Pacers*	48	10	11	15	2	21	23	23	5
11	Philadelphia 76ers*	51	8	6	23	28	8	6	2	22
12	San Antonio Spurs*	48	6	20	2	29	26	4	17	2
13	Los Angeles Clippers*	48	11	8	20	27	19	25	1	27
14	Orlando Magic*	42	20	10	7	19	19	3	30	6
15	Brooklyn Nets*	42	18	6	25	22	10	20	6	9
16	Miami Heat	39	21	5	26	13	4	10	29	19
17	Detroit Pistons*	41	26	19	13	11	4	5	16	26
18	Sacramento Kings	39	16	22	4	4	12	26	26	24
19	Dallas Mavericks	33	19	16	20	22	15	12	5	12
20	Minnesota Timberwolves	36	25	24	3	10	7	27	7	9
21	New Orleans Pelicans	33	11	21	18	22	9	19	18	14
22	Charlotte Hornets	39	22	24	1	17	23	14	10	3
23	Los Angeles Lakers	37	14	11	27	16	17	20	25	13
24	Memphis Grizzlies	33	27	14	23	3	29	10	7	28
25	Washington Wizards	32	9	29	13	5	25	29	12	18
26	Atlanta Hawks	29	17	26	30	11	6	20	19	30
27	Chicago Bulls	22	28	26	20	18	30	13	22	7
28	Phoenix Suns	19	22	28	29	5	28	30	13	29
29	New York Knicks	17	30	22	15	20	18	24	10	20
30	Cleveland Cavaliers	19	29	30	12	25	11	17	21	4

APPENDIX B

2019-2020 STATS

	Team	Wins	Offensive Shooting	Defensive Shooting	Offensive TO's	Defensive TO's	Offensive Rebounds	Defensive Rebounds	Offensive FT's	Defensive FT's
1	Milwaukee Bucks*	55	0.554	0.488	12.9	12.1	20.8	81.9	0.2	0.176
2	Los Angeles Clippers*	46	0.534	0.504	12.7	12.2	23.7	77.4	0.233	0.209
3	Los Angeles Lakers*	51	0.541	0.509	13.3	14	24.2	79	0.202	0.208
4	Boston Celtics*	46	0.532	0.512	12.1	13.6	23.8	77.7	0.208	0.214
5	Toronto Raptors*	49	0.535	0.502	13	14.5	21.1	76.5	0.209	0.2
6	Dallas Mavericks*	41	0.545	0.521	11.3	10.7	23.5	77.7	0.205	0.172
7	Houston Rockets*	43	0.539	0.528	12.4	13.6	21.7	75.3	0.227	0.197
8	Miami Heat*	43	0.549	0.523	13.6	12.5	20.4	79.7	0.236	0.215
9	Utah Jazz*	43	0.549	0.516	13.8	11.2	21.3	78.9	0.212	0.183
10	Oklahoma City Thunder*	42	0.532	0.518	12.4	12.5	19.2	76.8	0.234	0.169
11	Denver Nuggets*	45	0.533	0.529	12.3	12.9	24.9	77	0.181	0.199
12	Philadelphia 76ers*	42	0.53	0.522	12.7	12.6	23.9	80.2	0.193	0.211
13	Indiana Pacers*	42	0.535	0.514	11.8	13	20	76.7	0.171	0.193
14	New Orleans Pelicans	30	0.538	0.53	13.8	12.3	24.2	78	0.186	0.21
15	Phoenix Suns	30	0.529	0.54	13.2	13.8	22	78.6	0.226	0.223
16	Portland Trail Blazers	32	0.532	0.526	11.4	11.1	22.3	75.3	0.192	0.208
17	Orlando Magic	32	0.506	0.535	11.5	13.3	22.3	79.2	0.196	0.174
18	San Antonio Spurs	30	0.531	0.543	11	11.6	19.8	79.2	0.209	0.195
19	Memphis Grizzlies	33	0.53	0.52	13.2	12.6	23	77.6	0.181	0.217
20	Brooklyn Nets*	33	0.517	0.511	13.1	11.1	23.2	77.9	0.2	0.185
21	Sacramento Kings	29	0.532	0.542	12.8	13.6	21.9	78.4	0.178	0.226
22	Minnesota Timberwolves	19	0.514	0.541	13	13.2	22.1	77.2	0.209	0.218
23	Chicago Bulls	22	0.515	0.546	13.7	16.3	22.8	75.6	0.175	0.239
24	Detroit Pistons	20	0.529	0.541	13.8	12.7	22.6	75.9	0.194	0.186
25	Washington Wizards	24	0.526	0.558	12.2	13.9	21.9	75.2	0.213	0.233
26	New York Knicks	21	0.501	0.541	12.6	12.4	25.8	78.3	0.182	0.224
27	Charlotte Hornets	23	0.504	0.546	13.3	13.1	23.9	74.4	0.188	0.159
28	Atlanta Hawks	20	0.515	0.543	13.8	12.7	21.6	74.9	0.204	0.233
29	Cleveland Cavaliers	19	0.522	0.56	14.6	11.7	24.6	77.4	0.172	0.164
30	Golden State Warriors	15	0.497	0.553	13.2	13.7	21.5	76.4	0.212	0.193

