



Predicting NBA Usage Rate

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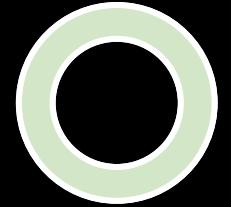
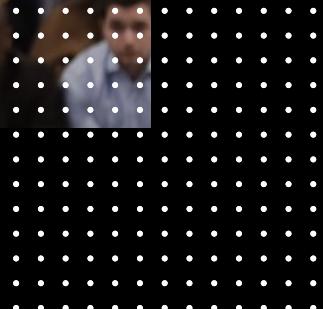
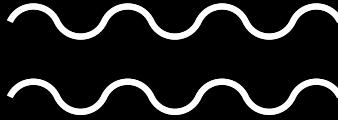
Player Value on an NBA Team

In the NBA, teams seek out players who can make a tangible impact on performance.

Teams utilize players in their offensive and defensive systems based on past statistics and tendencies of the players.

Metrics

- One of the metrics utilized to measure player involvement is Usage Rate:
 - Usg% is an estimate of the percentage of team plays that a player is involved in
- Predicting this metric would provide NBA teams a better idea of how much they can integrate a player into their gameplan.

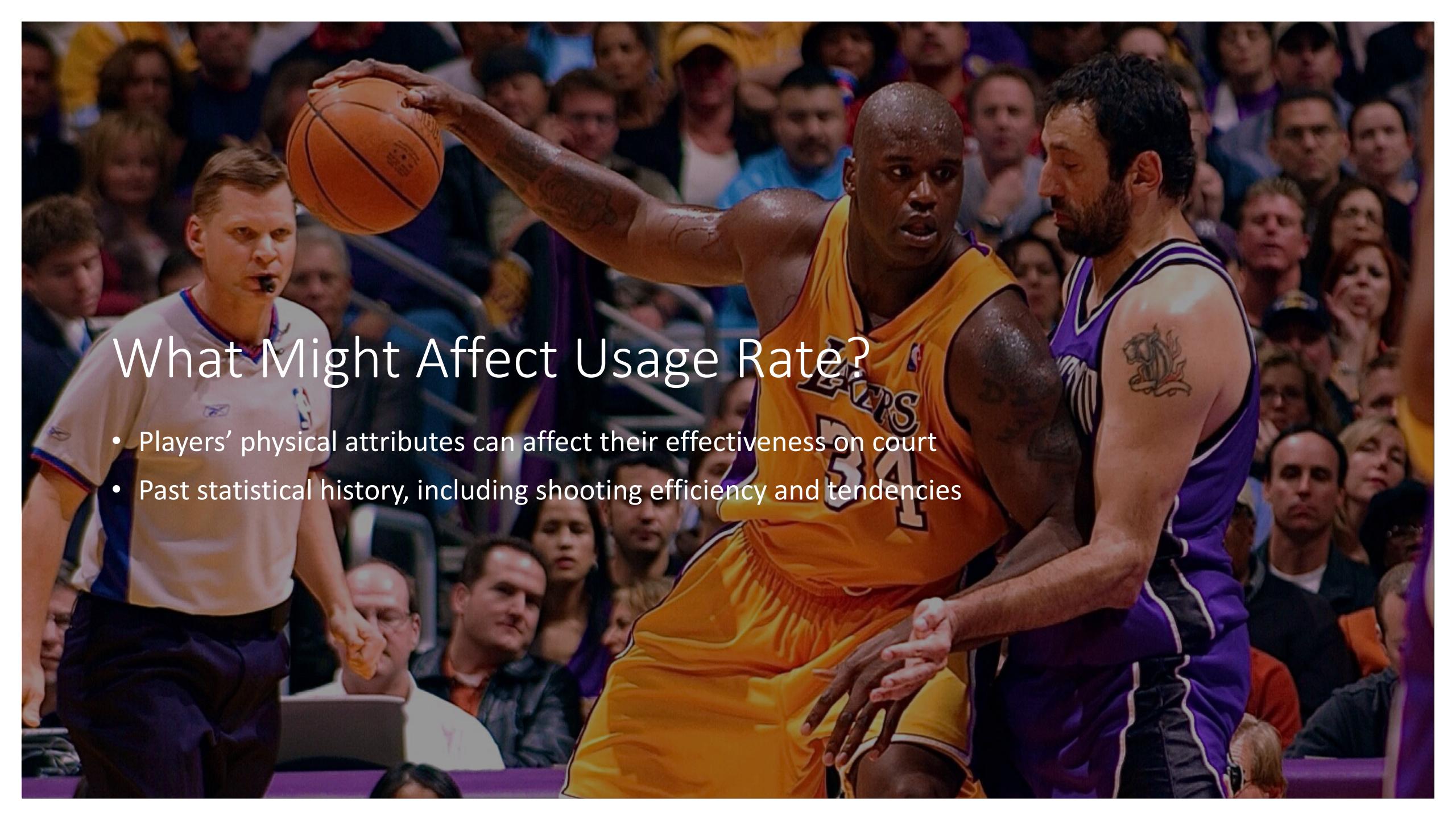


Methodology

- Data obtained from Basketball-Reference.com
- Utilized BeautifulSoup to pull data
- Cross Validation with 5 K-Folds
- Ridge Regression
- Seaborn and Matplotlib for visualizations

Primary Data Source



A dynamic basketball scene in mid-game. In the foreground, a player wearing a yellow Los Angeles Lakers jersey with the number 34 is dribbling the ball. He is being closely guarded from behind by a player in a purple Sacramento Kings jersey with a lion tattoo on his right shoulder. A referee in a white shirt and blue pants is positioned to the left, watching the play. The background is filled with a blurred crowd of spectators in the stands.

What Might Affect Usage Rate?

- Players' physical attributes can affect their effectiveness on court
- Past statistical history, including shooting efficiency and tendencies



Feature Engineering

Over the last few seasons, NBA teams have sought after taller players who can score:

