How to pick our rookies?

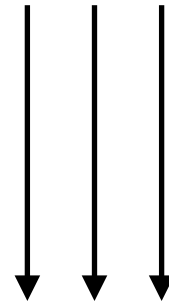*Beautiful Minds*

What Predicts NBA Success?

In fact, the only variables that predicted NBA success were youth, college <mark>performance</mark>, and college quality. These variables predicted NBA <mark>performance</mark> better than draft order.

Author: Scott Barry Kaufman
Link: https://blogs.scientificamerican.com/beautiful-minds/what-predicts-nba-success/

BUT Current Reality is...

"Unsurprisingly, measures of physical makeup and athleticism (e.g., arm span and agility) did predict draft order. These variables clearly influence selection into the draft" - Quote from Article

One example is:

instance, Cleveland Coach Mike Brown justified Anthony Bennett as the number one 2013 draft pick by saying "His standing reach is higher than lots of guys playing power forward in the league, including Kevin Love. He's got long arms... he has a lot of upside."

BUT...WHOOPS

instance, Cleveland Coach Mike Brown justified Anthony Bennett as the number one 2013 draft pick by saying "His standing reach is higher than lots of guys playing power forward in the league, including Kevin Love. He's got long arms... he has a lot of upside."
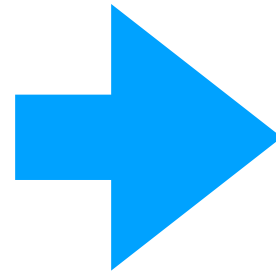
An Idea to test...

An Idea to test…

<u>Article's Point</u>: Player's long term value can be predicted...BUT

An Idea to test...

Article's Point: Player's long term value can be predicted...BUT

Can a player's ROOKIE year performance be predicted based on college performance?

Data Collection

Data Collection

Top 100 **college** scoring leaders from year 2002 - 2017

Data Collection

Top 100 **college** scoring leaders from year 2002 - 2017

+

NBA Drafted Rookies from year 2002 - 2017
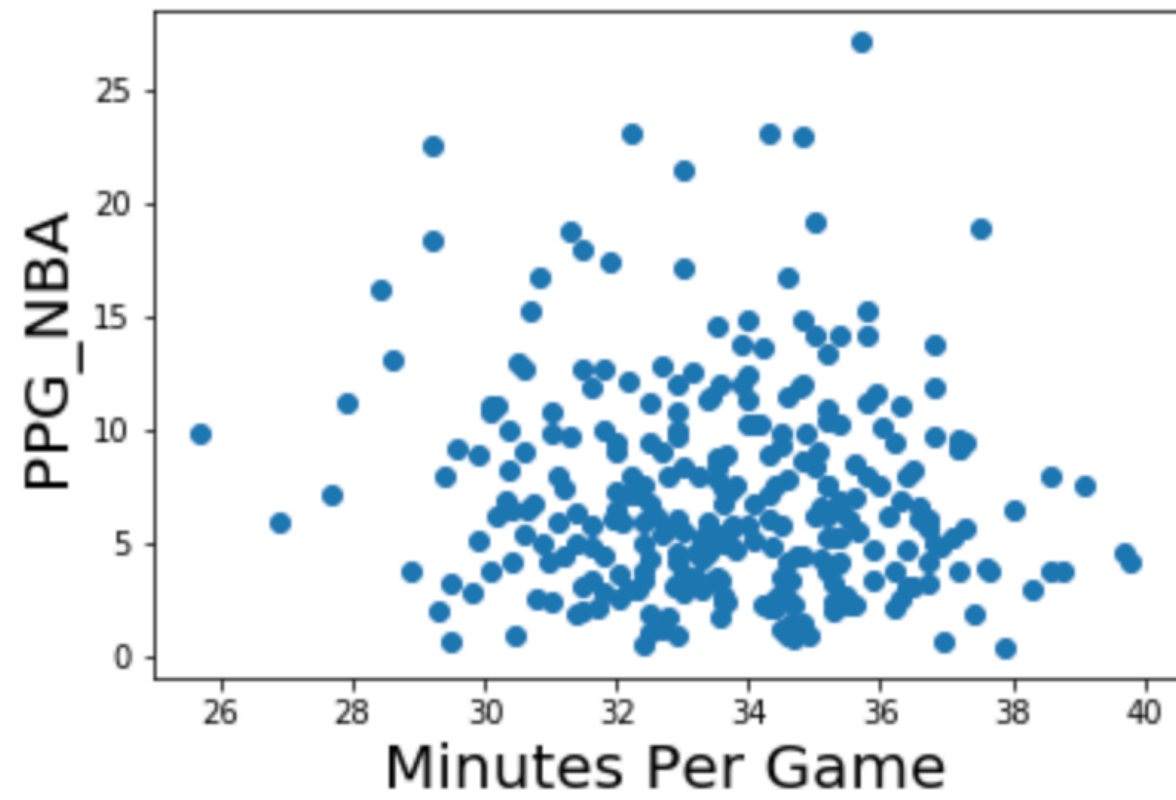
Feature selection

