

# Quantifying the Impact of Switch-Hitting

Jonathan S. Skaza

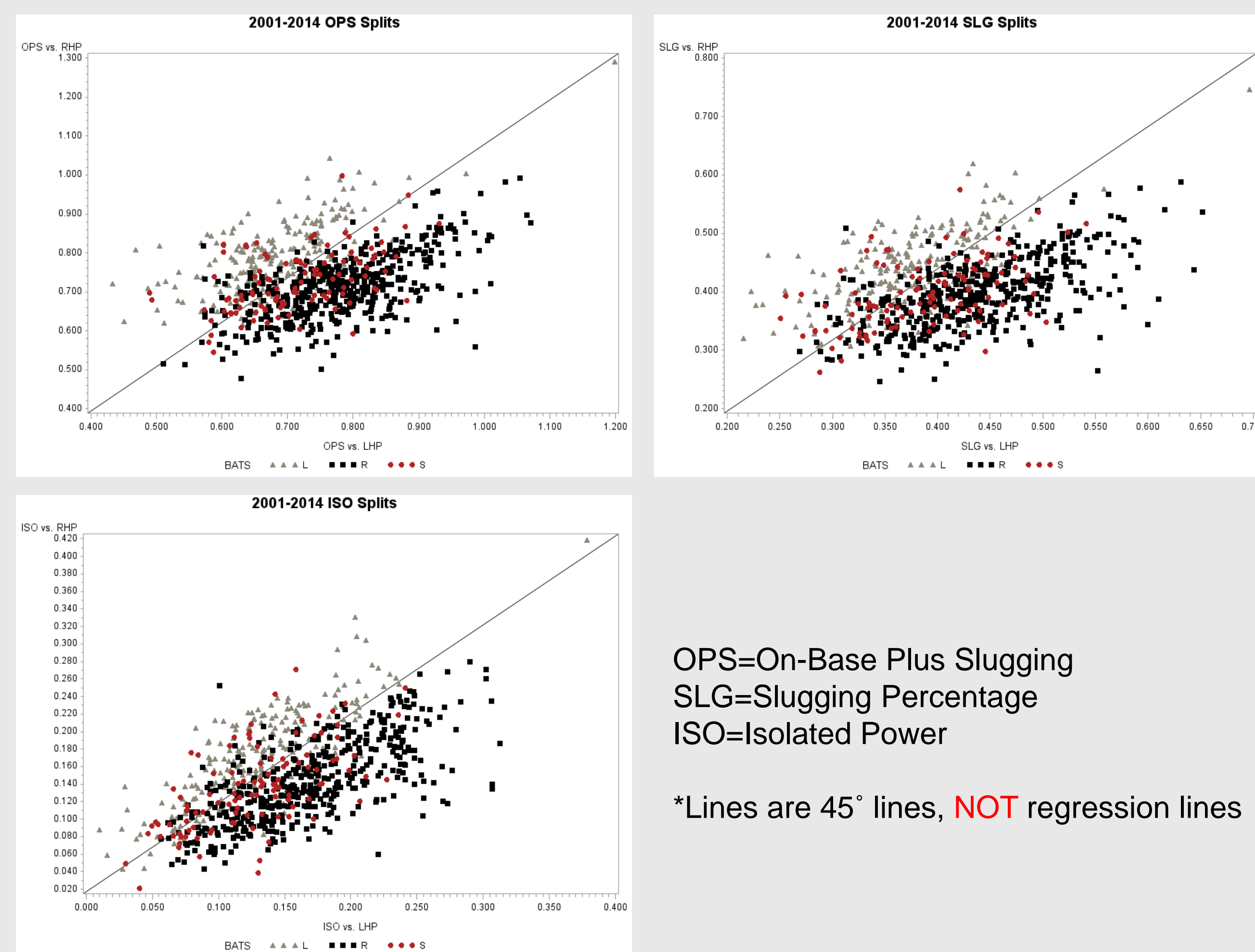
## Objectives

- Test whether there are significant performance differences between switch hitters and non-switch hitters in terms of vs. RHP and vs. LHP splits
- Quantify the impact of switch-hitting in terms of runs

