FGpts as an Approximation of OPL Points
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By definition players will score more points in the Ottoneu Prestige League (OPL) format than in FGpts because OPL scoring converts all negative scores to zero. One might assume that FG points are therefore a decent approximation of OPL points. Is this assumption supported by player performance data? If that assumption is true, do all players enjoy the increase in OPL scoring at a similar rate or do some players get a bigger boost in OPL scoring relative to FGpts scoring than others? Are there particular player profiles that are correlated with outperformance in OPL?

In the following pages I will address these three questions. I first discuss the data and methods followed by a discussion of results and conclusions.

I collected 2019 game logs for 315 players included on Justin Vibber's 2019 Surplus Calculator (SC) from Fangraphs using Bill Petti's baseballr package in R. I tried to the best of my ability to exclude injured players like Jimmy Nelson and optioned players like Zack Gallen. (Note: I have a Fangraphs membership and I am a Patron on Vibber's Patreon and you should support these resources as well!)

I calculated the FGpoints scored by each player on each day during the 2019 season. I then re-coded negative scores as zero and added zeroes to each player's game log for days they did not play.

I analyzed the full-season data for each player. Note: I excluded games from the Opening Series in Japan that occurred before Opening Day from the analysis.

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1. Are FG points a decent approximation of OPL points?

To answer this question I regressed 2019 OPL points on 2019 FG points. The results are reported in Table 1. Not only are FG points a decent approximation of OPL points, but on average, FG points are a strong, statistically significant predictor of OPL points.

Table 1. OLS Regression of OPL Points on FG Points, 2019

	Coefficient	Standard Error
FG Points	1.03	.00
constant	55.66	4.23
Notes: n = 315 Dependent Variable: OPL points r^2 = .99 2019 full season data (Opening Series in Japan excluded)		

A one point increase in FG points causes a 1.03 point increase in OPL points. This makes sense given that OPL scores are always positive while FG points are not and confirms the assumption that FG points are an approximation of OPL points.

To further support my conclusion I include a scatter plot of FG points and OPL points in Figure 1 that should give the reader a clear picture of the relationship between FG points and OPL points. While the regression line describes the linear relationship I observe curious variation around the regression line. While the observations are tightly distributed around the regression line players with the most FG points are consistently found below the regression line while mid tier FG points scorers have more variation around the line. This suggests that some players may be at a different relative advantage in OPL scoring.

Figure 1. Scatterplot of FG Points by OPL Points
All Players, 2019 Season
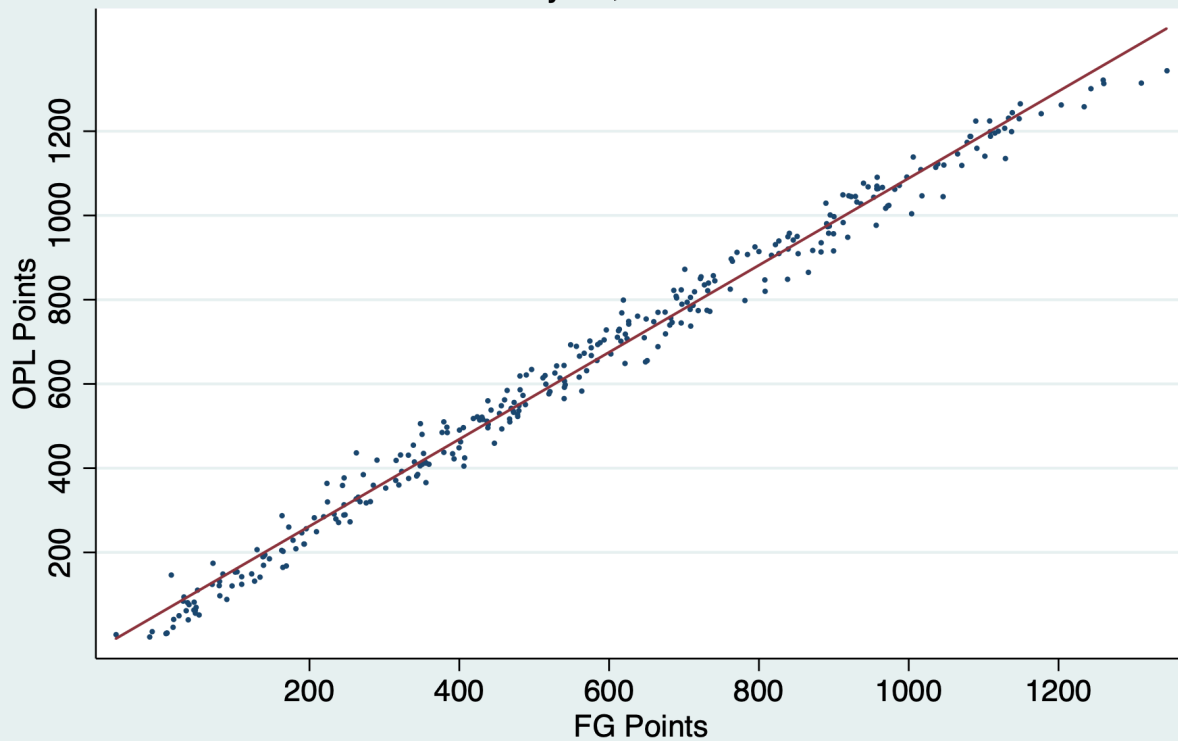
2. **Do all players enjoy the increase in OPL scoring at a similar rate or do some players get a bigger boost in OPL scoring relative to FGpts scoring than others?**