Predictors(College stats):
- PPG
- FG%
- 3P%
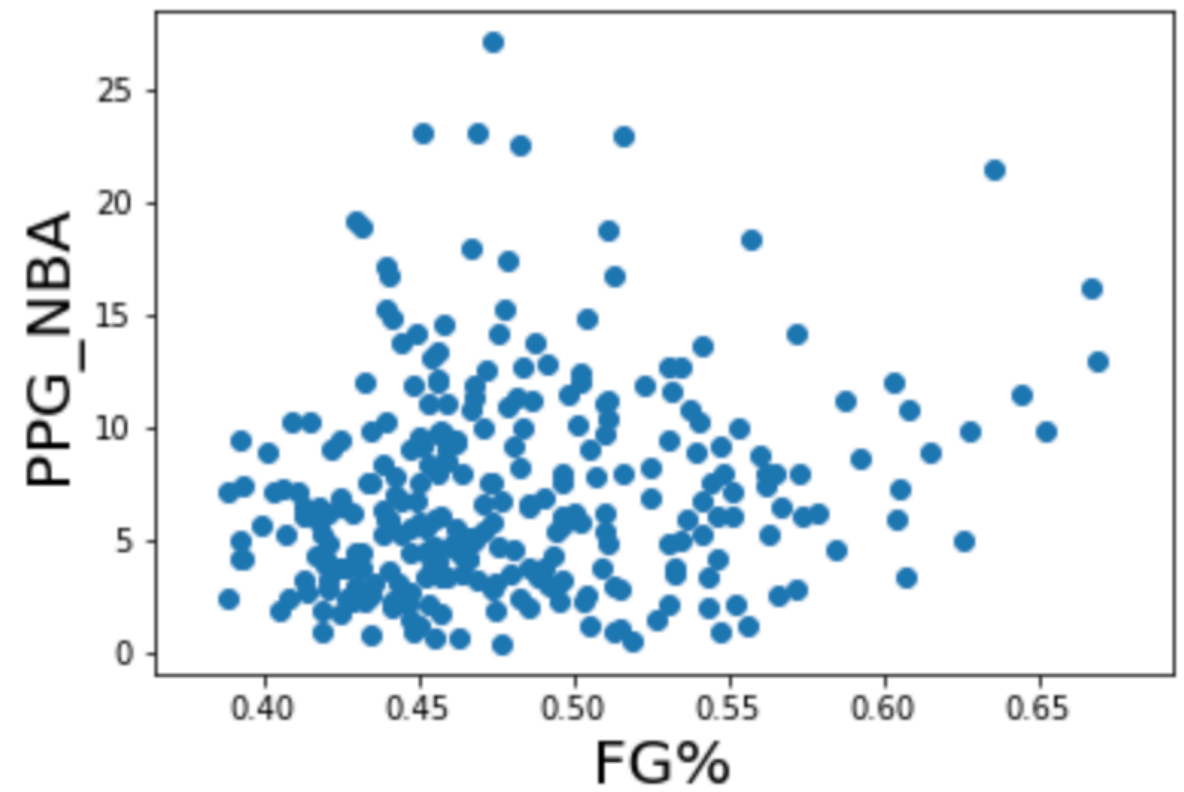- Games