## Data

- Batting statistics from 2001 MLB Season - 2014 MLB season (thru April 29)
- Players with at least 200 PA versus both RHP and LHP
- Data courtesy of MLBAM

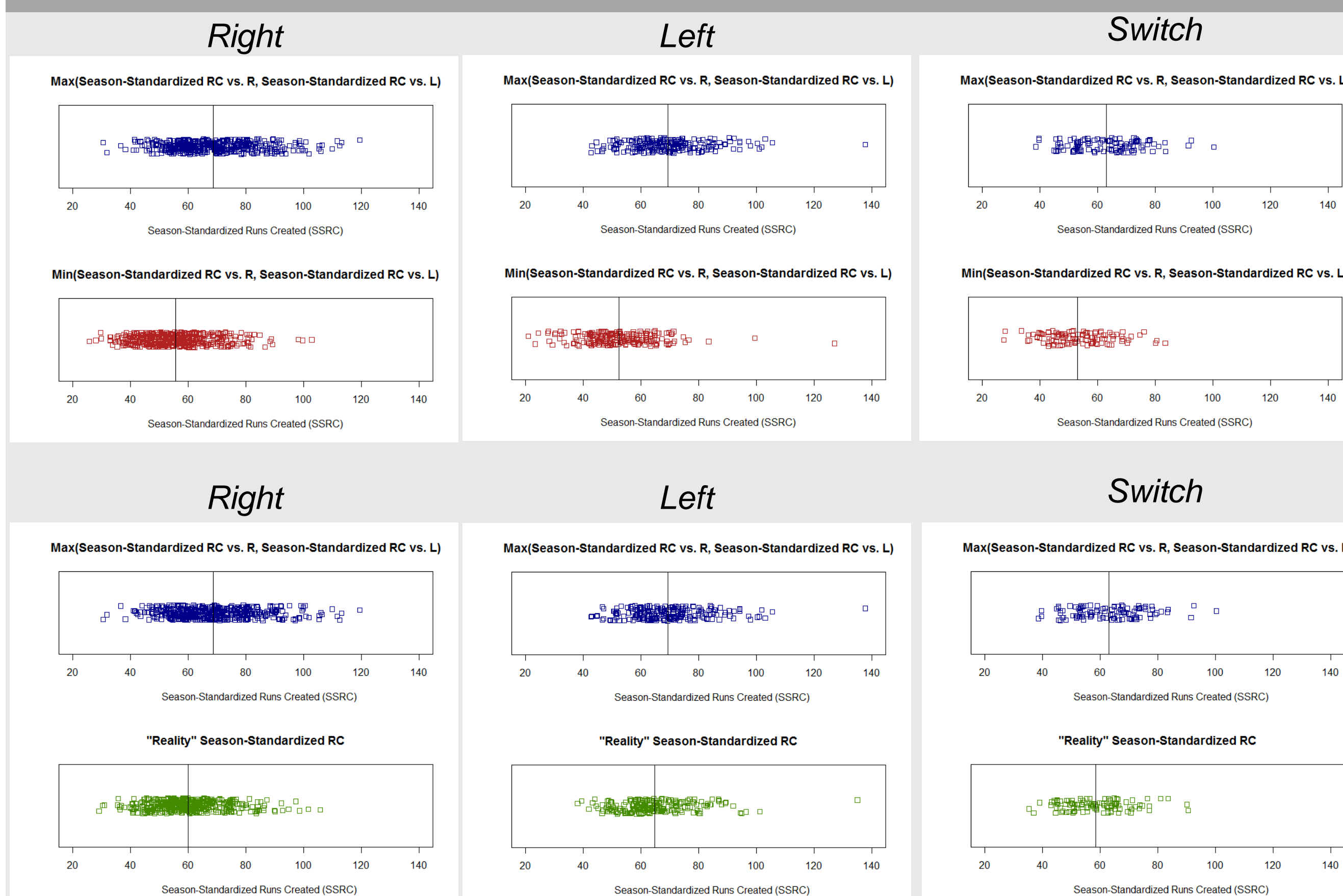
## Visualizing Performance Differences



## Testing for Performance Differences

Bats	Test	Point Estimate	p-value
R	OPS vs. R – OPS vs. L	-0.0694	<.0001
L	OPS vs. R – OPS vs. L	0.1057	<.0001
S	OPS vs. R – OPS vs. L	0.0155	0.0580
R	Max OPS Split– Min OPS Split	0.0843	<.0001
L	Max OPS Split– Min OPS Split	0.1129	<.0001
S	Max OPS Split– Min OPS Split	0.0641	<.0001

## Quantifying the Impact



- Blue:** If a player played a full season (162 G, 3.1 PA/G) against his better handedness split, how many runs he would create (based on his historical RC statistics)
- Red:** If a player played a full season (162 G, 3.1 PA/G) against his worse handedness split, how many runs he would create (based on his historical RC statistics)
- Green:** If a player played a full season (162 G, 3.1 PA/G) against a "typical" handedness split, how many runs he would create (based on his historical RC statistics)