To determine whether all players enjoy the increase in OPL scoring at a similar rate I first calculated the percent difference between FG points and OPL points for every player: (OPL points - FG points) / FG points. If all players enjoy the increase in OPL points at a similar rate I would expect to see the same percent difference for every player. This is not the case. Table 2 reports the percent difference at three percentiles, 25, 50, and 75, representing the middle fifty percent of players.

Table 2. Percent Difference between FG Points and OPI Points

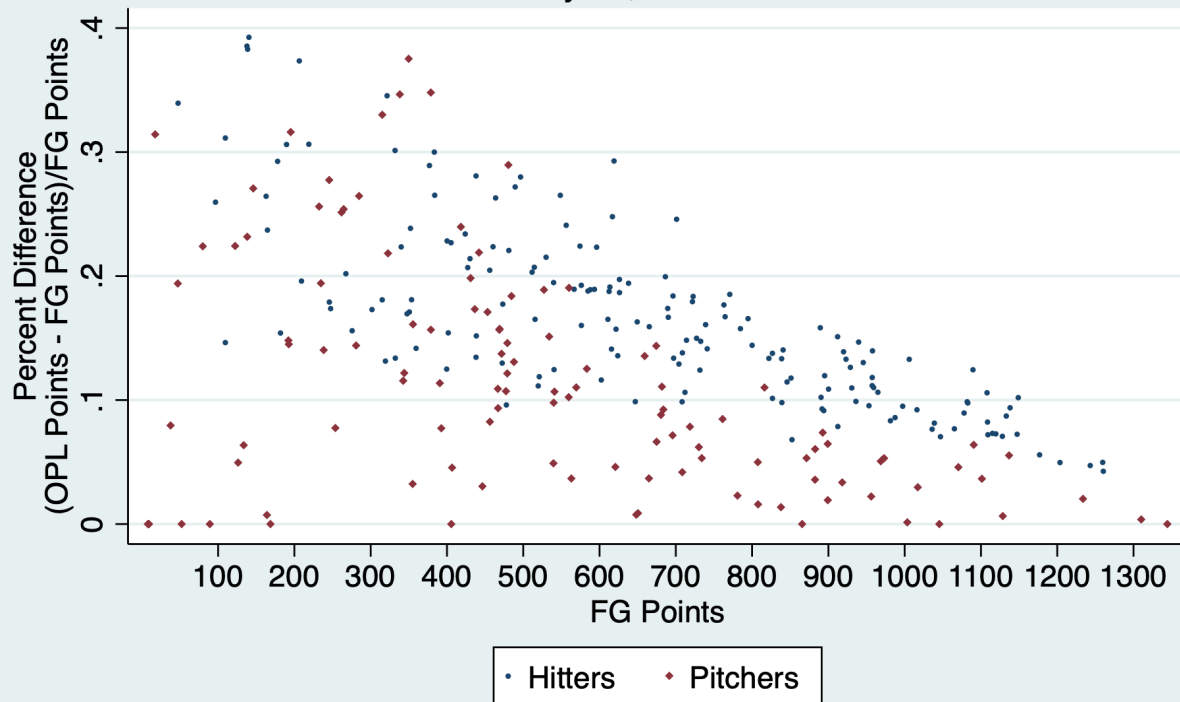| Percentile	Percent Difference
25th Percentile	0.08
50th Percentile	0.14
75th Percentile	0.22
Notes: n = 315	

The median percent difference is 14 percent and the results in Table 2 demonstrate that there is significant variability in the data. Table 2 provides important context for the discussion below.