Played
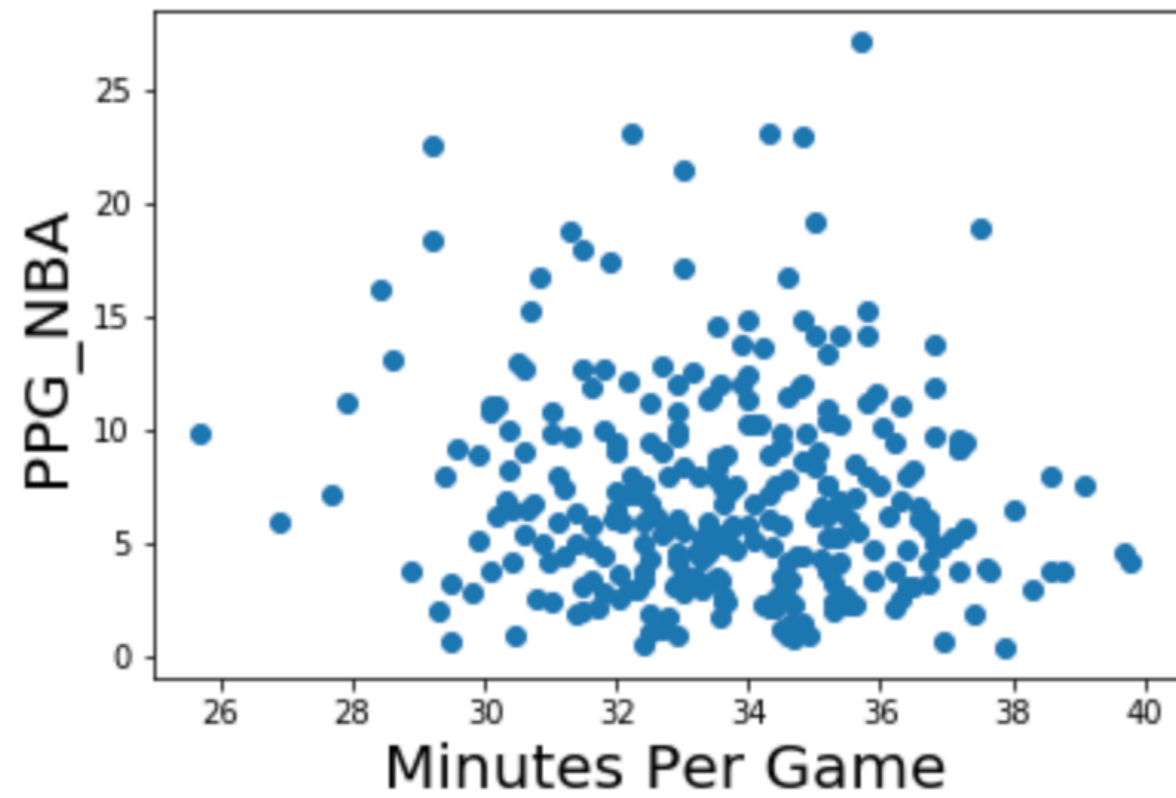- Minutes Per game
- Position