APPENDIX B (cont.)

2019-2020 RANKINGS

	Team	Wins	Offensive Shooting	Defensive Shooting	Offensive TO's	Defensive TO's	Offensive Rebounds	Defensive Rebounds	Offensive FT's	Defensive FT's
1	Milwaukee Bucks*	55	1	1	15	24	26	1	16	6
2	Los Angeles Clippers*	46	10	3	12	23	9	16	3	18
3	Los Angeles Lakers*	51	5	4	22	3	4	6	15	16
4	Boston Celtics*	46	12	6	6	7	8	13	12	21
5	Toronto Raptors*	49	8	2	16	2	25	22	9	15
6	Dallas Mavericks*	41	4	11	2	30	10	13	13	4
7	Houston Rockets*	43	6	15	9	7	21	26	4	13
8	Miami Heat*	43	2	13	24	19	27	3	1	22
9	Utah Jazz*	43	2	8	26	27	24	7	7	7
10	Oklahoma City Thunder*	42	12	9	9	19	30	20	2	3
11	Denver Nuggets*	45	11	16	8	14	2	19	25	14
12	Philadelphia 76ers*	42	17	12	12	17	6	2	20	20
13	Indiana Pacers*	42	8	7	5	13	28	21	30	10
14	New Orleans Pelicans	30	7	17	26	22	4	11	23	19
15	Phoenix Suns	30	19	19	19	5	18	8	5	25
16	Portland Trail Blazers	32	12	14	3	28	15	26	21	16
17	Orlando Magic	32	27	18	4	10	15	4	18	5
18	San Antonio Spurs	30	16	24	1	26	29	4	9	12
19	Memphis Grizzlies	33	17	10	19	17	12	15	25	23
20	Brooklyn Nets*	33	23	5	18	28	11	12	16	8
21	Sacramento Kings	29	12	23	14	7	19	9	27	27
22	Minnesota Timberwolves	19	26	20	16	11	17	18	9	24
23	Chicago Bulls	22	24	26	25	1	13	25	28	30
24	Detroit Pistons	20	19	20	26	15	14	24	19	9
25	Washington Wizards	24	21	29	7	4	19	28	6	28
26	New York Knicks	21	29	20	11	21	1	10	24	26
27	Charlotte Hornets	23	28	26	22	12	6	30	22	1
28	Atlanta Hawks	20	24	24	26	15	22	29	14	28
29	Cleveland Cavaliers	19	22	30	30	25	3	16	29	2
30	Golden State Warriors	15	30	28	19	6	23	23	7	10

