

What affects NBA Teams Wins

Python analysis of NBA team performance data set

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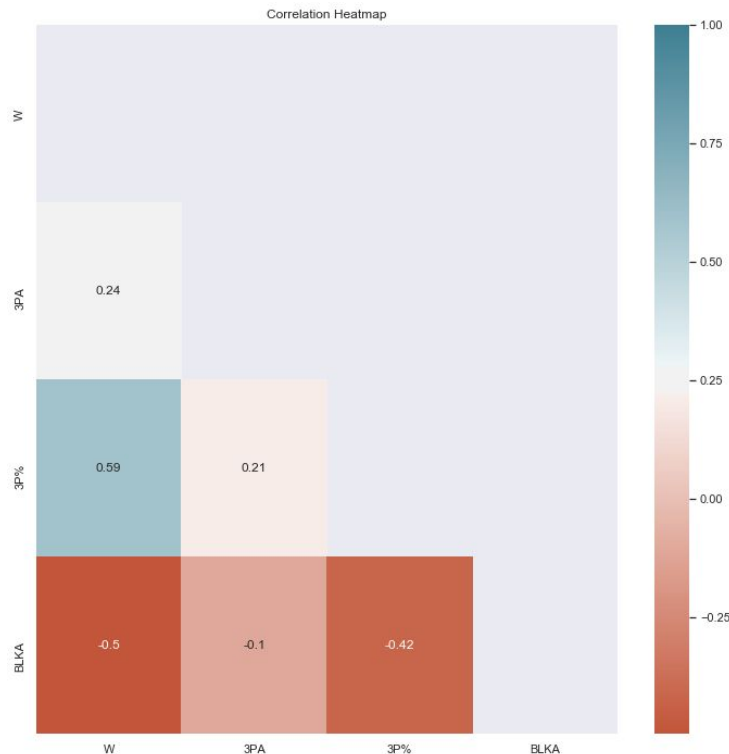
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Background Information

- Our data set:
 - Web Scraped from NBA.com
 - 150 observations x 34 variables
 - NBA team statistics during the past 5 years
- Explanation of variables
 - WINS: Games that a team has won
 - 3P%: 3-Point field goals percentage
 - BLKA: Attempt to block shots made (e.g. Goal tending)
 - OREB: Offensive rebounds
 - PACE: Number of possessions per 48 minutes
- Theme Questions:
 - Explore how three pointers affect Wins
 - Find other factors that differ bad teams from good teams
 - Good Teams: Warriors, Spurs, Raptors, Rockets, Clippers
 - Bad Teams: Knicks , Suns , Lakers , Nets , Magic

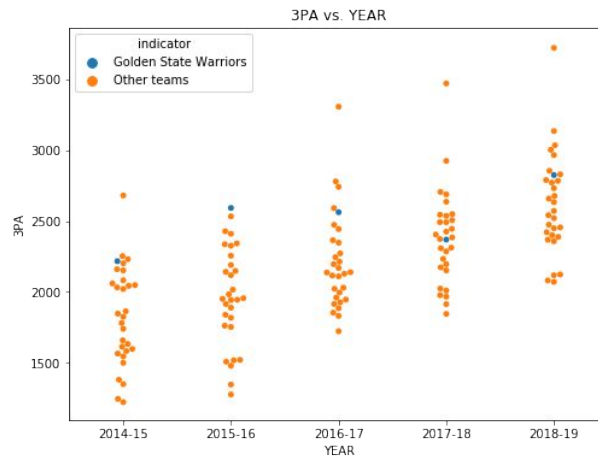
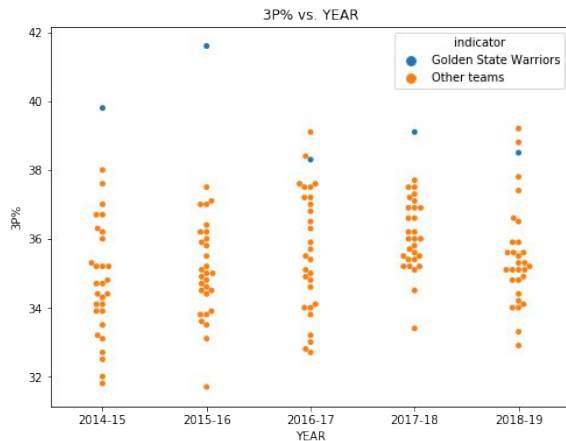
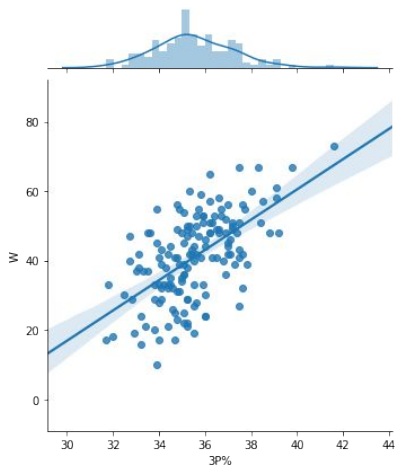
Exploratory Analysis