I next plotted FG points against percent difference. The results are reported in Figure 2. I excluded players with a percent difference greater than .4 or less than 0 from Figure 2 for ease of presentation; exclusion of outliers does not affect the substantive conclusions. Figure 2, is, in a word, fascinating.

First, the data is classically heteroskedastic--there is significantly more variation in percent difference at low values of FG points than at high values of FG points resulting in a cone shaped distribution. I confirmed heteroskedasticity with a statistically significant Breusch-Pagan / Cook-Weisberg test. While the OPL scores for the highest scoring players in FGpts increased between zero and six percent, the OPL scores for the lowest scoring players in FGpts increased between zero and 40 percent. The first conclusion is that the best FGpts players, like Soto and Cole, are the best OPL players. The top performing players rarely produce negative points days and therefore do not see as much of a percentage increase in their scores from FGpts to OPL relative to some lower scoring players.

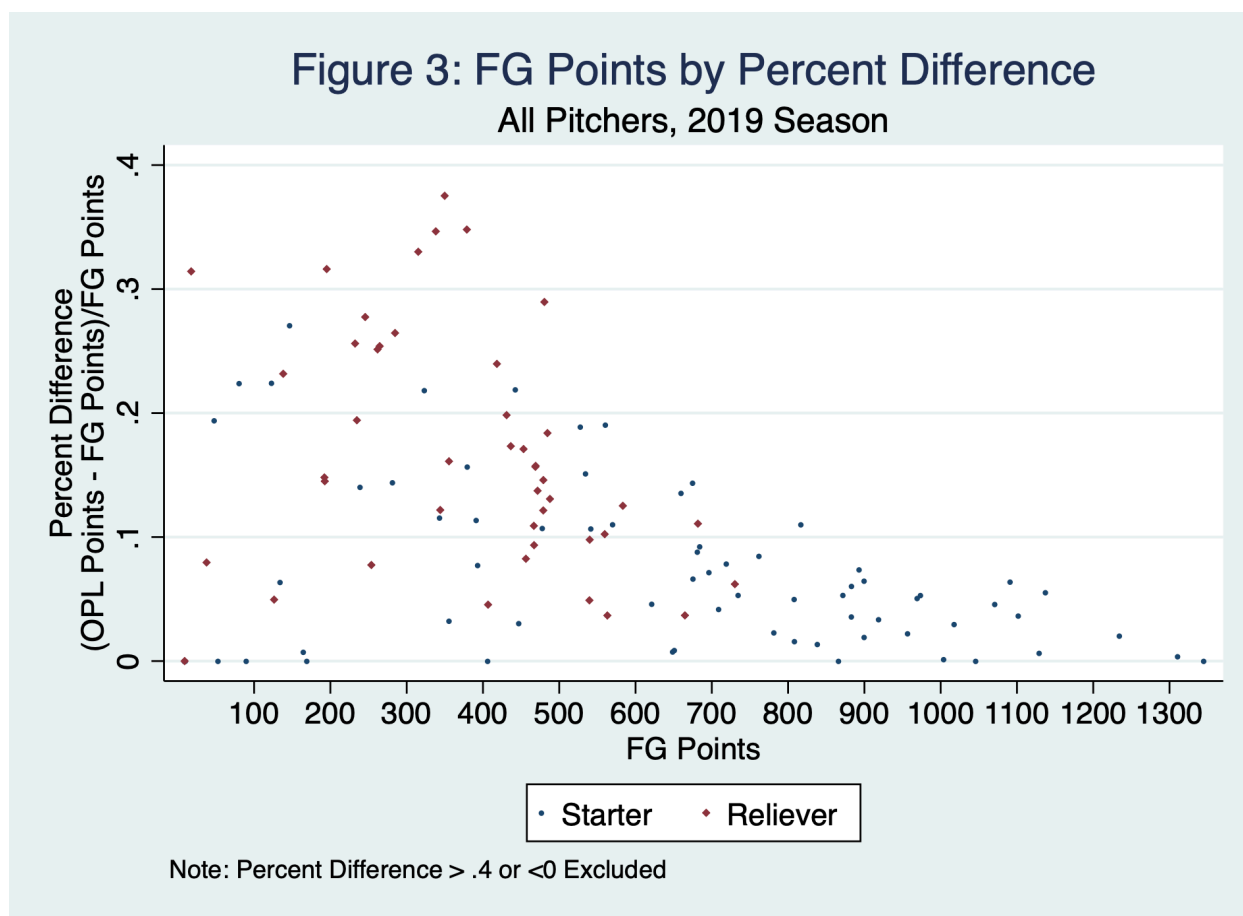**Figure 2: FG Points by Percent Difference**
All Players, 2019 Season