$$*(Basic) RC = [(H + BB) \times TB] / [AB + BB]$$

### Summary Table

Bats	Mean Max SSRC	Mean Min SSRC	Mean "Reality" SSRC	Mean Max SSRC - Mean Min SSRC	Mean Max "Reality" SSRC - Mean "Reality" SSRC
R	68.60	55.63	59.86	12.97	8.74
L	69.30	52.23	64.66	17.07	4.64
S	62.91	53.10	58.43	9.81	4.47

### Empirical Handedness Splits

Bats	R	L	S
PA vs. RHP (%)	71.40	74.54	72.32

## Interpretations & Conclusions

- If \_\_\_ had one full season (162 G, 3.1 PA/G) against their worst split, they would create \_\_\_ percent fewer runs compared to a full season against their best split.

**RHB 18.90**

**LHB 24.63**

**SH 15.59**

Conclusion: Switch-hitters experience a smaller relative (and absolute) drop-off in performance because of their versatility.

- If \_\_\_ had one full season (162 G, 3.1 PA/G) against a "typical" split, they would create \_\_\_ percent fewer runs compared to a full season against their best split.

**RHB 12.74**

**LHB 6.70**

**SH 7.11**

Conclusion: Switch-hitters experience a smaller relative (and absolute) drop-off in performance compared to RHB and only a smaller absolute drop-off in performance compared to LHB.