- Visualize by a Pearson correlation heatmap
- Insight
 - WINS is highly positively correlated with 3P%
 - WINS is highly negatively correlated with BLKA
 - 3P% is highly negatively correlated with BLKA
- The heatmap provides a concrete reason to believe that 3P% and BLKA are related to WINS



Exploratory Analysis

- WINS is positively correlated with 3P%
- NBA teams 3PA increased over the past 5 years

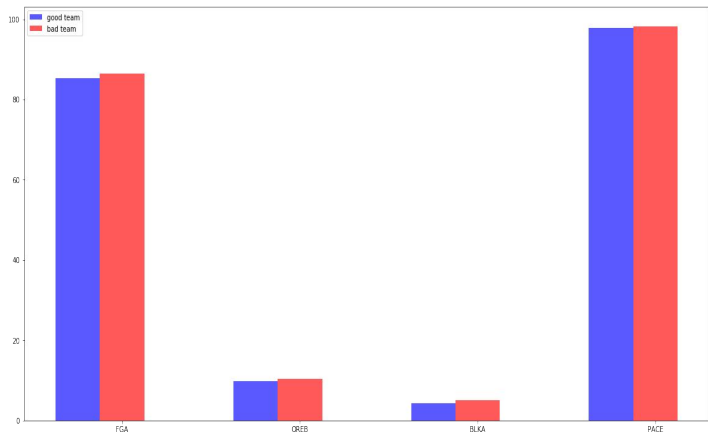


Data Modeling

- Multiple linear regression model based on common knowledge
- R-squared: 0.842, adjusted R-squared: 0.830
- $$\begin{aligned} \text{WINS} = & -134.4476 + 2.3906 * 3P\% \\ & + 305.1809 * 2P\% + 0.334 * FT\% + 0.0474 * REB \\ & + 0.0008 * AST - 0.0265 * TOV + 0.0706 * STL \\ & + 0.0032 * BLK + 0.0032 * PF - 2.8818 * PACE \end{aligned}$$

	Coef	P-value
Intercept	-134.4476	0.00
3P%	2.3906	0.00
2P%	305.1809	0.00
FT%	0.334	0.035
REB	0.0474	0.000
AST	0.0008	0.818
TOV	-0.0265	0.000
STL	0.0706	0.000
BLK	0.0032	0.679
PF	0.0032	0.464
PACE	-2.8818	0.000

Data Modeling



	coef	std err	t	P> t
Intercept	81.0679	9.471	8.559	0.000
OREB	0.0100	0.010	0.978	0.330
BLKA	-0.1219	0.018	-6.935	0.000

- Model: $\text{Wins} \sim \text{OREB} + \text{BLKA}$, data=nba
- Normality and constant variance assumptions not violated.
- P- value = 0.000, so BLKA is a significant factor on Wins.
- Conclusion: if a NBA team wants to win more games, it should avoid trying to block every opponents' shot.