Note: Percent Difference > .4 or <0 Excluded

Second, there are clear differences between hitters (blue circles) and pitches (red squares). The difference is most noticeable at the high end of the FG points scale where the hitters are uniformly distributed above the pitchers--meaning that high scoring hitters in FG points see a bigger increase in OPL scoring than high scoring pitchers. The second conclusion is that FGpts scores convert to OPL scores differently for hitters and pitchers (different distribution shape by category).

I first analyze pitchers and then turn my attention to hitters. Figure 3 plots FG points and percent difference for starting pitchers (blue circles) and relief pitchers (red squares). The first difference to note is that starting pitchers are found at the top end of the FG points scale while relief pitchers are not.

Second, the observations for starters and relievers are shaped differently. A large number of starting pitchers have equal or nearly equal FG points and OPL points totals while only one (inconsequential) reliever is on the zero percent difference line. This result is a function of innings pitched. Starters generally pitch enough innings that even if they allow a homerun, or a painful number of walks, or hits, they can often still salvage positive points out of the appearance. In this context, we can think of innings as a bulletproof vest absorbing negative point bullets. Relievers simply do not have the same number of innings to protect them from negative points appearances.

Figure 3: FG Points by Percent Difference
All Pitchers, 2019 Season

Note: Percent Difference > .4 or <0 Excluded

For example, Gerrit Cole was the highest scoring player in both FGpts and OPL—with identical scores of 1,344 points. Cole did not have a negative points performance in 2019. Likewise, all of the top starters by FG points had a percent difference of six percent or less. Only one of the top 25 starters by FG points exceed a percent difference of 7.5 percent (Kyle Hendricks at 11 percent). Liam Hendriks was the highest scoring reliever in both FGpts and

OPL with 730 FG points and 775 OPL points--a percent difference of 6 percent. Six of the top ten relievers by FG points had a percent difference in the double digits--and number eleven, Raisel Iglesias, had a percent difference of 29 percent!

Turning my attention to hitters, we see a very different distribution than with pitchers. Figure 4 plots FG points against percent difference for hitters. The most obvious difference between pitchers and hitters in Figures 3 and 4 is there are no hitters at or even near a zero percent difference. The very best hitters by FG points have percent difference values of four to five percent. Bellinger, Bregman, Yelich, and Trout were all right around five percent difference. The best hitters tend to consistently perform well enough on a day to day basis to avoid a lot of negative points days so their FGpts scores convert to OPL scores without much variation.

