Infield Hits

Parker Phillips
Harry Simon

What is an infield hit?

AN INFIELD HIT IS A BASE HIT ON A BALL THAT DOES NOT LEAVE THE INFIELD

Positives:

- Single.
- Not an Out
- Extends Your Teams Offense

Negatives:

- Not a very Productive Hit
- Hard to generate an Runs

Our Questions

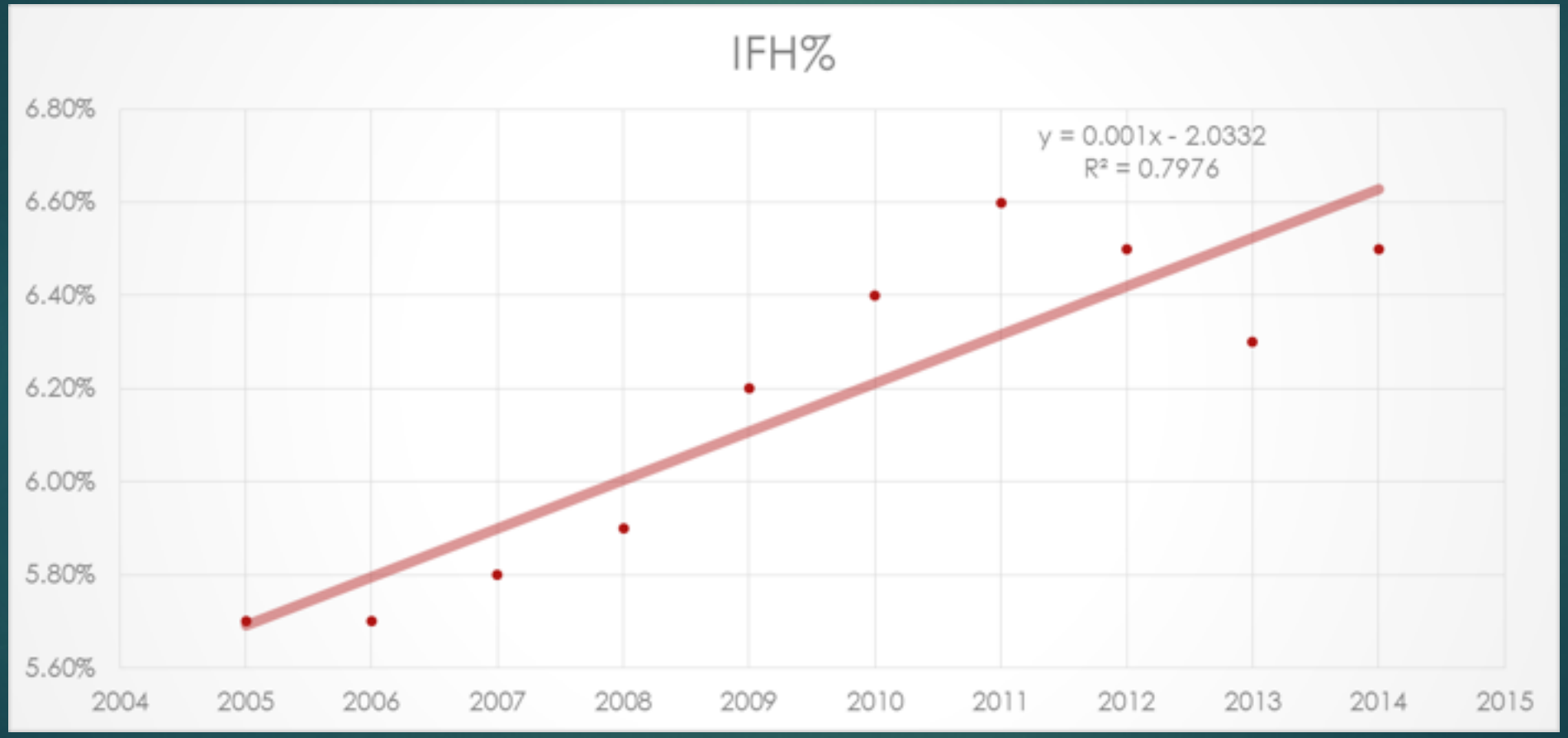
- Are infield hits becoming more prevalent in baseball?
- What is causing there to be more infield hits?
- Is there any significance to more infield hits?
- Can we use infield hits to predict the value of a player?
- Can we use infield hits to predict the speed of a player?

Methods

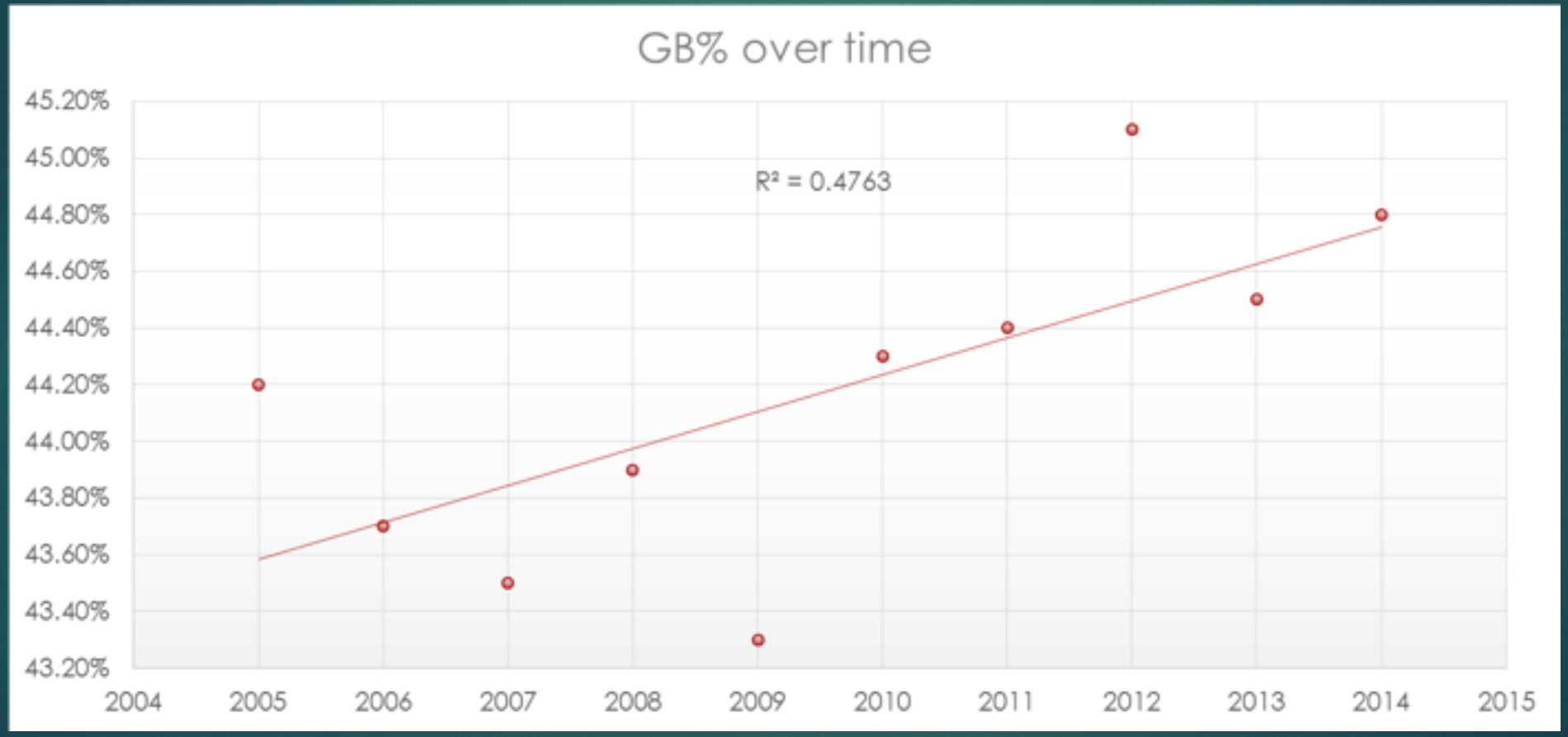
- Analyzed Tables from Fangraphs that dealt with Infield Hits, and Similar Statistics.
- Created New Statistics to Reveal the Significance of Infield Hits
- Analyzed Center Fielders as a Representative of Speedy Players with a Minimum of 10 Stolen Base Attempts.
- Created a New Speed Statistic using IFH% and compared it to the old Speed Statistic

Infield hit percentage over time

IFH% = Infield Hits/Ground Balls



Also increasing over time



What we looked at

Pitching

Improved Pitching might imply more infield hits.