APPENDIX C

MODEL 1

```
Intercept:
 73.90849727707618
Coefficients:
 [414.43589277  -3.57269092   0.60498734 120.51282864]
R-squared (Train):  0.8973928930447809
R-squared (Test):  0.7444617220942416
                            OLS Regression Results
==============================================================================
Dep. Variable:                      W   R-squared:                       0.897
Model:                            OLS   Adj. R-squared:                  0.872
Method:                 Least Squares   F-statistic:                     34.98
Date:                                   Prob (F-statistic):           1.00e-07
Time:                                   Log-Likelihood:                -59.108
No. Observations:                  21   AIC:                             128.2
Df Residuals:                      16   BIC:                             133.4
Df Model:                           4
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const          73.9085     23.163      3.191      0.006      24.805     123.012
Shooting      414.4359     37.071     11.179      0.000     335.849     493.023
Turnovers      -3.5727      0.901     -3.964      0.001      -5.483      -1.662
Rebounding      0.6050      0.426      1.420      0.175      -0.298       1.508
Free Throws   120.5128     50.506      2.386      0.030      13.446     227.580
==============================================================================
Omnibus:                        2.191   Durbin-Watson:                   2.136
Prob(Omnibus):                  0.334   Jarque-Bera (JB):                1.669
Skew:                           0.671   Prob(JB):                        0.434
Kurtosis:                       2.677   Cond. No.                     2.73e+03
==============================================================================
```

MODEL 2

```
Intercept:
 41.07095171202314
Coefficients:
 [387.16047284  -2.54517034  79.27778847]
R-squared (Train):  0.8796744563535059
R-squared (Test):  0.8117021249367704
                            OLS Regression Results
==============================================================================
Dep. Variable:                      W   R-squared:                       0.880
Model:                            OLS   Adj. R-squared:                  0.858
Method:                 Least Squares   F-statistic:                     41.43
Date:                                   Prob (F-statistic):           4.94e-08
Time:                                   Log-Likelihood:                -60.033
No. Observations:                  21   AIC:                             128.1
Df Residuals:                      17   BIC:                             132.2
Df Model:                           3
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const          41.0710      1.030     39.878      0.000      38.898      43.244
Shooting      387.1605     36.481     10.613      0.000     310.193     464.128
Turnovers      -2.5452      0.944     -2.696      0.015      -4.537      -0.553
Free Throws    79.2778     44.539      1.780      0.093     -14.692     173.247
==============================================================================
Omnibus:                        5.842   Durbin-Watson:                   2.278
Prob(Omnibus):                  0.054   Jarque-Bera (JB):                3.652
Skew:                           0.952   Prob(JB):                        0.161
Kurtosis:                       3.742   Cond. No.                         48.5
==============================================================================
```

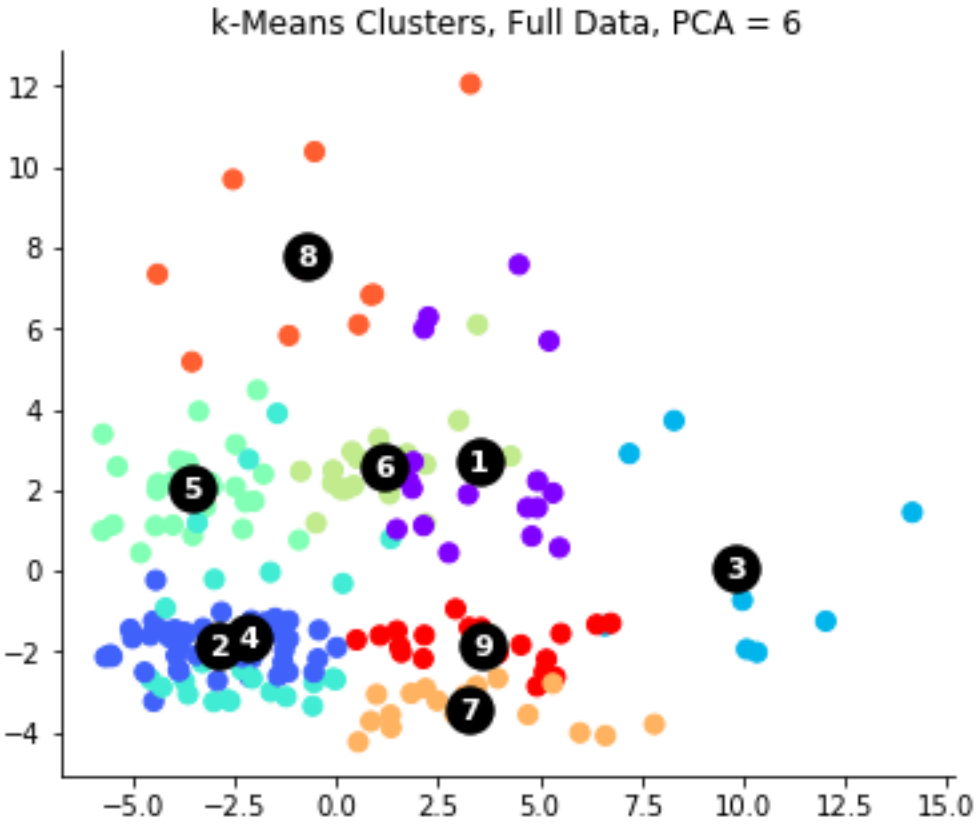
APPENDIX C (cont.)