Figure 4: FG Points by Percent Difference
All Hitters, 2019 Season

Note: Percent Difference > .4 or <0 Excluded
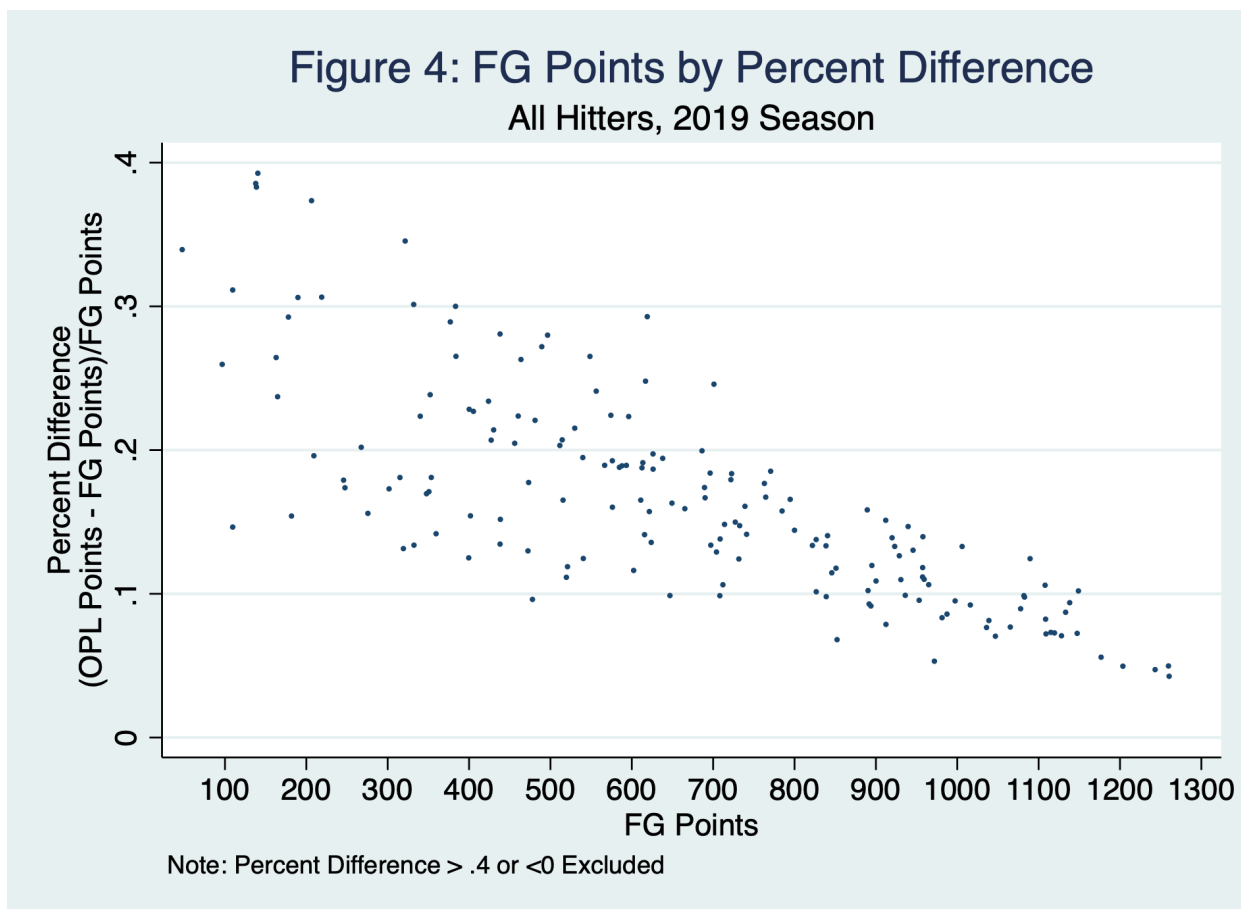
As Figure 4 demonstrates, hitters with 800 FG points or more are tightly distributed under 16 percent difference. Hitters below 800 FG points tend to have much more variation in the conversion from FGpts to OPL.

3. **Are there particular player profiles that are correlated with outsize performance in OPL?**

Of all the observations in Figure 2, I am most interested in the observations on the top edge of the cone--the players who had high percent differences between FGpts and OPL relative to other players with a similar total of FG points. These "top edge" players are the players who were most advantaged in OPL relative to FGpts in 2019. Among the top edge players I am most interested in those with more rather than fewer FG points. Afterall, OPL managers are simultaneously playing two different games with their roser and would likely prefer rostering players who make positive contributions to the home league and outperform in OPL. Are there commonalities among these players--or profiles--that an OPL manager might take advantage of by rostering players who will provide more points in OPL than in FGpts?

