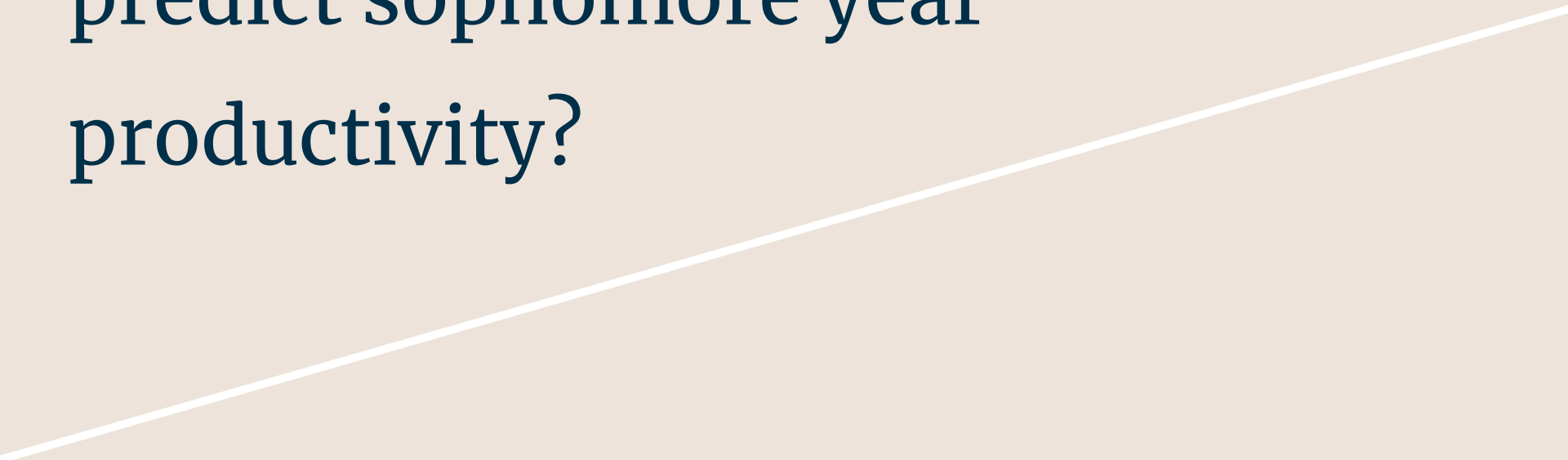


Predicting Statistical Growth of Young NBA Players

Sam Rudovsky

A dark blue diagonal gradient bar that starts from the bottom left and extends towards the top right, covering the lower half of the slide.

How well do rookie year statistics
predict sophomore year
productivity?



Data

<http://www.basketball-reference.com>



Features

Per Game

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Season	Age	Tm	Lg	Pos	G	GS	MP ▼	FG	FGA	FG%	3P	3PA	3P%	2P	2PA	2P%	eFG%	FT	FTA	FT%	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS
2018-19	28	TOT	NBA	SF	35	35	34.4	4.5	10.3	.431	2.4	6.4	.378	2.0	3.9	.518	.548	1.9	2.5	.764	0.8	4.7	5.5	1.3	2.1	1.3	1.3	3.6	13.3
2017-18	27	PHI	NBA	SF	80	80	31.7	4.3	10.5	.413	2.5	6.9	.369	1.8	3.6	.497	.534	1.5	1.7	.853	0.7	4.7	5.4	2.0	1.7	0.9	1.6	3.0	12.6
2016-17	26	PHI	NBA	SF	67	67	31.6	4.4	10.9	.399	2.0	6.1	.333	2.3	4.8	.484	.492	2.1	2.6	.822	1.4	5.1	6.5	1.5	1.9	1.0	2.0	3.0	12.9
2015-16	25	PHI	NBA	SF	67	49	28.4	4.1	10.6	.385	2.5	7.2	.353	1.6	3.4	.452	.504	2.1	2.6	.791	1.0	5.3	6.3	1.4	1.6	0.6	2.1	3.5	12.8
2014-15	24	PHI	NBA	SF	70	49	27.9	4.3	10.8	.396	2.4	6.4	.374	1.9	4.4	.426	.506	2.5	3.1	.820	0.9	3.6	4.5	1.5	1.4	0.4	1.8	2.7	13.5
2013-14	23	HOU	NBA	SF	7	0	4.9	0.9	2.0	.429	0.6	1.6	.364	0.3	0.4	.667	.571	0.0	0.0		0.3	0.4	0.7	0.0	0.3	0.0	0.1	0.4	2.3
Career			NBA		326	280	29.9	4.2	10.5	.402	2.3	6.5	.360	1.9	3.9	.471	.514	2.0	2.4	.813	0.9	4.6	5.5	1.6	1.7	0.8	1.8	3.0	12.7
5 seasons		PHI	NBA		297	258	30.1	4.2	10.6	.400	2.4	6.6	.359	1.9	4.0	.466	.512	2.0	2.4	.817	1.0	4.7	5.6	1.6	1.6	0.8	1.9	3.1	12.9
1 season		MIN	NBA		22	22	34.7	4.8	11.1	.433	2.5	6.7	.372	2.3	4.4	.526	.545	2.3	3.0	.773	1.0	4.8	5.7	1.5	2.3	1.1	1.1	3.7	14.5
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Features