Speed

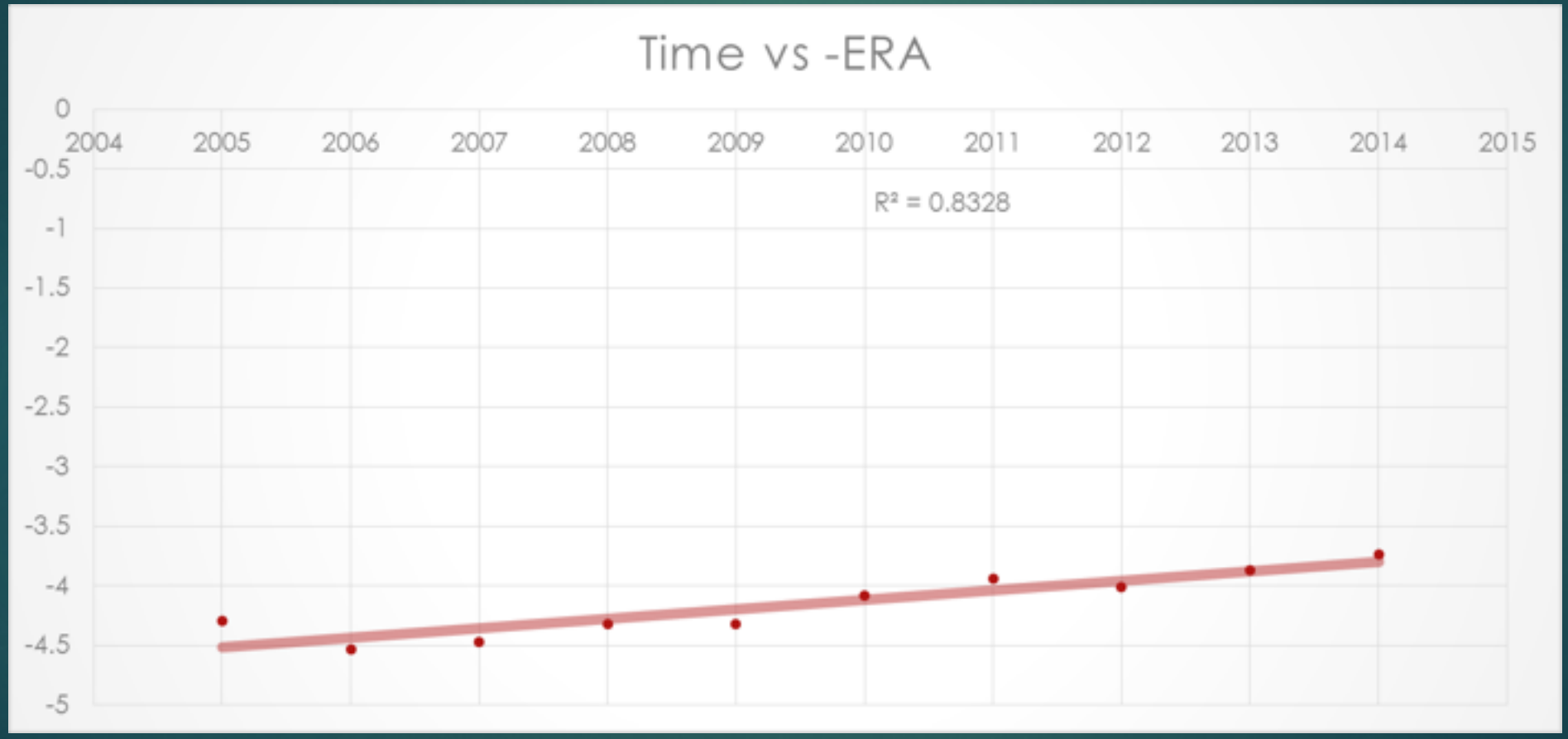
If players are getting faster, they may be more capable of running out infield singles than they were in the past

Defense

If overall defense was on the decline, it is possible that hitters have a higher probability of reaching safely on a ball hit to the infield.

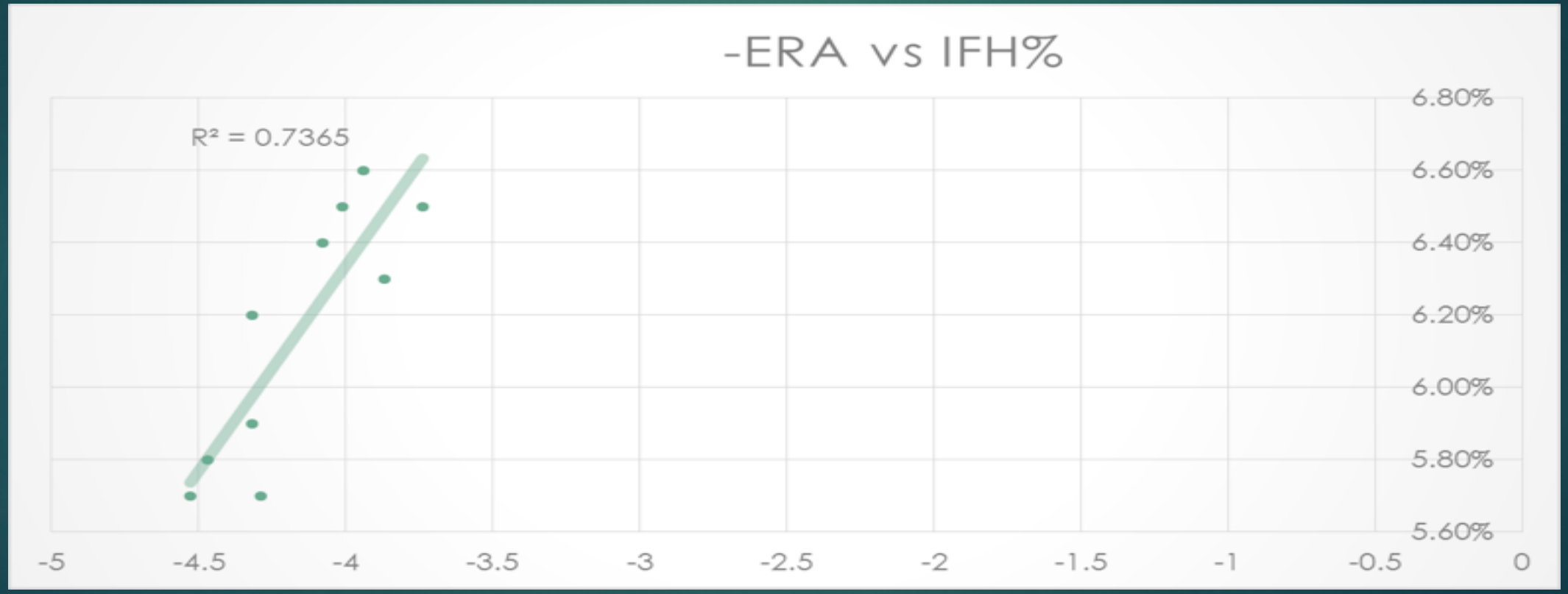
*There is no infield hits against statistic, which made this a dead end to follow. It would be interesting in a later report though.