- Height * PPM
- Height * FG%
- PPM * FG%

Results

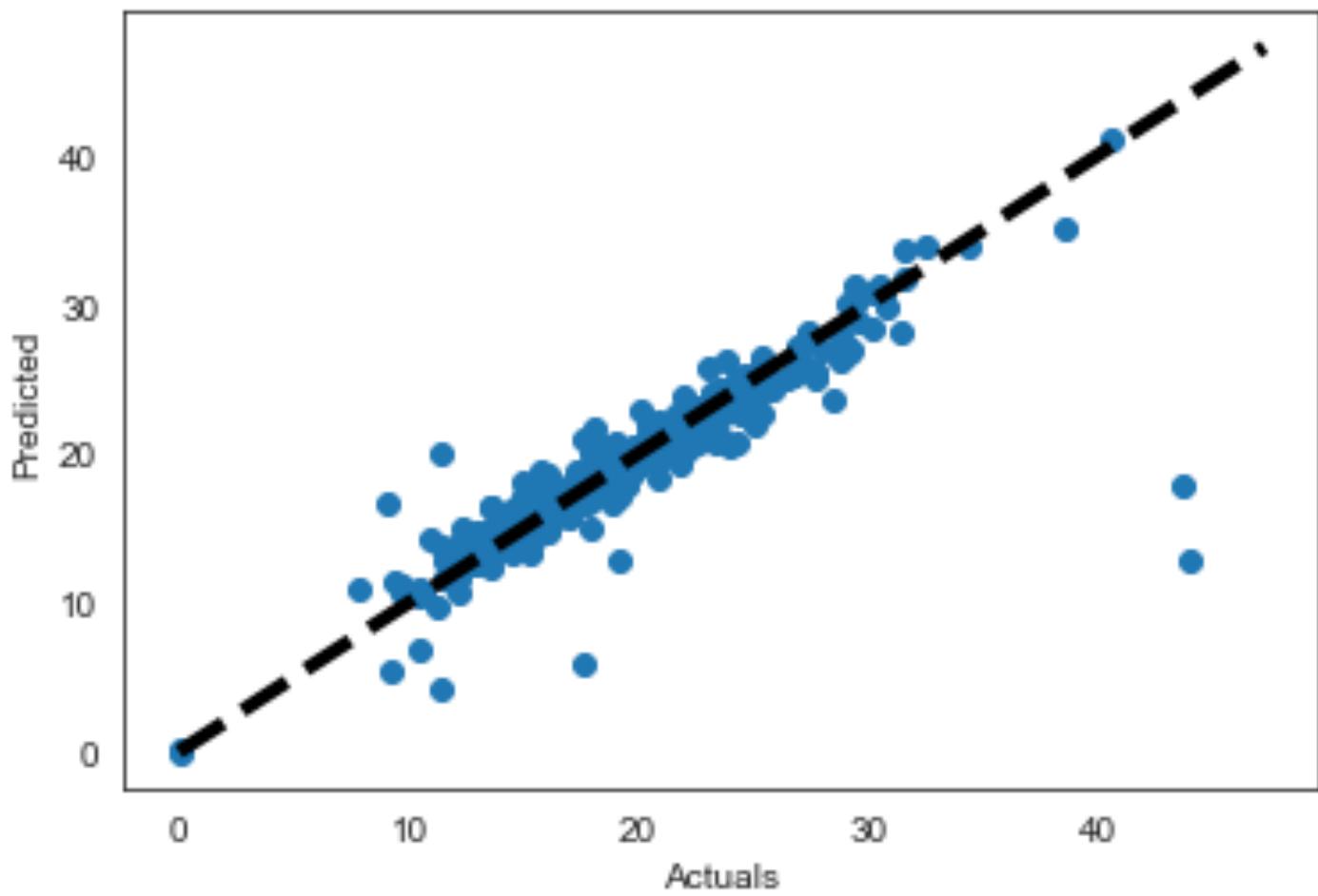
Baseline mean R^2 : 0.783

Training Data mean R^2 : 0.819

Test Data mean R^2 : 0.773

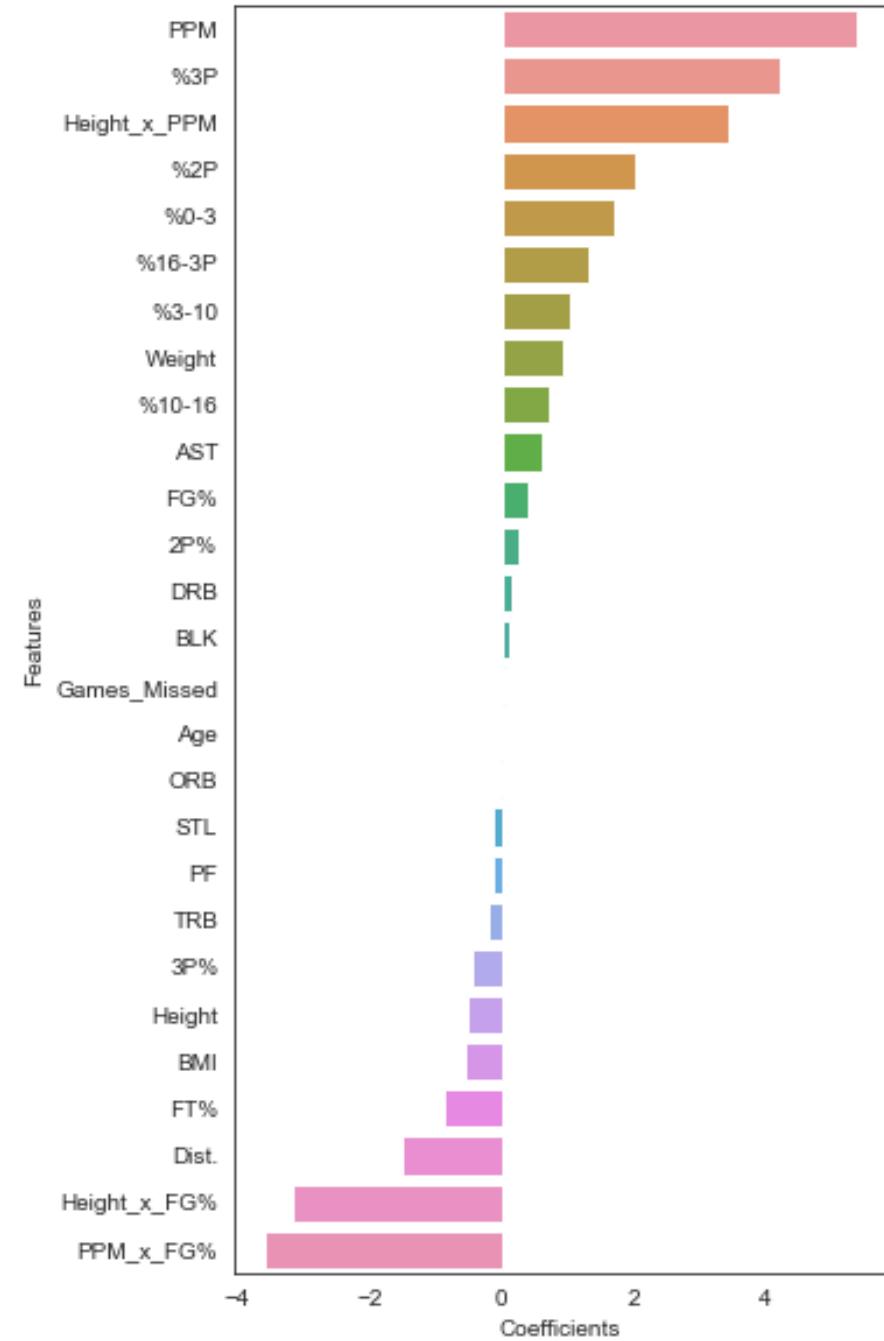