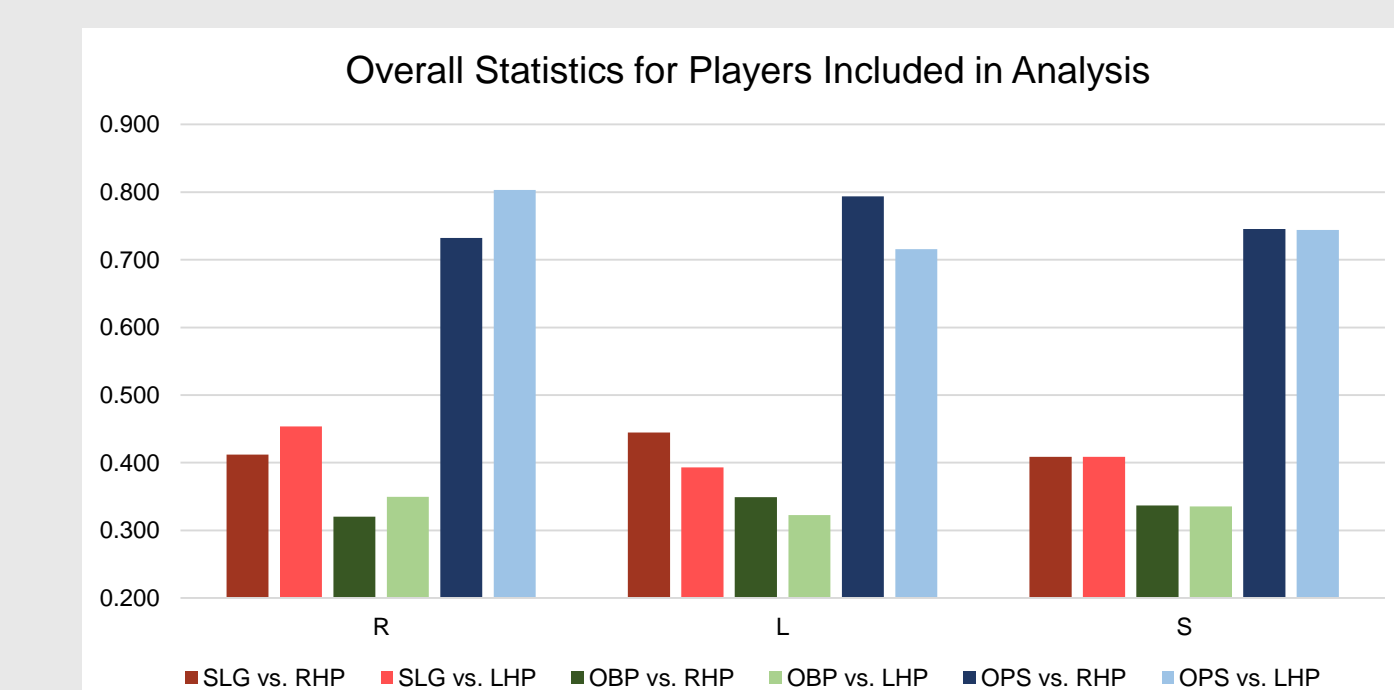
It may be more advantageous to be a LHB because of the majority of plate appearances versus RHP. The result that the relative drop-off is lower in LHB implies that switch-hitters:

- 1) tend to have lower absolute statistics than LHB
- 2) have lower "realized" versatility than LHB, when factoring in the prevalence of RHP in MLB

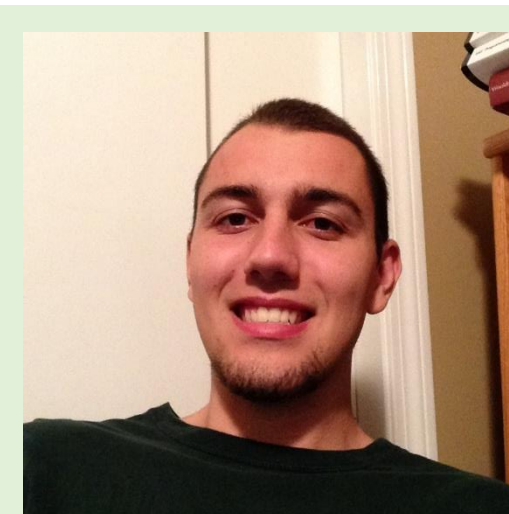
LHB can be deemed the best group of hitters within the scope of this study.

## Limitations & Considerations

- This study focuses on differences in performance. Each group possesses different absolute statistics.



- Based on data availability, this study does not account for items such as park factor or situational hitting/leverage.
- This sabermetric study takes a macro-perspective; there is obviously variability among individual hitters.
- However, performance differences are expressed in terms of one player and would accumulate if considering a team.



Jonathan S. Skaza is a senior at Bryant University majoring in Applied Mathematics & Statistics and Applied Economics. After he graduates college, he intends to pursue graduate study in the field of Biostatistics. An avid sports fan, Jon is interested in statistical applications to sports and is grateful to be participating in Saberseminar 2014.