Negative ERA over time



ERA and Infield Hits

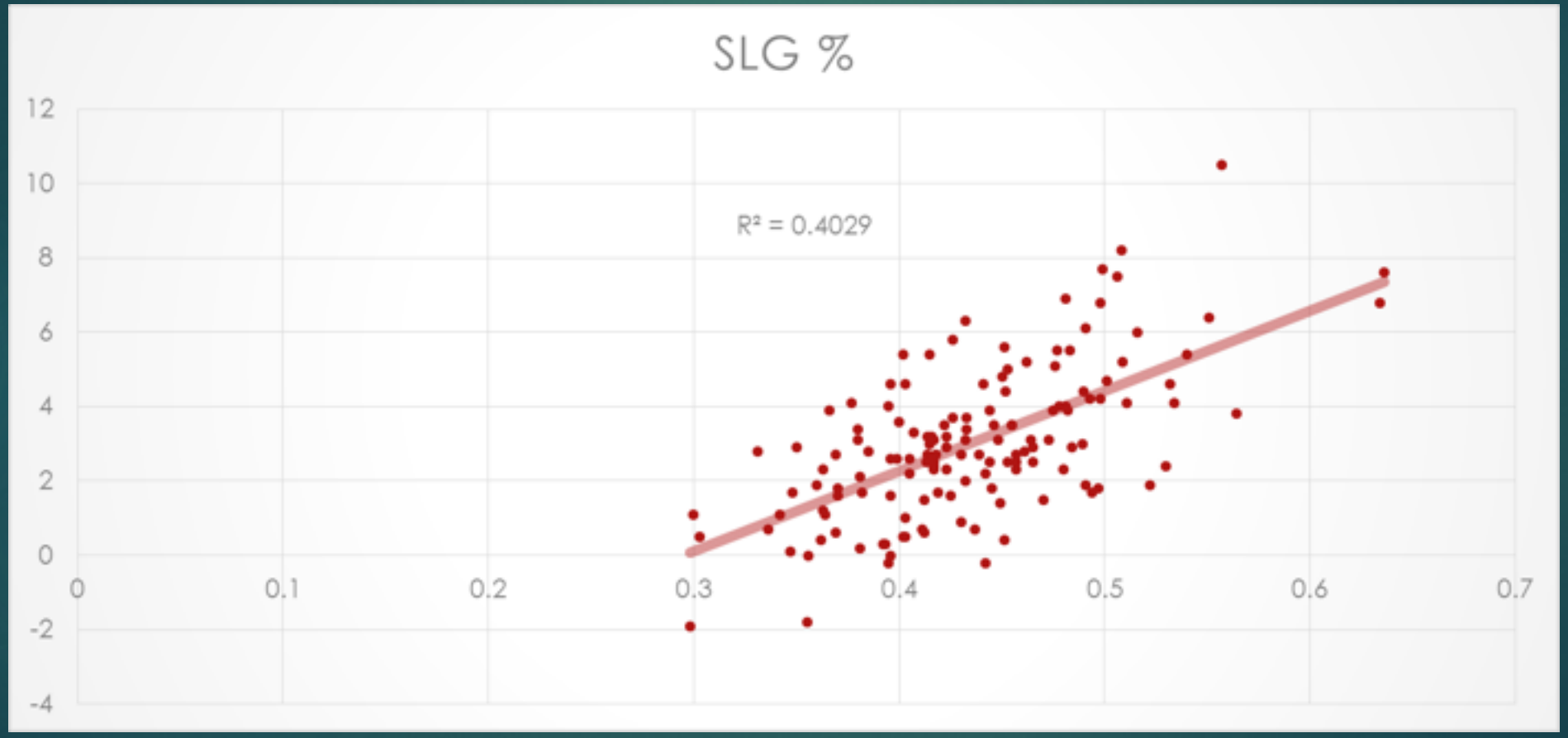
Infield Hits versus Negative ERA



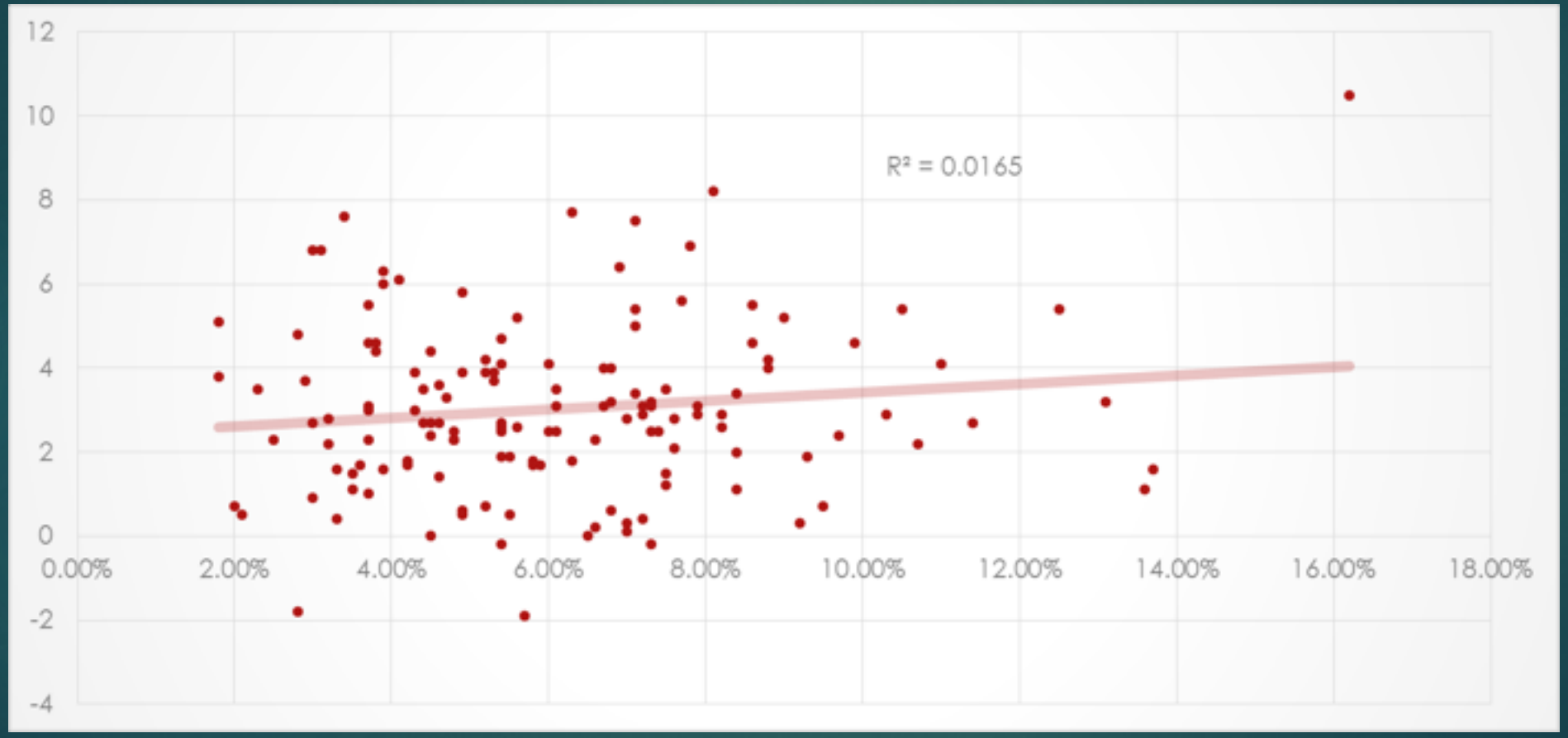
Is IFH% an Important Statistic?

- Compared to WAR
  - WAR is generally a very acceptable metric for measuring the usefulness of a player
- Better at predicting WAR than other popular statistics.
- Combining Statistics with IFH% to better predict WAR