- Free throw %
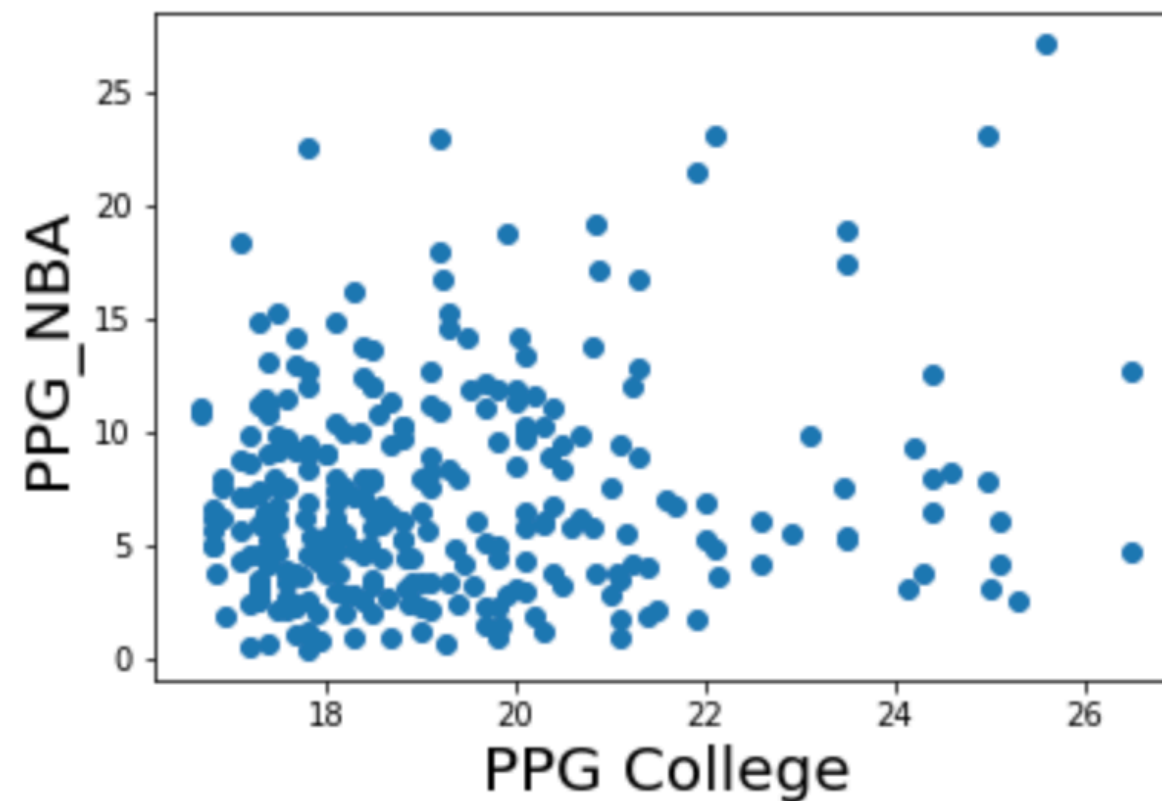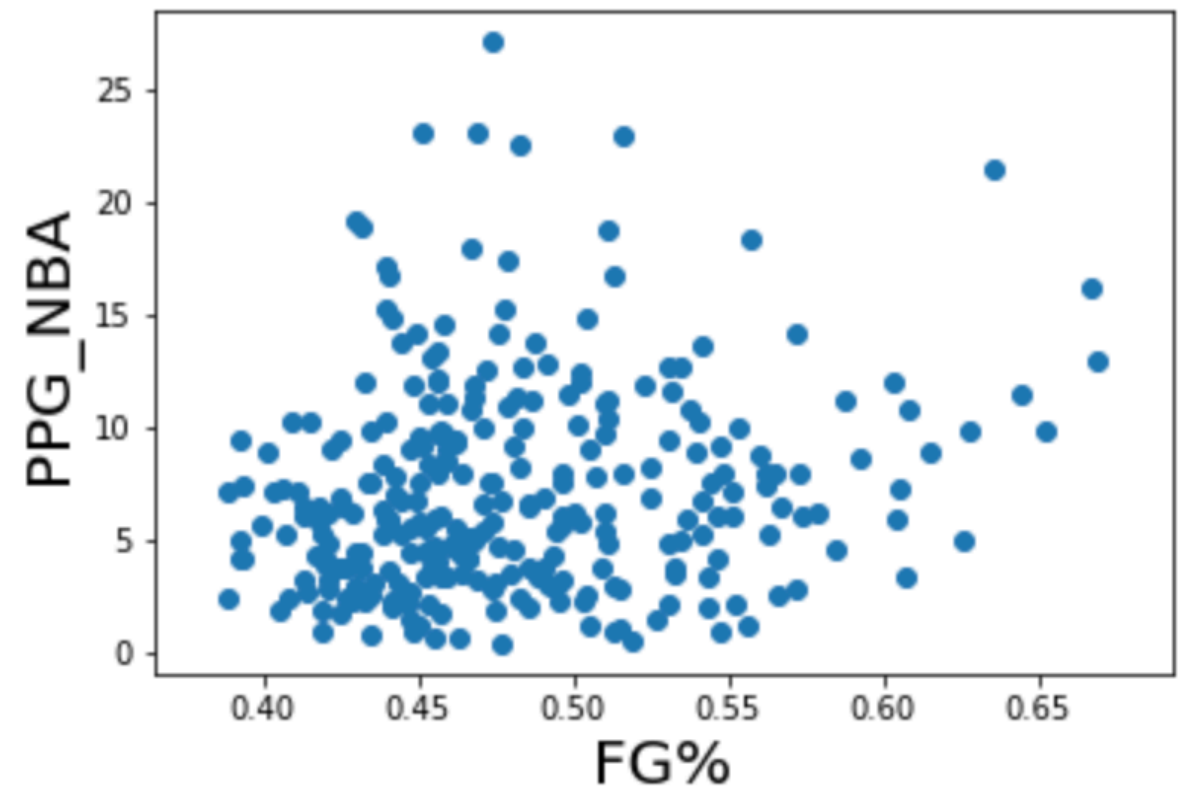