MODEL 3

```
Intercept:
 41.49821509775026
Coefficients:
 [397.97543086  -2.37530803]
R-squared (Train):  0.8170455312917134
R-squared (Test):  0.8613349798022778
                            OLS Regression Results
==============================================================================
Dep. Variable:                      W   R-squared:                       0.817
Model:                            OLS   Adj. R-squared:                  0.797
Method:                 Least Squares   F-statistic:                     40.19
Date:                                   Prob (F-statistic):           2.30e-07
Time:                                   Log-Likelihood:                -63.062
No. Observations:                  21   AIC:                             132.1
Df Residuals:                      18   BIC:                             135.3
Df Model:                           2
Covariance Type:            nonrobust
==============================================================================
                 coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const         41.4982      1.150     36.085      0.000      39.082      43.914
Shooting     397.9754     44.469      8.949      0.000     304.549     491.401
Turnovers     -2.3753      0.902     -2.632      0.017      -4.271      -0.479
==============================================================================
Omnibus:                        1.383   Durbin-Watson:                   1.020
Prob(Omnibus):                  0.501   Jarque-Bera (JB):                0.907
Skew:                          -0.115   Prob(JB):                        0.635
Kurtosis:                       2.009   Cond. No.                         50.8
==============================================================================
```

APPENDIX D

2014-2017 DATA



Cluster	Archetype
1	Hit or Miss
2	Sharpshooter
3	Floor General
4	Footlong (aka Big Sub)
5	Space Filler
6	3D
7	Tower
8	Overachieving Facilitator
9	Scorer

APPENDIX D (cont.)

2014-2017 DATA (AVERAGE PER PLAYER PER SEASON)

Cluster	Archetype	FG	FGA	3P	3PA	FT	FTA	ORB	DRB	TRB	AST	TOV	STL	BLK	PF	PTS	PER	MP	G
1	Hit or Miss	449	975	66	201	191	259	149	408	557	193	159	85	66	231	1,155	24	2,654	96
2	Sharpshooter	262	597	85	231	99	125	43	177	220	153	84	55	20	132	707	13	1,742	71
3	Floor General	640	1,365	160	428	442	540	91	387	478	552	271	123	35	204	1,882	29	2,737	80
4	Footlong (aka Big Sub)	213	426	8	26	99	142	130	268	398	78	77	37	58	162	534	17	1,464	74
5	Space Filler	209	497	75	207	79	102	39	163	202	155	84	51	16	133	572	17	1,630	77
6	3D	380	882	129	351	154	192	55	268	323	274	138	80	25	176	1,043	21	2,539	90
7	Tower	417	814	16	48	204	297	202	487	689	150	126	64	95	188	1,054	20	2,262	74
8	Overachieving Facilitator	277	658	67	198	146	190	47	202	249	279	123	58	13	135	768	27	1,952	95
9	Scorer	485	1,095	130	351	281	337	61	301	361	336	166	96	31	153	1,380	19	2,513	73

APPENDIX D (cont.)