SLG% vs WAR



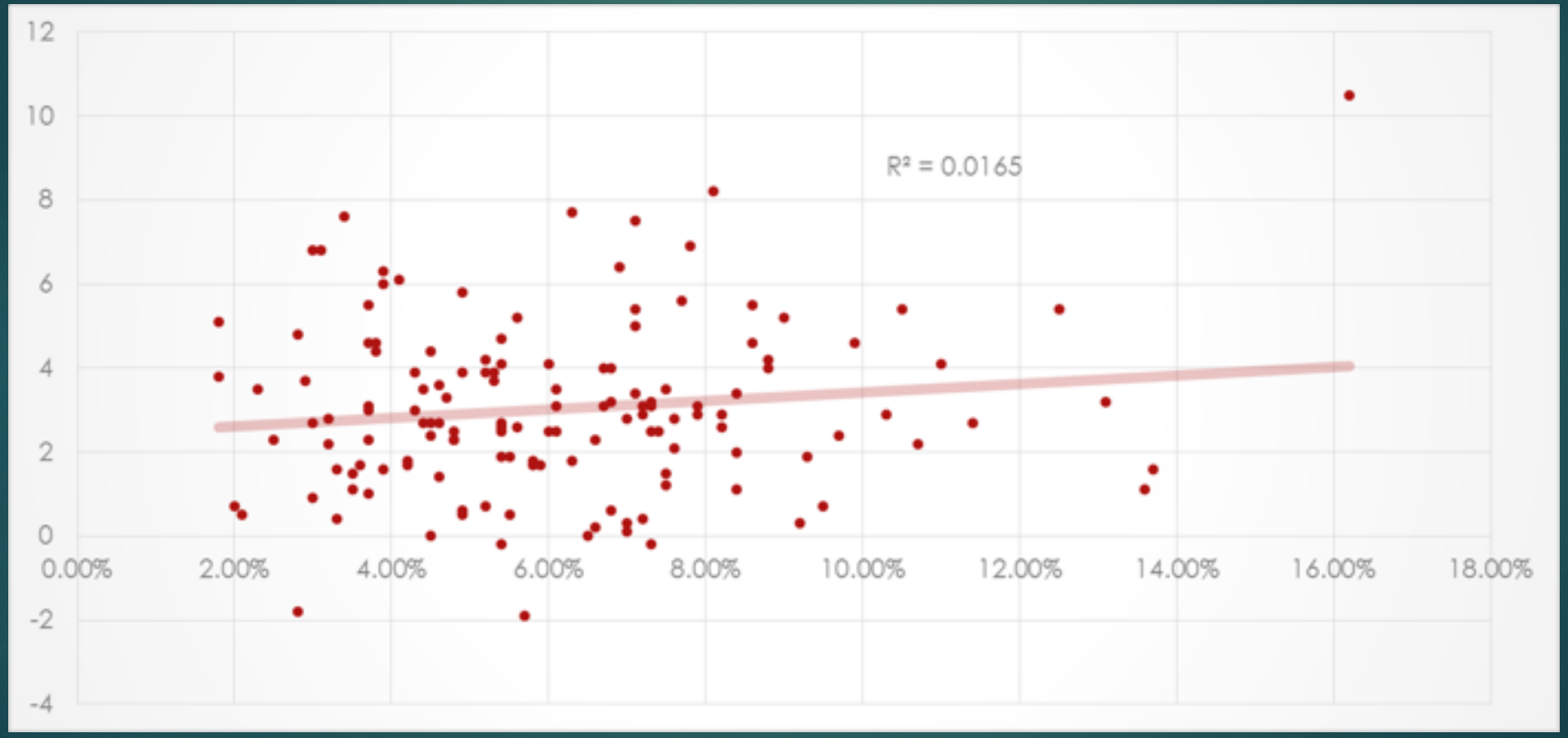
IFH% is pretty bad at predicting WAR



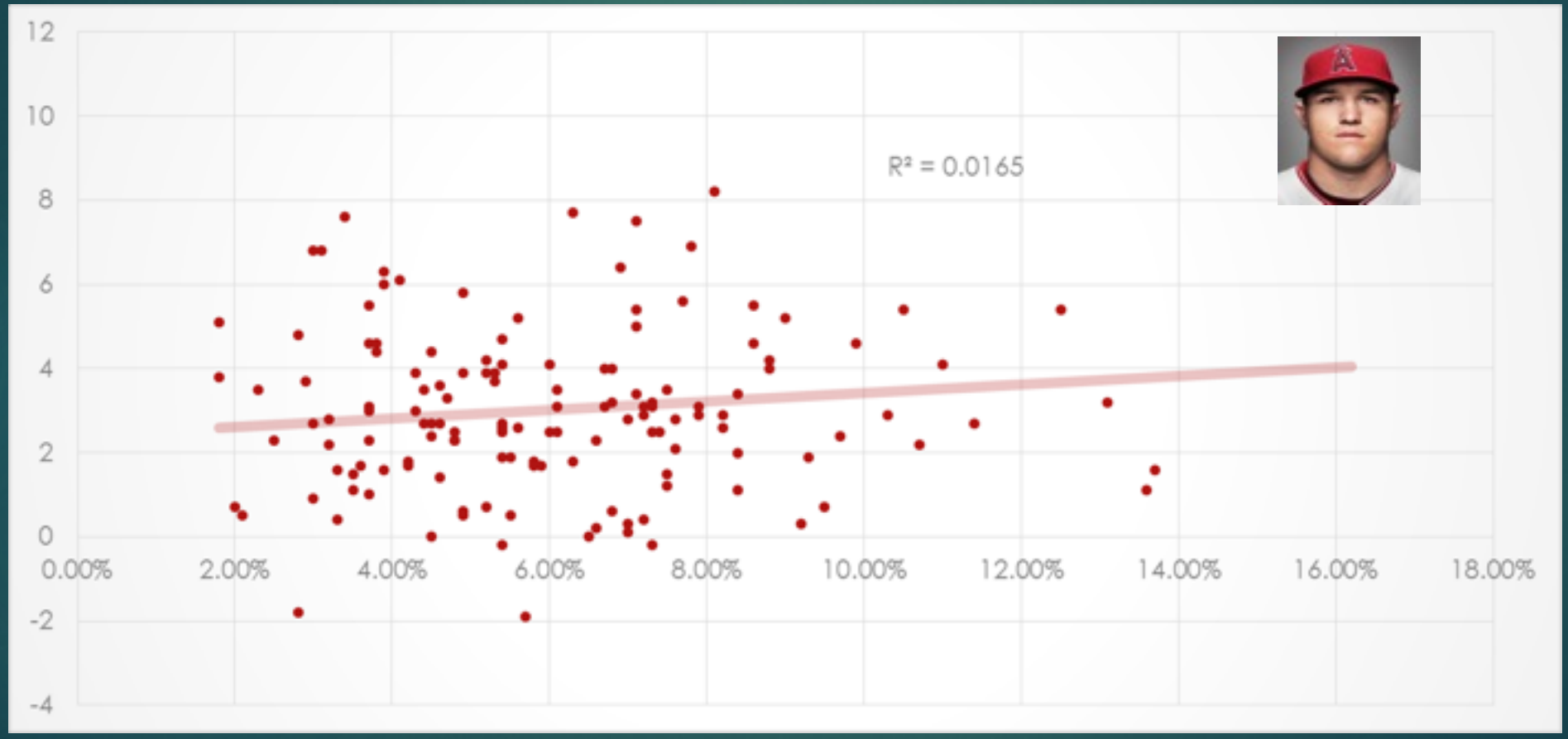
R^2 Values

Average	SLG%	GB%	LD%	IFH%
.0019	*.4029*	*.0053*	*.02*	*.0165*

IFH% is pretty bad at predicting WAR by itself

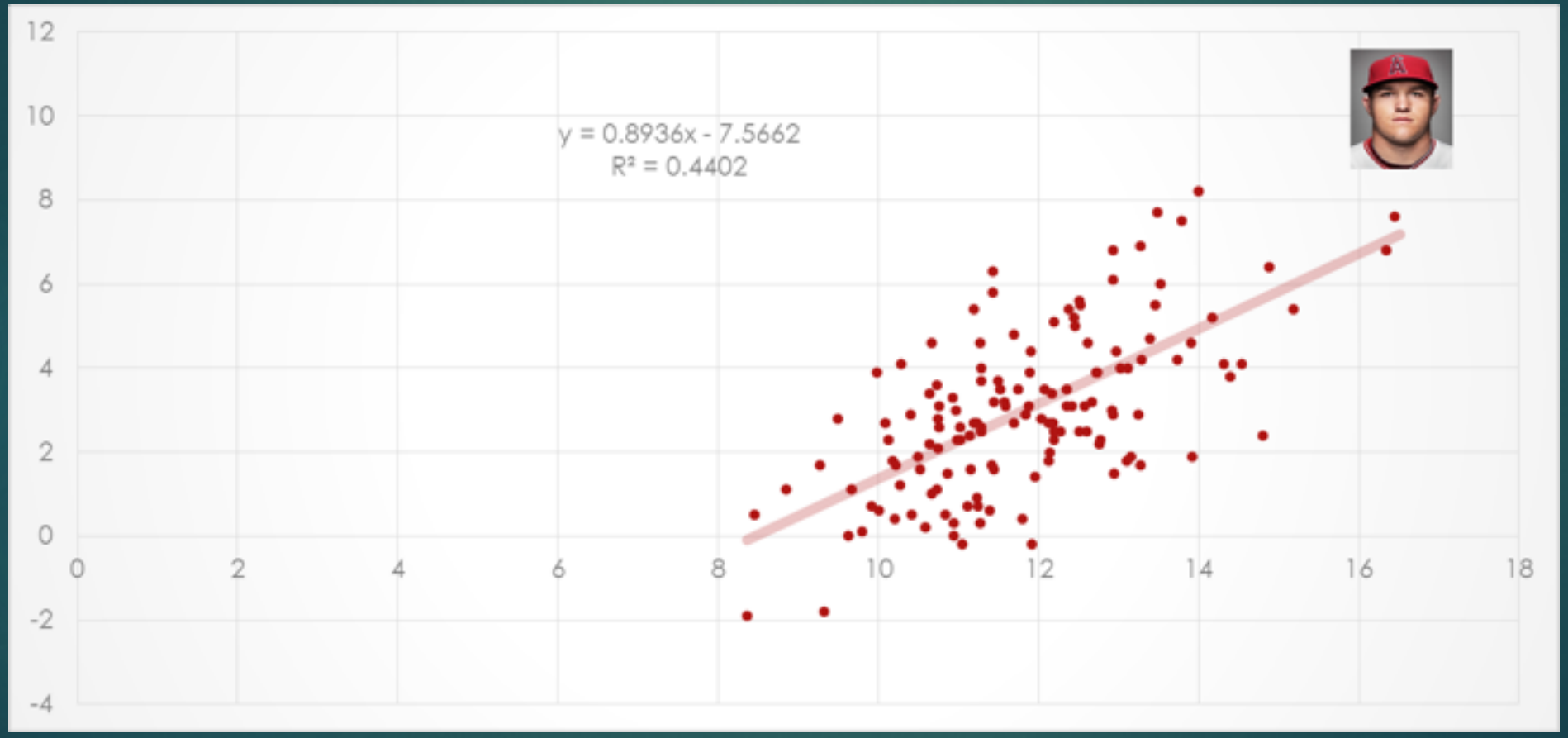


What Makes Trout so Good?