Target:
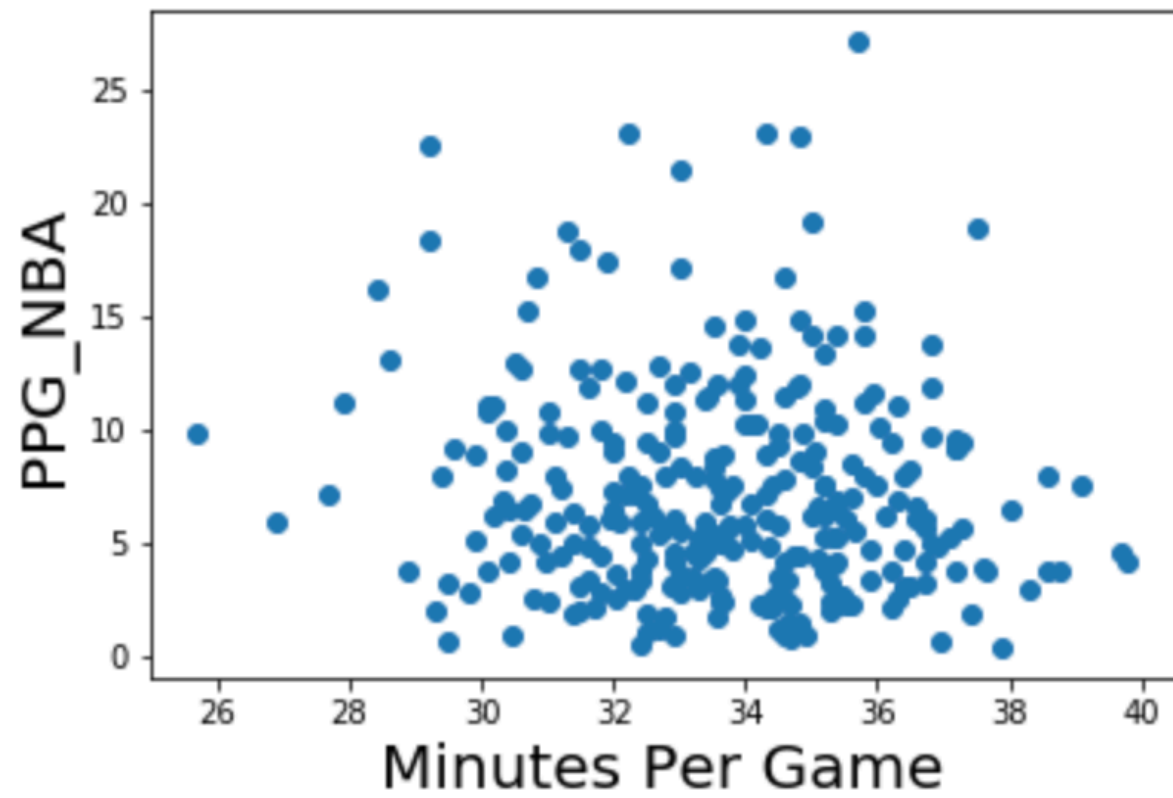- PPG Rookie Year