Per Game [Share & more ▼](#) [Glossary](#) [Show Partial Rows](#)

Season	Age	Tm	Lg	Pos	G	GS	MP	FG	FGA	FG% ▼	3P	3PA	3P%	2P	2PA	2P%	eFG%	FT	FTA	FT%	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS
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Features

Per Game Share & more ▼ Glossary Show Partial Rows

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Other Features

- Rebounds
- Assists
- Steals
- Shots taken
- Total games played

Target

Per Game

Share & more ▼

Glossary

Hide Partial Rows

Season	Age	Tm	Lg	Pos	G	GS	MP	FG	FGA	FG%	3P	3PA	3P%	2P	2PA	2P%	eFG%	FT	FTA	FT%	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS
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Data Cleaning

- More than 10 mins per game
- More than 30 games in a season
- Played a second year

Data Cleaning

- Outliers
 - Players who had severe drop in productivity

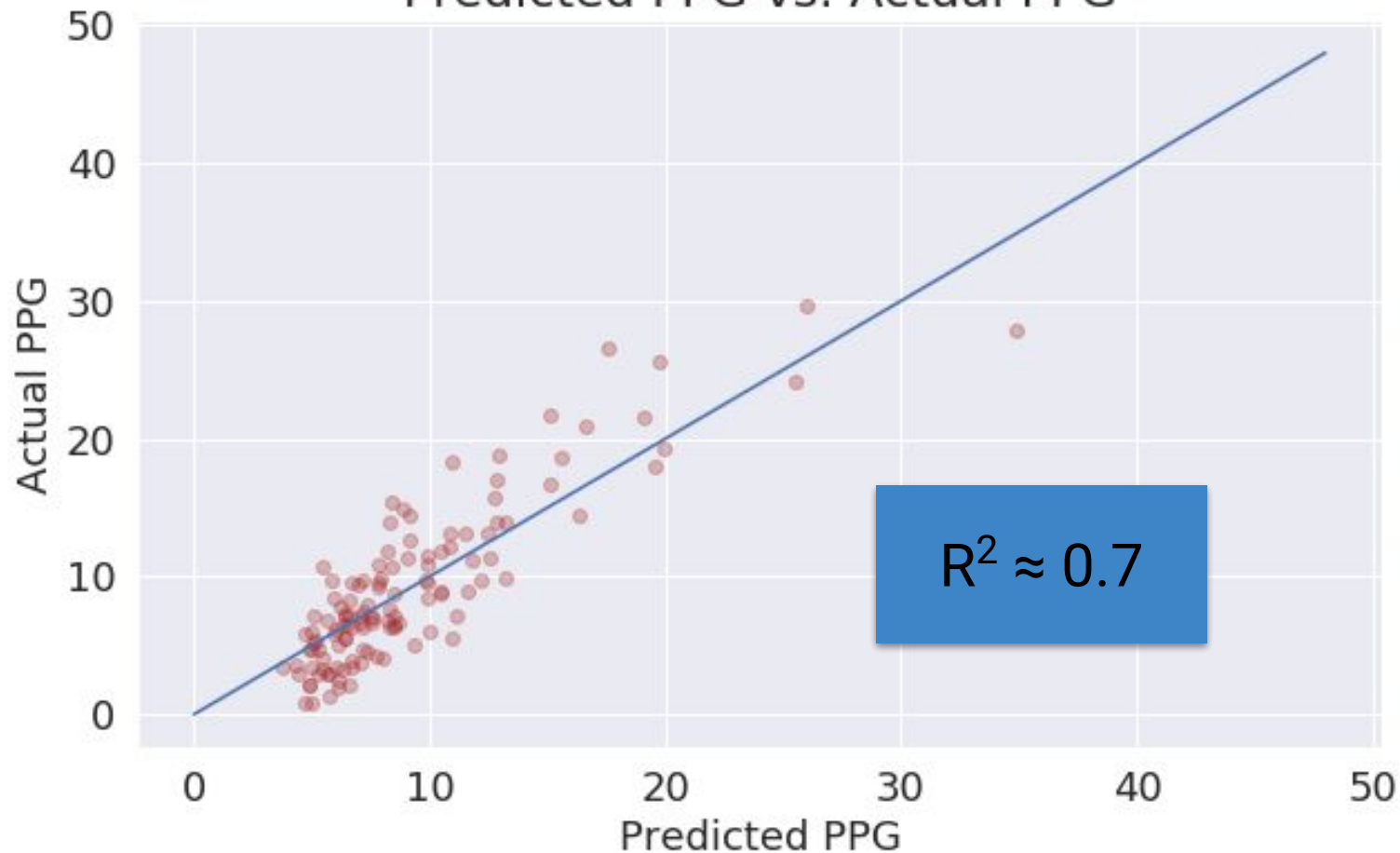
Feature Engineering

- More minutes → More shots
- More shots → More points scored
- Polynomial Features
- LassoCV