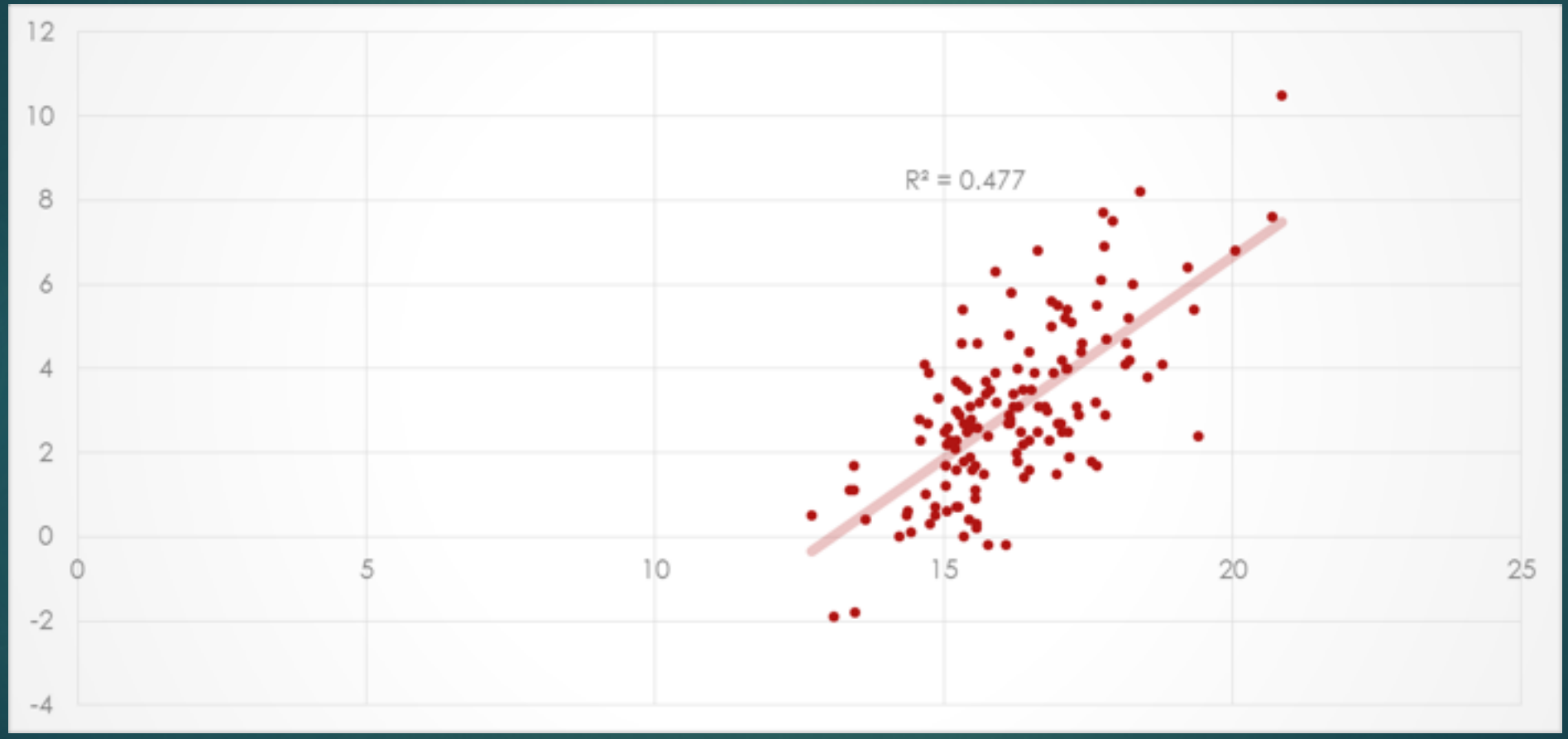


SLG% + IFH%

Although not good, it is better predictor of WAR than either

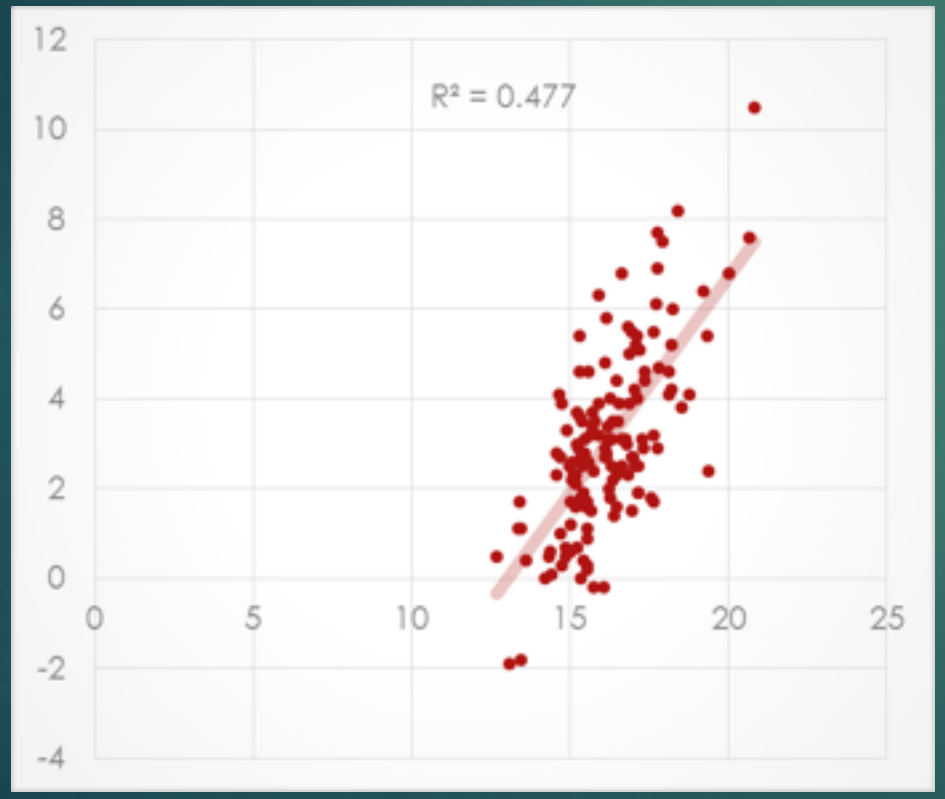


Combine More
A*SLG% + B*GB% + C*LD% + D*IFH%

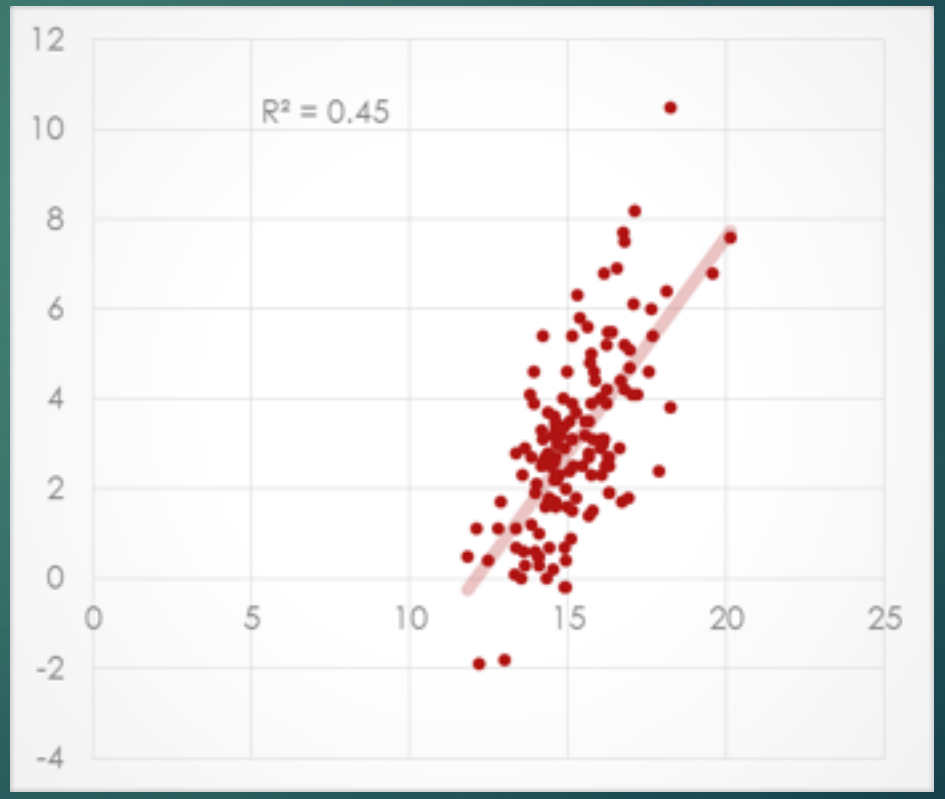


With and Without IFH%

New Stat



New Stat – IFH%



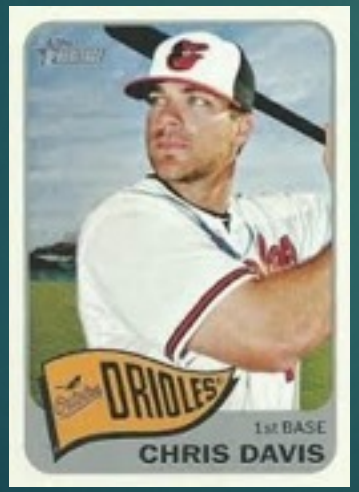
Significance

- Although IFH% is not very good at telling us if a player is good or not, if we combine IFH% with other statistics, we can get a lot more information out of it.