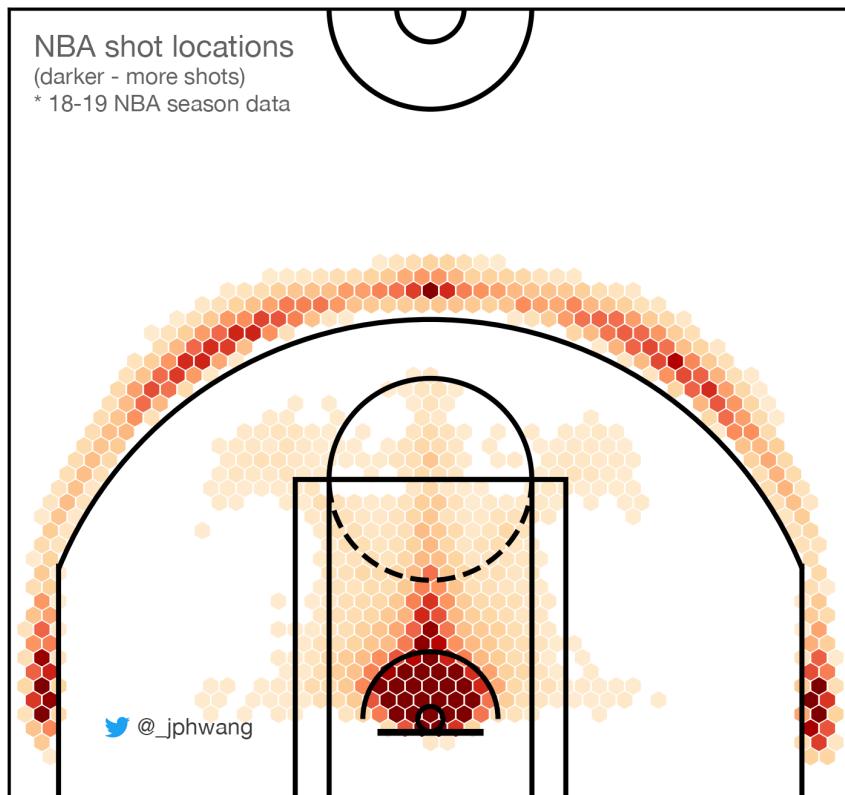
Performance

Actual vs Predicted



Results

- Most Significant Features



Recommendations & Insights

- NBA teams should incorporate players with:
 - High PPM, High Percentage of 3pt Shot Proportion, Tall Height with High PPM



Future Work

1. Separating data by Position using Dummy Variables
2. Further feature engineering to help improve model score and more datasets to adjust for overfitting