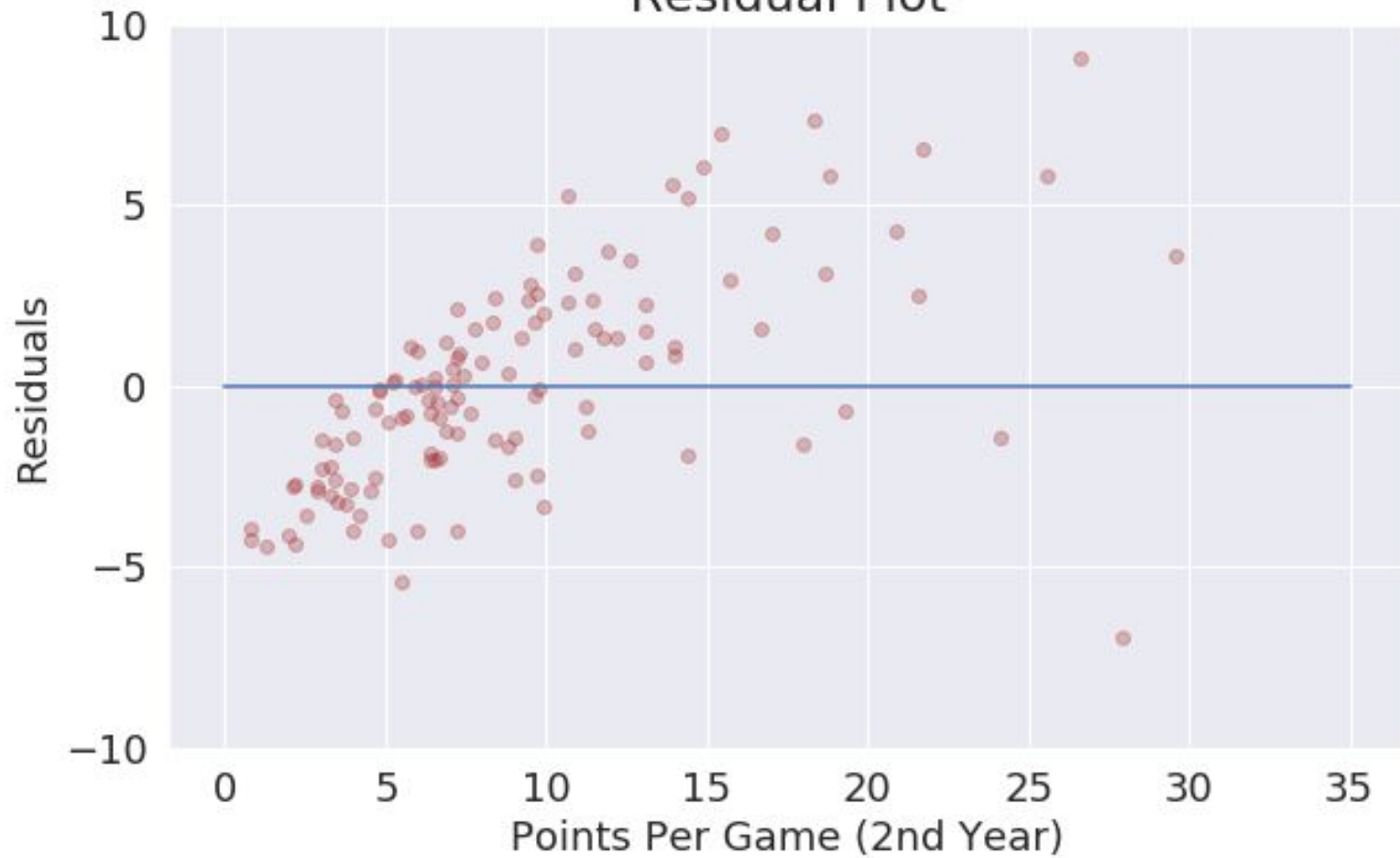
Results



Predicted PPG vs. Actual PPG



Residual Plot



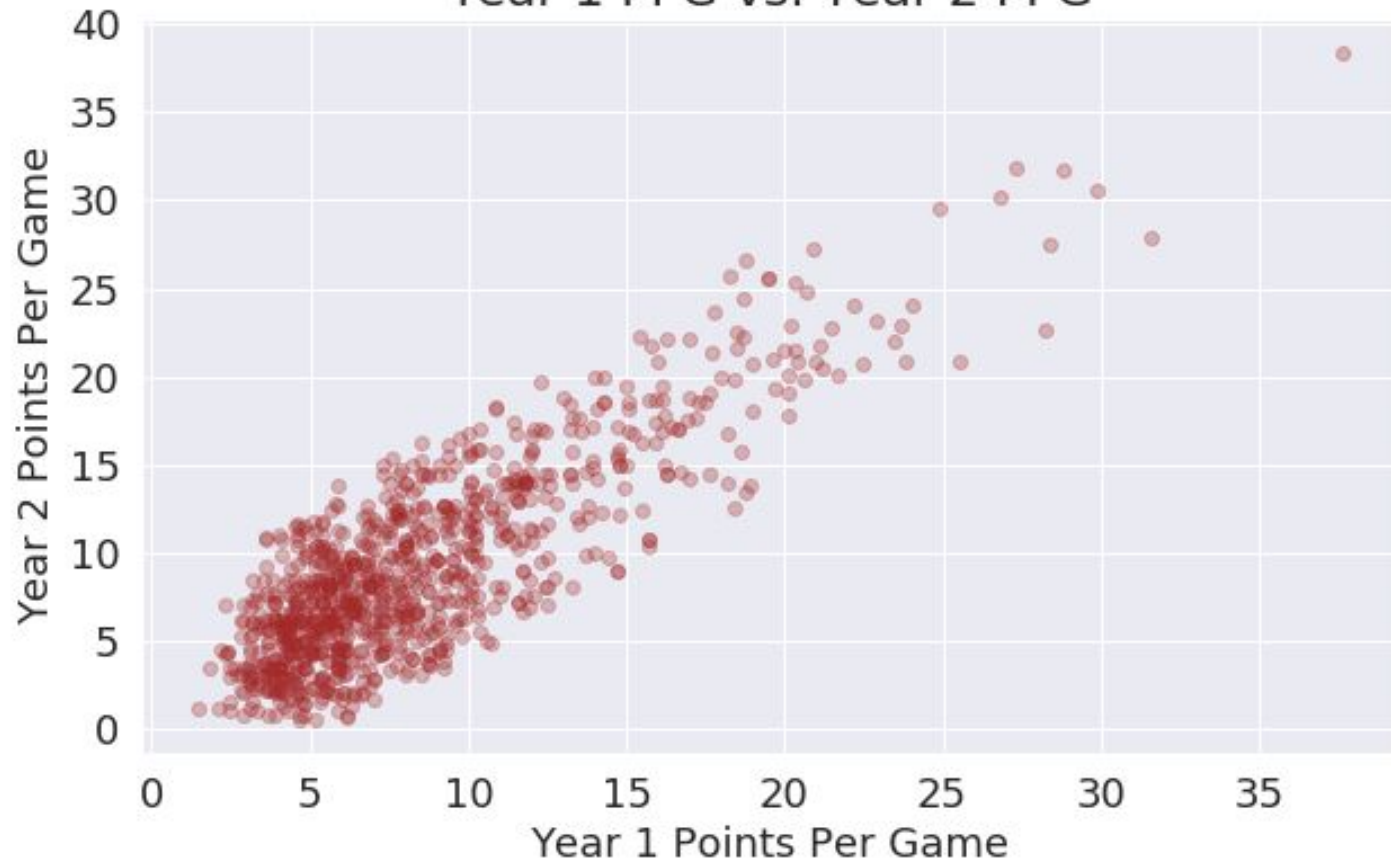
Insight



Insight #1

- Year one scoring production is the best predictor of year two scoring production