Example

Chris Davis

- SLG% = .634
- IFH% = 3.10
- WAR = 6.8



Andrew McCutchen

- SLG% = .508
- IFH% = 8.1
- WAR = 8.2

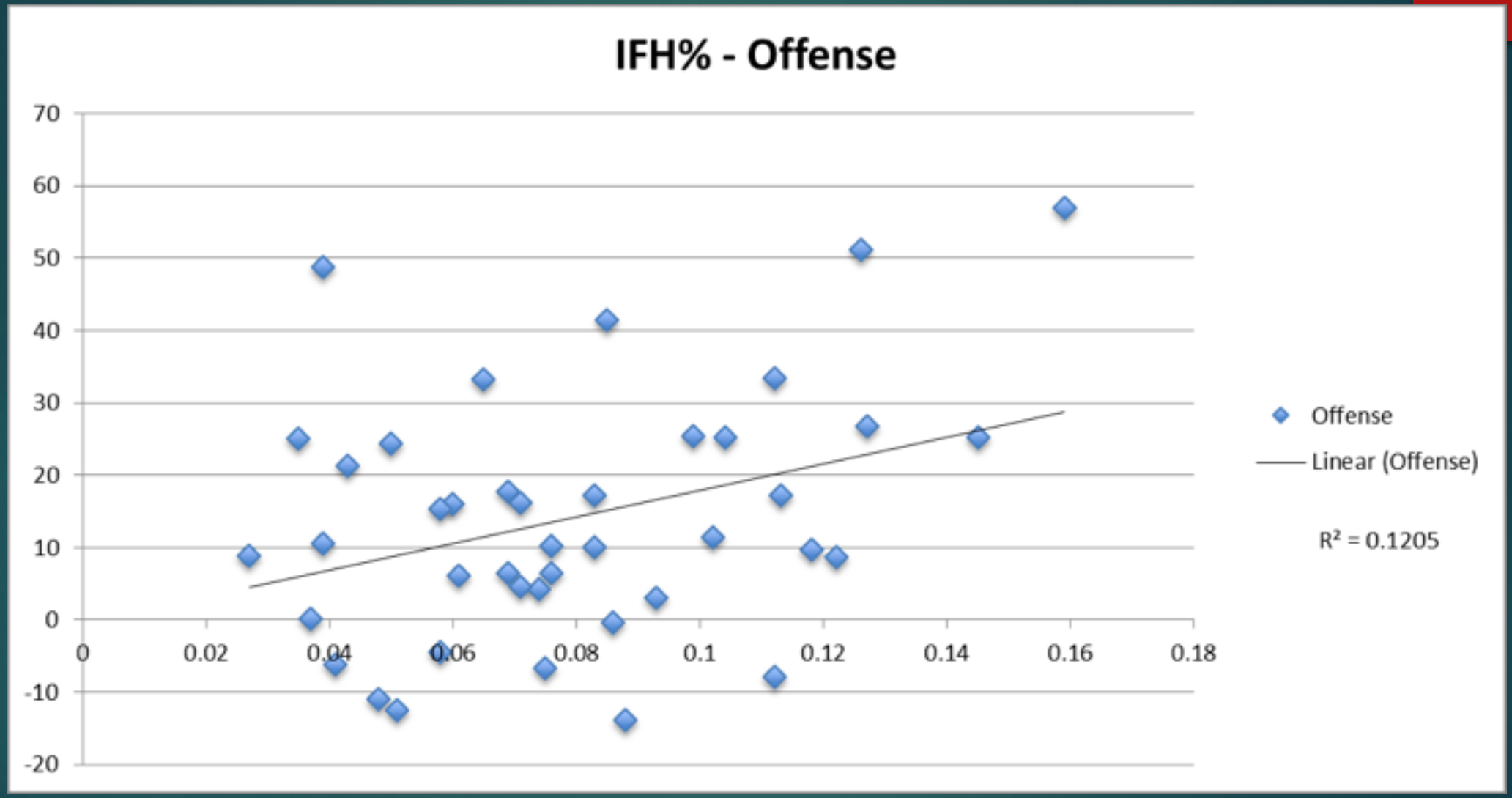
SPEED

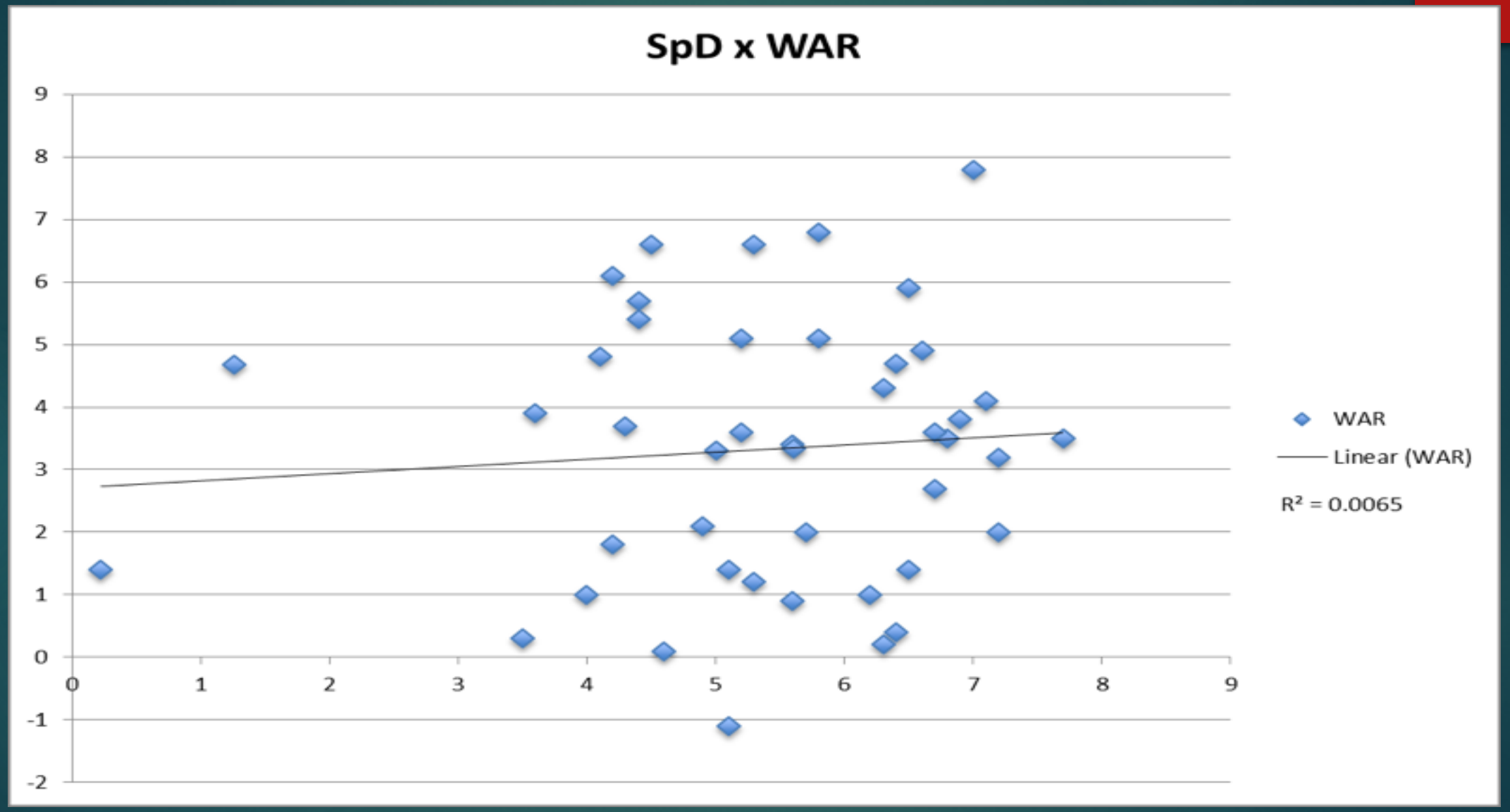
SPD

A STATISTIC DEVELOPED BY BILL JAMES THAT RATES A PLAYER ON THEIR SPEED AND BASE RUNNING ABILITY. CALCULATED BY COMBINING STOLEN BASE PERCENTAGE, FREQUENCY OF STOLEN BASE ATTEMPTS, PERCENTAGE OF TRIPLES, AND RUNS SCORED PERCENTAGE. HOWEVER, IT DOES NOT TAKE INTO ACCOUNT IFH%