Starting with the pitchers, the most interesting top edge players are relievers. As the discussion in the previous sections suggest, starters minimize negative points appearances and have lower percent differences than relievers. Relievers are where an OPL manager may find the most predictable outperformance. Figure 5 plots FG points against percent difference for relief pitchers. I apologize for the overtyping of marker labels but the clump of observations in the middle of the figure makes labeling difficult! Regardless, I am not particularly interested in the clump of players in the middle--I am focussed on the top edge observations. The top edge observations include pitchers like Iglesias, Doolittle, and Givens.

The three select relievers presented in Table 3 are excellent examples of how OPL managers may be able to add outperformance to an OPL roster. Each of the pitchers scored significantly higher in OPL than in FGpts. For comparison's sake, remember that the best 2019 reliever by FG points was Liam Hendriks who sported a six percent difference and gained 45 points in OPL. The pitchers in Table 3 gained nearly an additional 100 points over the course of an OPL season.

Table 3. Select Relief Pitcher Scores in FGpts and OPL, 2019

Player	FG Points	OPL Points	Difference	Percent Difference	HR/9
Raisel Iglesias	481	620	139	29	1.61
Sean Doolittle	379	511	132	35	1.65
Mychal Givens	350	481	131	38	1.86

Why are they outperformers? The final column in Table 3 is the crucial factor. While Hendriks was giving up just 0.55 home runs per nine innings Iglesias, Doolittle, and Givens were dispensing home runs at a very high rate. The solution for identifying OPL outperformance among relief pitchers seems pretty straightforward--find a good pitcher who is getting slaughtered by dingers. While identification is simple, roostering may not be. OPL managers will pay a high cost in their home league for rostering outperforming relief pitchers. The dingers that create outperformance in OPL cause real pain in the home league. There is a clear payoff, a clear cost, and a difficult choice to make.

The bottom edge relief pitchers represent an easier choice. Bottom edge players on the right end of the FG points scale are star players and will help your home league team and your OPL team. Roster them! Bottom edge players on the left end of the FG points scale are not rosterable in FGpts or in OPL. Simply avoid them if scoring points is the objective.

Figure 5: FG Points by Percent Difference
Relief Pitchers, 2019 Season

Note: Percent Difference > .4 or <0 Excluded
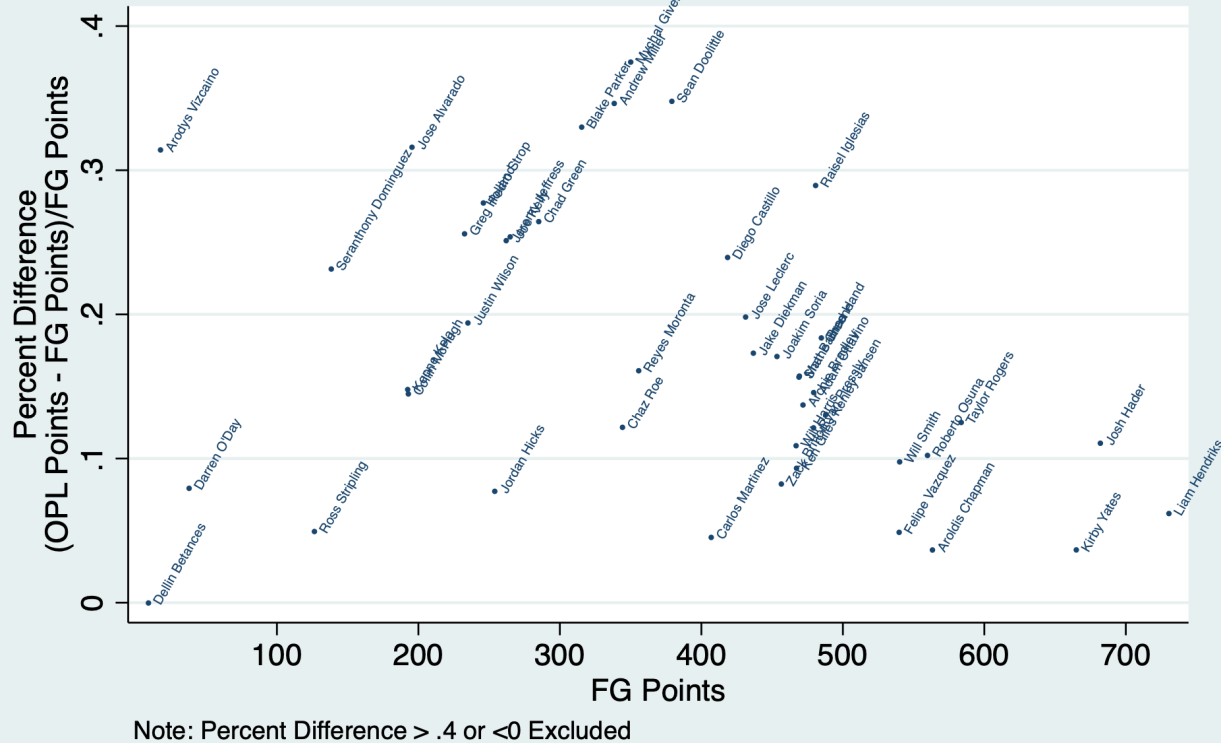
Analyzing the top edge players is not as important for identifying outperforming starting pitchers. Instead, identification is easily done by comparing points per inning rankings and FG points rankings. Starters who accumulate large numbers of innings pitched populate the top of the FG points rankings. For example, while Trevor Bauer was not a particularly great FGpts starter at 4.14 points per inning pitched he would have been much more valuable in OPL accumulating 936 points over 213 innings (benefitting from an extra 53 points in the OPL format). For starting pitchers, volume matters. Of course, combining volume with quality innings is strongly preferred. The costs associated with rostering inning eating starters is probably less than homerun prone relievers. Perhaps managers can include these starters in the active lineup for more favorable starts and sit them for less favorable starts.