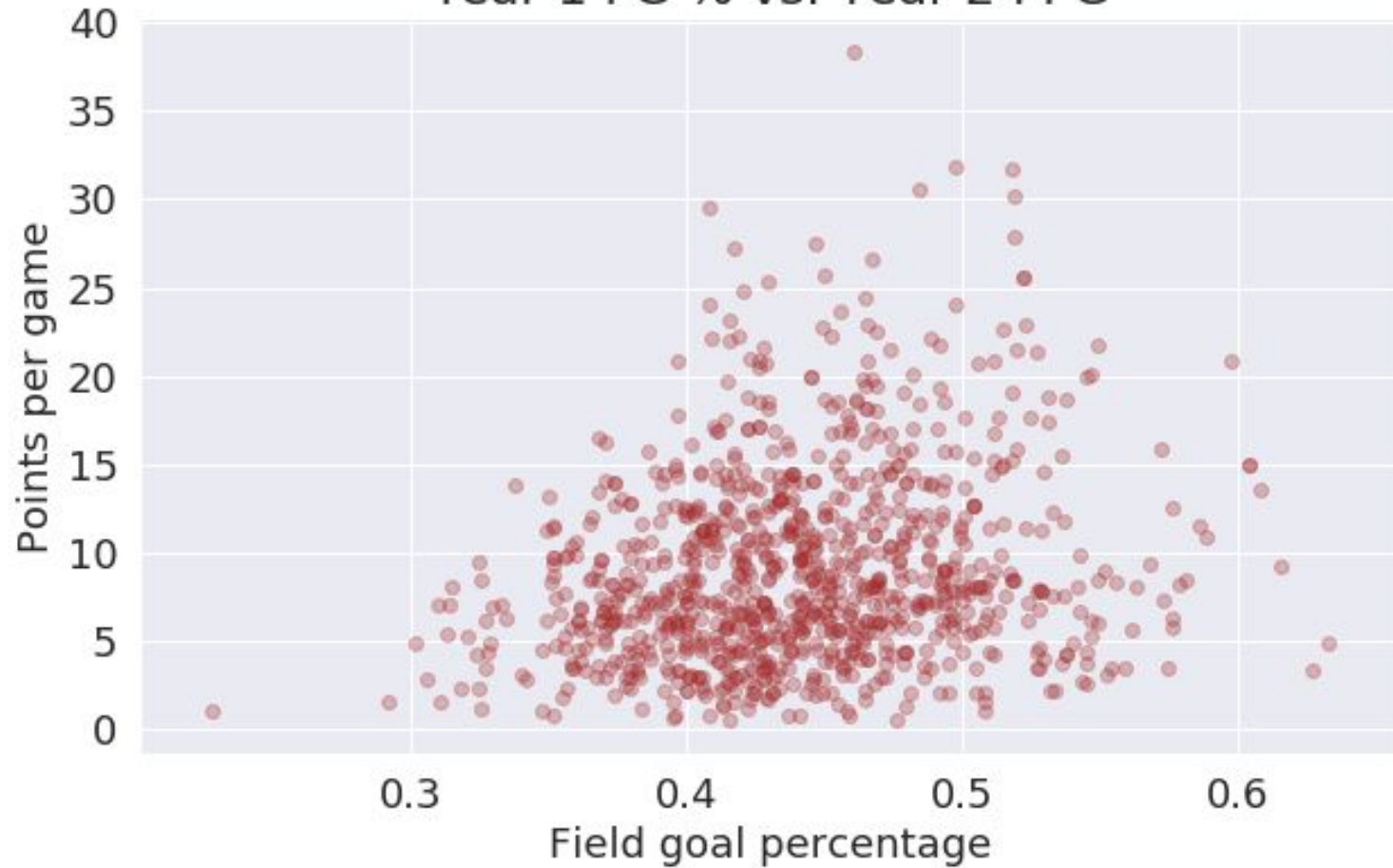
Year 1 PPG vs. Year 2 PPG



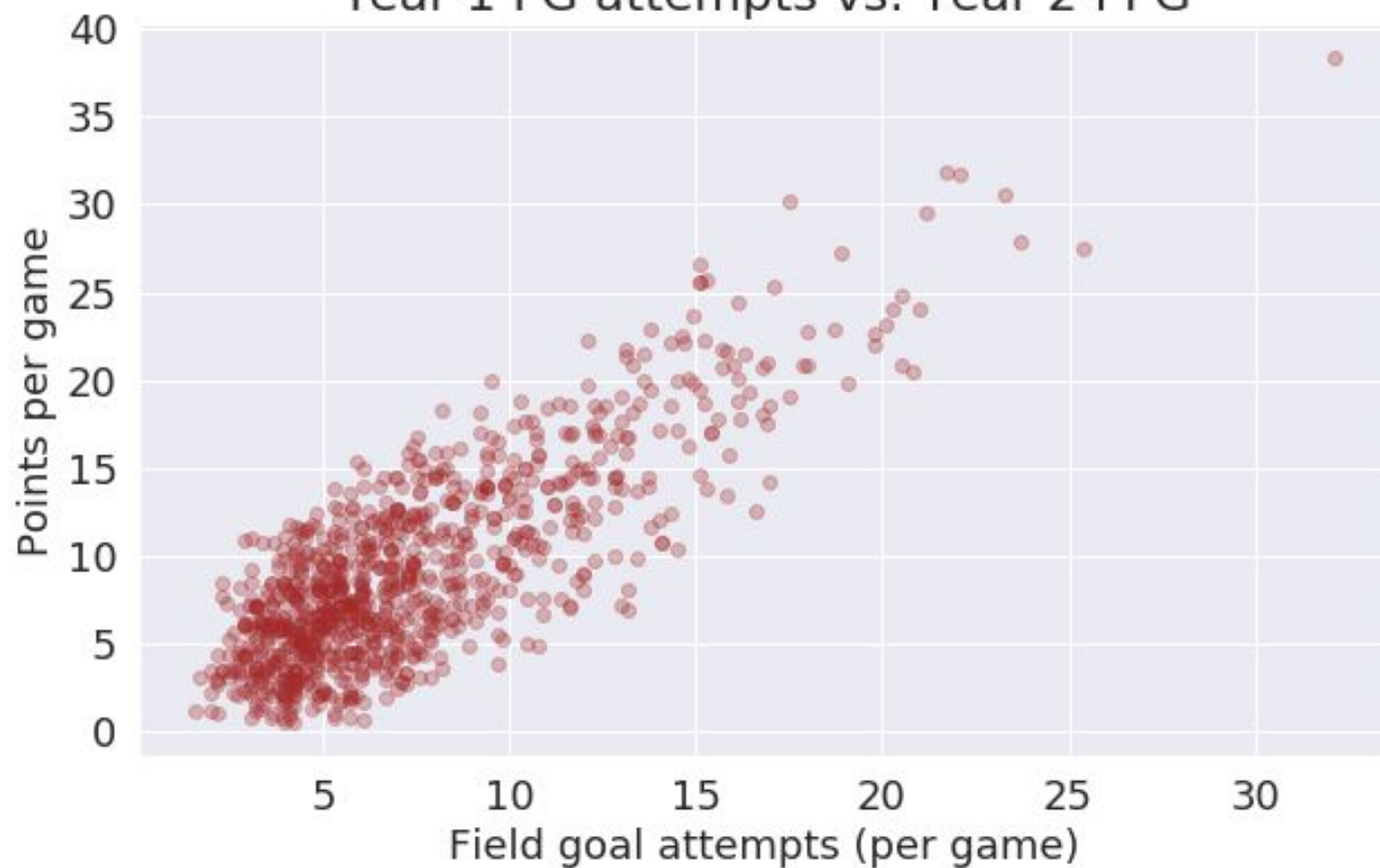
Insight #2

- Be patient

Year 1 FG % vs. Year 2 PPG



Year 1 FG attempts vs. Year 2 PPG



Thank you!