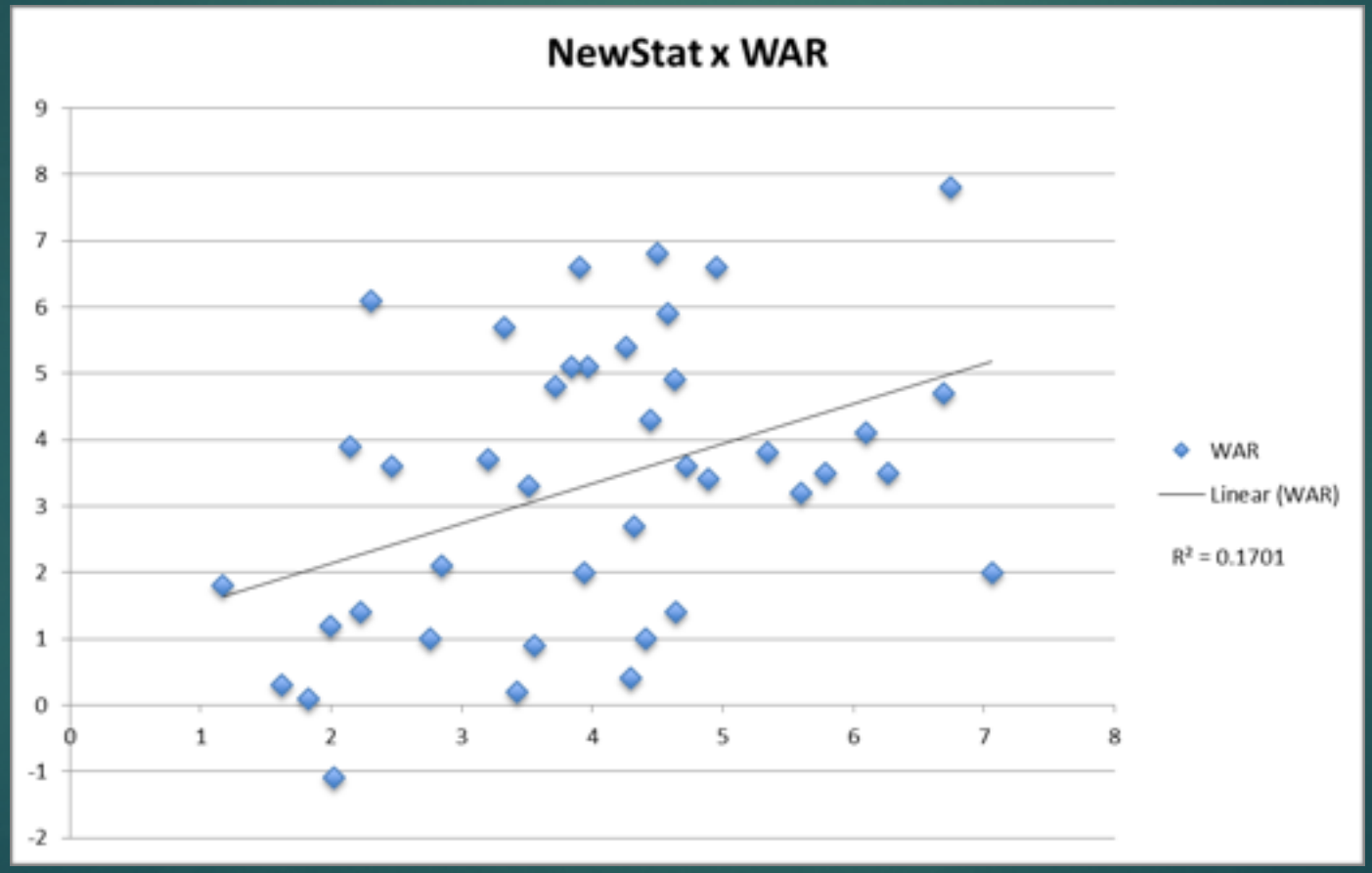
NEWSPEED

A STATISTIC WE CREATED THAT INCORPORATES IFH% INTO IT. IT IS CALCULATED USING BASE RUNNING VALUE, STOLEN BASE %, AND TRIPLES.

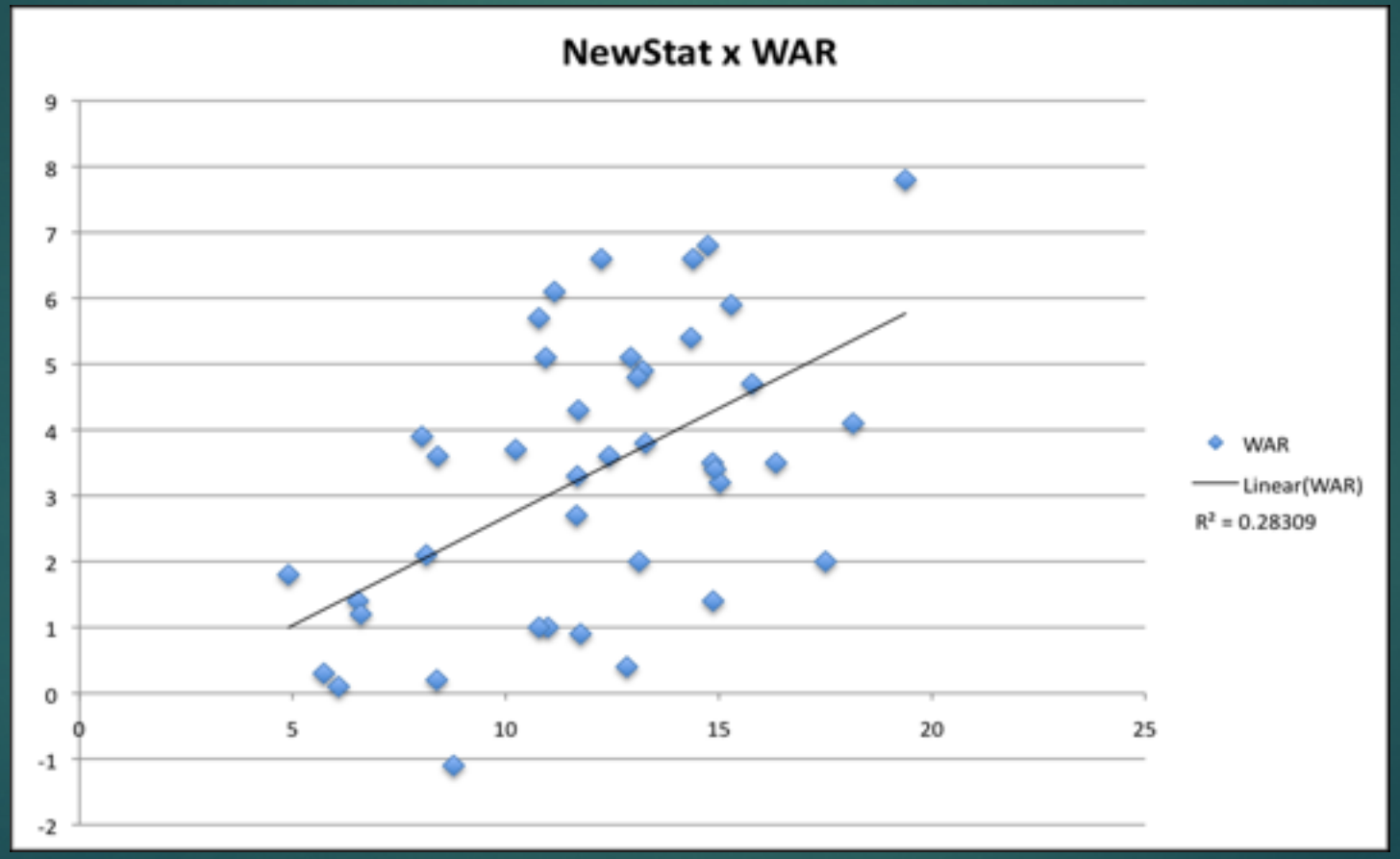

IFH% - Offense
70
60
50
40
30
20
10
0
-10
-20
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
Offense
Linear (Offense)
R² = 0.1205