There are outperforming hitters as well as outperforming pitchers. Again, I want to focus on the top edge cases. Figure 6 is a plot of FG points against percent difference for hitters.

Figure 6: FG Points by Percent Difference
All Hitters, 2019 Season

Note: Percent Difference > .4 or <0 Excluded
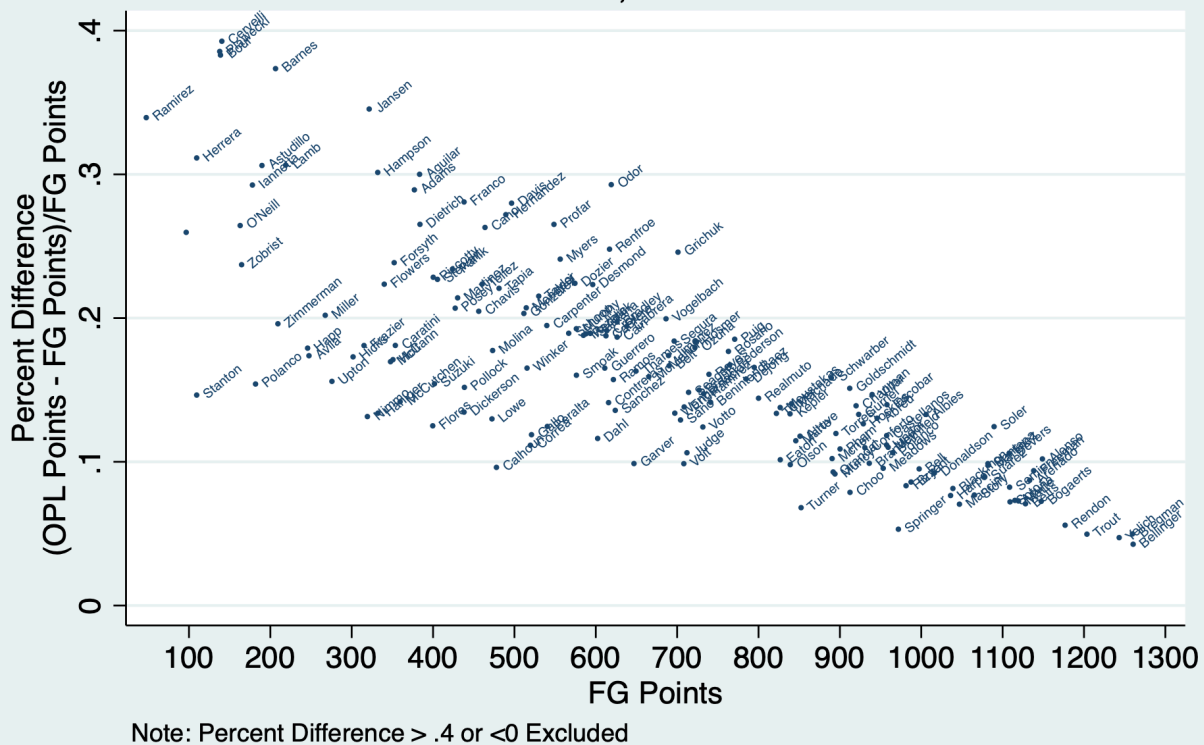
Again, my apologies for the overlapping name labels, but the important names on the top edge stand out.