2014-2017 DATA

Statistic	Definition
FG	Field Goals (includes both 2-point field goals and 3-point field goals)
FGA	Field Goal Attempts (includes both 2-point field goal attempts and 3-point field goal attempts)
3P	3-Point Field Goals (available since the 1979-80 season in the NBA)
3PA	3-Point Field Goal Attempts (available since the 1979-80 season in the NBA)
FT	Free Throws
FTA	Free Throw Attempts
ORB	Offensive Rebounds (available since the 1973-74 season in the NBA)
DRB	Defensive Rebounds (available since the 1973-74 season in the NBA)
TRB	Total Rebounds (available since the 1950-51 season)
AST	Assists
TOV	Turnovers (available since the 1977-78 season in the NBA)
STL	Steals (available since the 1973-74 season in the NBA)
BLK	Blocks (available since the 1973-74 season in the NBA)
PF	Personal Fouls
PTS	Points
PER	Player Efficiency Rating (available since the 1951-52 season) PER is a rating developed by ESPN.com columnist John Hollinger. In John's words, "The PER sums up all a player's positive accomplishments, subtracts the negative accomplishments, and returns a per-minute rating of a player's performance."
MP	Minutes Played (available since the 1951-52 season)
G	Games

APPENDIX E

2019-2020 DATA

Player	FG	FGA	3P	3PA	FT	FTA	ORB	DRB	TRB	AST	TOV	STL	BLK	PF	PTS	PER	MP	G	Classification
Jayson Tatum	532	1,189	181	452	244	302	62	383	445	192	146	91	56	133	1,489	N/A	2,195	64	Floor General
Jaylen Brown	417	855	125	321	174	238	61	287	348	115	123	62	18	162	1,133	N/A	1,867	55	Floor General
Marcus Smart	250	665	133	386	124	149	42	179	221	273	101	97	29	159	757	N/A	1,859	58	Scorer
Kemba Walker	370	870	178	463	204	236	34	176	210	259	113	47	28	85	1,122	N/A	1,682	54	Scorer
Gordon Hayward	331	666	79	208	118	137	52	282	334	202	94	37	21	93	859	N/A	1,669	50	Scorer
Daniel Theis	237	419	32	95	87	114	138	278	416	108	54	36	80	215	593	N/A	1,518	63	Tower
Brad Wanamaker	154	349	36	98	119	128	22	118	140	169	75	59	14	126	463	N/A	1,317	68	Hit or Miss
Grant Williams	84	201	22	89	37	52	58	109	167	65	47	30	34	155	227	N/A	999	67	Hit or Miss
Semi Ojeleye	74	179	44	116	25	29	24	112	136	35	16	19	5	78	217	N/A	964	66	Sharpshooter
Enes Kanter	189	329	1	7	67	96	152	258	410	52	53	22	39	92	446	N/A	941	55	Tower
Javonte Green	55	108	6	24	24	38	21	67	88	26	19	24	8	39	140	N/A	431	46	Space Filler
Robert Williams	53	74	0	0	20	31	35	82	117	24	20	21	31	47	126	N/A	353	26	Footlong
Romeo Langford	25	71	5	26	18	25	15	22	37	9	10	8	8	31	73	N/A	337	30	Space Filler
Carsen Edwards	39	117	23	71	12	16	6	37	43	24	15	11	4	34	113	N/A	327	36	Sharpshooter
Vincent Poirier	16	33	1	2	6	7	10	24	34	7	6	2	6	23	39	N/A	114	21	Space Filler
Tremont Waters	12	35	3	17	6	6	0	9	9	12	10	5	2	11	33	N/A	89	10	Space Filler
Tacko Fall	9	12	0	0	1	3	0	11	11	0	3	0	2	5	19	N/A	24	6	Space Filler

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