SpD x WAR
9
8
7
6
5
4
3
2
1
0
-1
-2
0
1
2
3
4
5
6
7
8
9
WAR
Linear (WAR)
R² = 0.0065

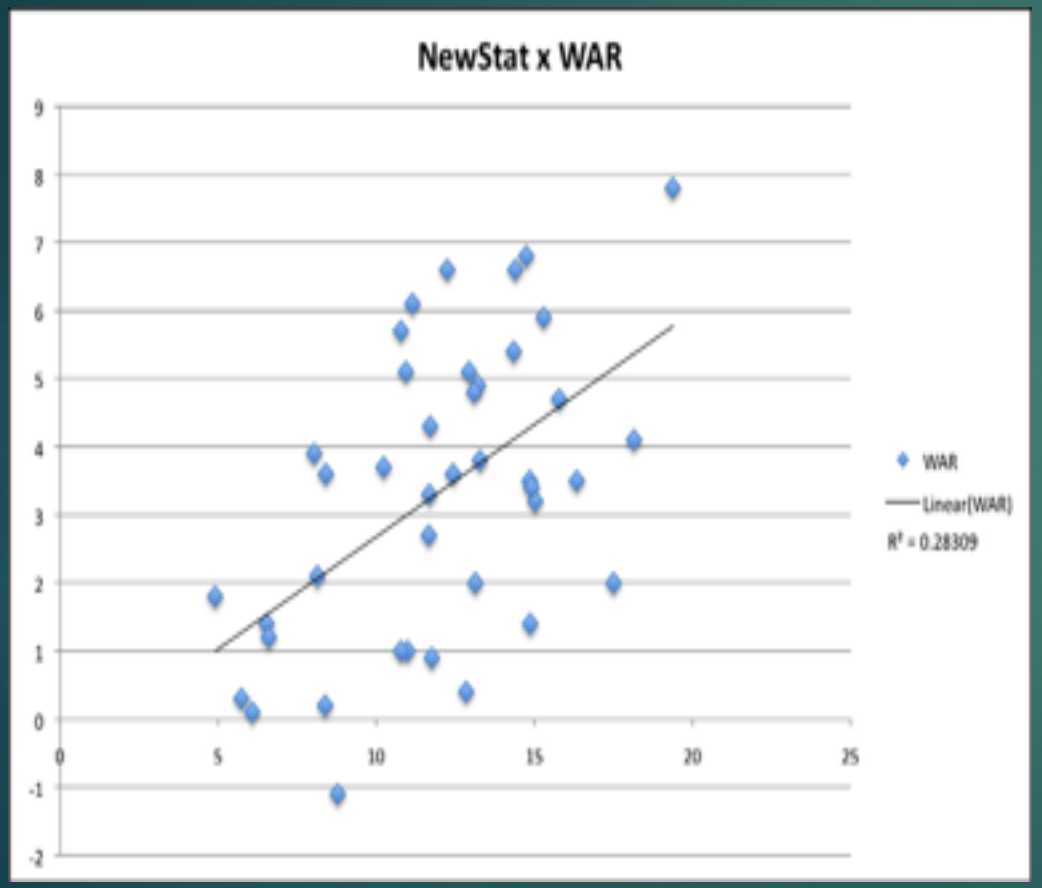
Unweighted

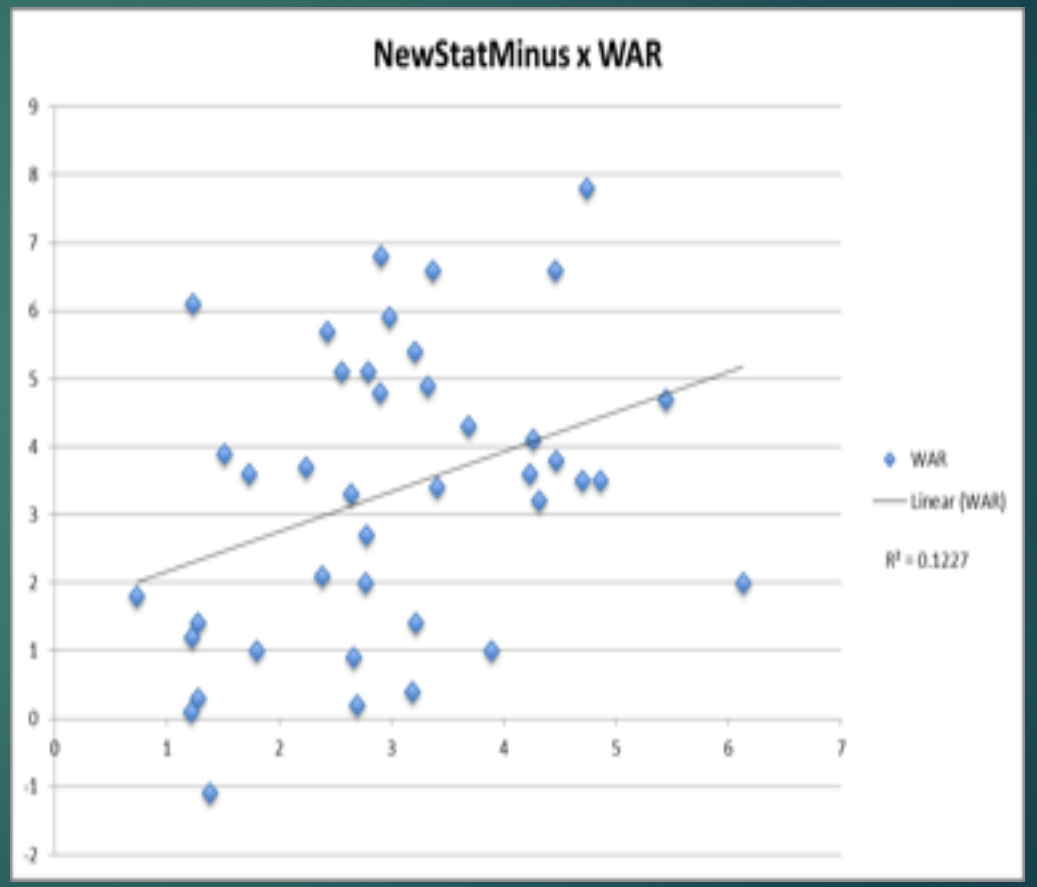

NewStat x WAR
9
8
7
6
5
4
3
2
1
0
-1
-2
0
1
2
3
4
5
6
7
8
WAR
Linear (WAR)
R² = 0.1701

Weighted


NewStat x WAR
9
8
7
6
5
4
3
2
1
0
-1
-2
0
5
10
15
20
25
WAR
Linear(WAR)
R² = 0.28309

NewStat compared to NewStat without IFH%





Compare two "Speedy" Players

Player	Offense	BaseRunning	IFH	IFH%	SB	SB%	3B	Spd	NewSpeed
Starling Marte	*25.3*	*5.8*	*24*	*14.5%*	*30*	*73.2%*	*6*	*7.1*	*6.09*
Carlos Gomez	*26.8*	*3.3*	*20*	*12.7%*	*34*	*73.9%*	*4*	*6.5*	*4.58*
Who wins?	*C.G.*	*S.M.*	*S.M.*	*S.M.*	*C.G.*	*S.M.*	*S.M.*	*S.M.*	*S.M*

Comparison of the Top 5 Players

Top 5 Players	SPD	NewSpeed	NewSpeed Minus	WAR
Ben Revere	7.2	7.06171621	6.12817774	2
Mike Trout	7	6.74042694	4.73458079	7.8
Hunter Pence	6.4	6.69440858	5.4454855	4.7
Billy Hamilton	7.7	6.26875224	4.85582917	3.5
Starling Marte	7.1	6.09299171	4.26376094	4.1

Conclusion

- Infield hits have become more prevalent in major league baseball since 2005.
- Improved pitching could be prevailing factor in causing this increase in prevalence.
- Although IFH% itself cannot predict WAR, when added to other statistics, it becomes more useful.
- IFH% is a good statistic to use to calculate the speed of a player