For context, I present Table 4 which includes the FGpts and OPL performance for four start hitters at the top of the FG points leaderboard.

The four hitters in Table 4 were the most elite performers in FGpts and OPL in 2019. Can we find outperformance among hitters that would move good FGpts hitters into the strong OPL hitter category, or from the very strong category into the elite category?

Table 4. Select Hitter Scores in FGpts and OPL, 2019

Player	FG Points	OPL Points	Difference	Percent Difference
Cody Bellinger	1260	1314	54	4
Alex Bregman	1260	1322	63	5
Christian Yelich	1242	1301	59	5
Mike Trout	1203	1301	60	5

Table 5 includes three top edge hitters with very strong FGpts performance.

Table 5. Select Hitter Scores in FGpts and OPL, 2019

Player	FG Points	OPL Points	Difference	Percent Difference
Pete Alonso	1149	1266	117	10
Rafael Devers	1107	1225	118	11
Jorge Soler	1089	1225	136	12

The hitters in Table 5 had fantastic 2019 seasons in FGpts but their seasons were even better in OPL. Compared with the elite hitters in Table 4, these hitters had larger gains in OPL and this outperformance may be easier to acquire. What is the commonality among these three hitters? Prodigious power.

Table 6 includes some top edge hitters from even further down the FG points scale.

Table 6. Select Hitter Scores in FGpts and OPL, 2019

Player	FG Points	OPL Points	Difference	Percent Difference
Randal Grichuk	700	873	173	25
Rougned Odor	619	800	181	29
Hunter Renroe	617	770	153	25
Will Myers	556	690	134	24
Jurickson Profar	548	694	146	27
Khris Davis	496	635	139	28

The hitters in Table 6 are tantalizingly interesting. These hitters are 24-29 percent better in OPL than in FGpts. These players would have had a much lower acquisition cost than the players in Tables 4 and 5. The commonality among hitters in Table 6 is that in 2019 these were platoon bats with power. These hitters are generally very easy to acquire at modest or even low cost at auction or in trade, but outperform in OPL.

Compared with relief pitchers, the outperforming top edge hitters have less of a home league roster penalty. Yes, these players will take up a valuable roster spot, but playing Renfore against lefties in a home league is advantageous.

As for the bottom edge hitters, players at the high end of the FG points leaderboard are stars in any format and should be rostered. The bottom edge hitters at the low end of the FG points leaderboard should not be rostered if scoring points is the objective.

In conclusion, I began this analysis with three crucial questions that all OPL managers should be considering and the data provide compelling answers.

1. Are FG points a decent approximation of OPL points? The answer is an emphatic yes. Not only are FG points a decent approximation, on average, they are a near perfect predictor.

2. Do all players enjoy the increase in OPL scoring at a similar rate or do some players get a bigger boost in OPL scoring relative to FGpts scoring than others? While star players will be stars in any format, some other players get a significant advantage over other players in OPL.

3. Are there particular player profiles that are correlated with outsize performance in OPL? Yes. Starting pitchers who accumulate large numbers of innings with a lower rate of points per inning are good bets for OPL outperformance. Rostering inning eaters does not cause significant home league pain. Relief pitchers who give up significant HR/9 are top edge outperformers but come at a significant roster cost in the home league due to the pain of home runs allowed. On the hitting side, power plays up in OPL. Stacking a roster with power bats is a good thing in most Ottoneu formats and will help OPL teams outperform. Among power bats OPL managers should be looking for those with large platoon splits if the objective is to identify the most outperformance. There is less cost to rostering platoon power than dinger-dispensing relievers in terms of home league performance pain.