Results - Relationships

Results - Relationships

Results - Relationships

Results - Stats Significance

Step #1 - Fitting & scoring Linear Regression
Model(All variables)

Result :

R^2 of -1.134 on Validation Data

Results - Stats Significance

Step #2 -Linear Regression Model - Statistically Significant Vars

Statistically significant features:
- PPG_College (p val = 0.001)
- FG% (p val = 0.027)
- Minutes Per game (p val = 0.030)

Result :

R^2 of 0.07 on Validation Data(W/ Feature Engineering)

Something to think about...

1.) NBA looks for "talented" players

$\downarrow$

Something to think about...

1.) NBA looks for "talented" players

↓

2.)Player physical attributes = DRAFT order bias

↓

Something to think about...

1.) NBA looks for "talented" players

↓

2.)Player physical attributes = DRAFT order bias

↓

3.)A high correlation between draft order/num mins played (0.89)
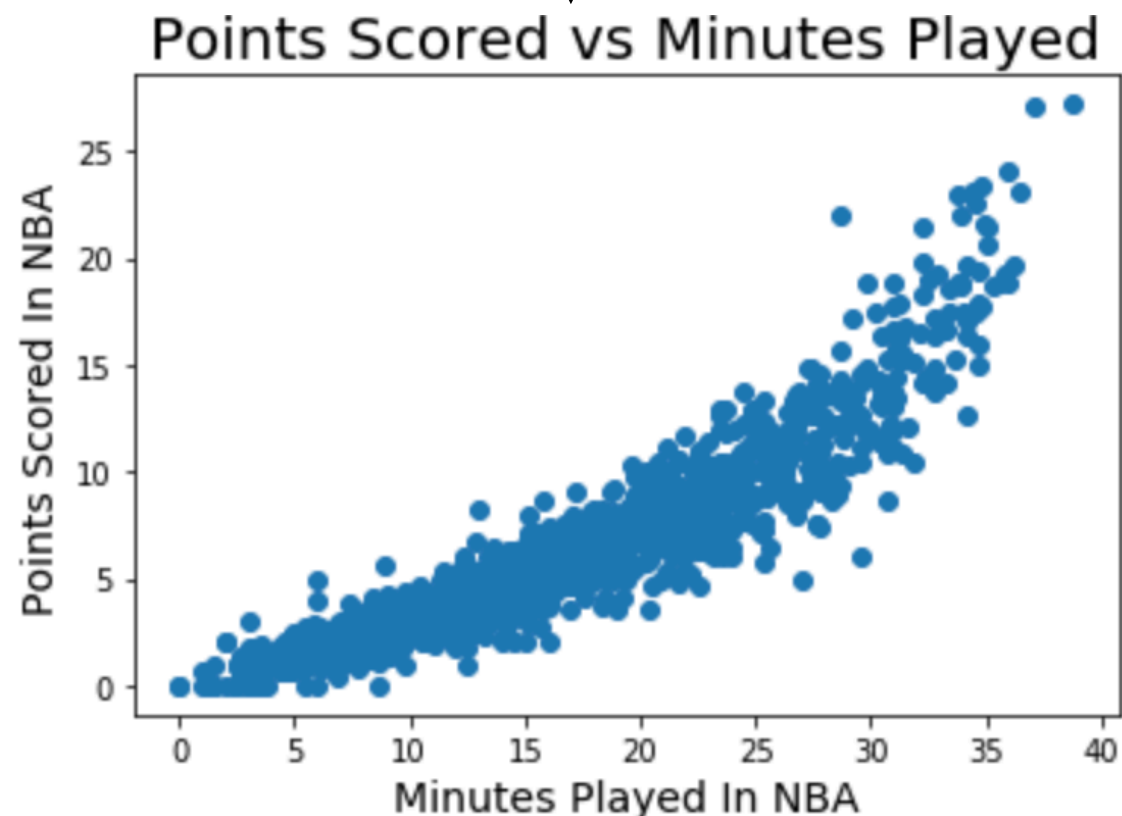
↓

Something to think about...

1.) NBA looks for "talented" players

↓

2.)Player physical attributes = DRAFT order bias

↓

3.)A high correlation between draft order/num mins played (0.89)

↓

Points Scored vs Minutes Played

Recommendation

#1 - Use more sophisticated models for prediction

2# - Incorporate physical characteristics & draft order as features
   (indirectly captures draft order)

Recommendation

#1 - Use more sophisticated models for prediction

2# - Incorporate physical characteristics & draft order as features
(indirectly captures draft order)

Biggest takeaway: Severely untapped potential due to draft order bias