Introduction

Reference Point for the Baseball Players in Japan

Is the contribution of SABR metrics taken into account?

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References

- Pope & Simonsohn (2011,Association for Phychological Science) "Round Numbers as Goals : Evidence From Baseball, SAT Takers, and the Lab"
- Hakes & Sauer (2006, Jornal of Economic Perspectives) "An Economic Evaluation of the *Moneyball* Hypothesis"

Pope & Simonsohn

- Verify that **round numbers** in performance scales act as **reference points**, by examing three practical studies.
- In the first study, they found that baseball players in MLB prefer finising the season with a batting average(AVG) just above .300, to that with just below .300.
- Data : MLB player's play-by-play data from 1975 to 2008. Players with at least 200 at bat (打数) : N=8,817

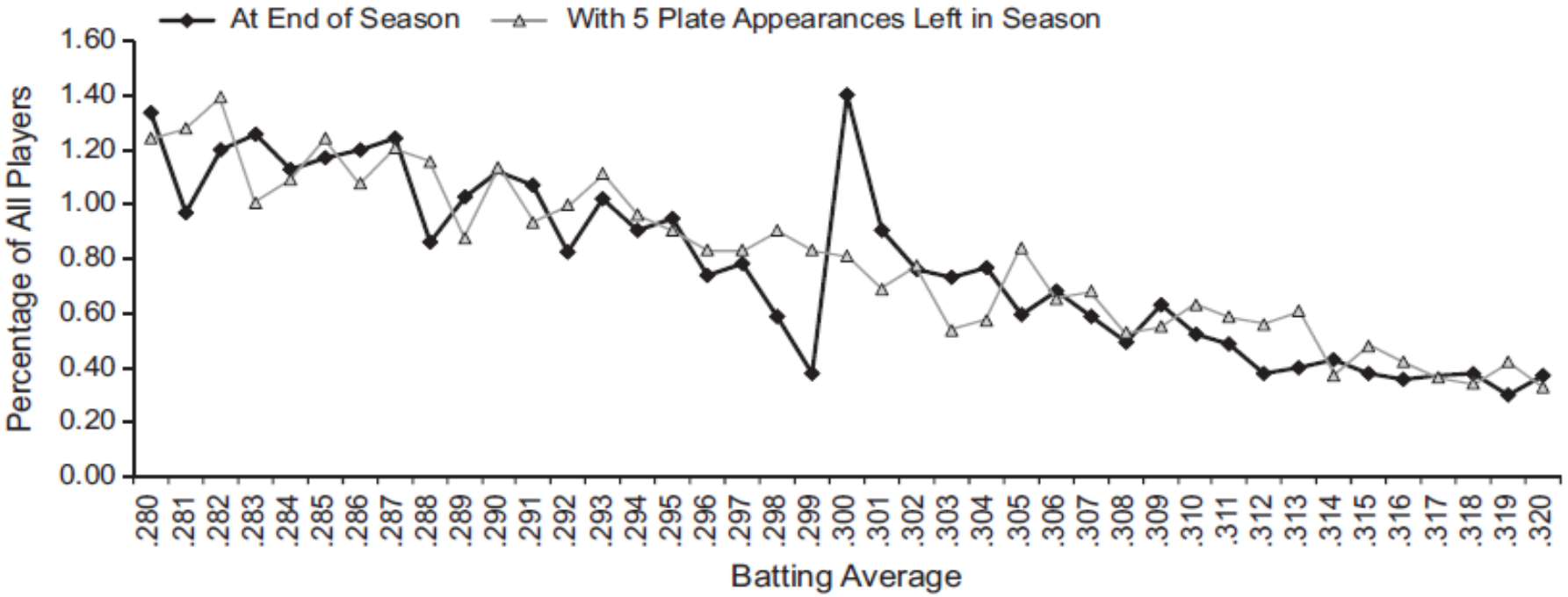
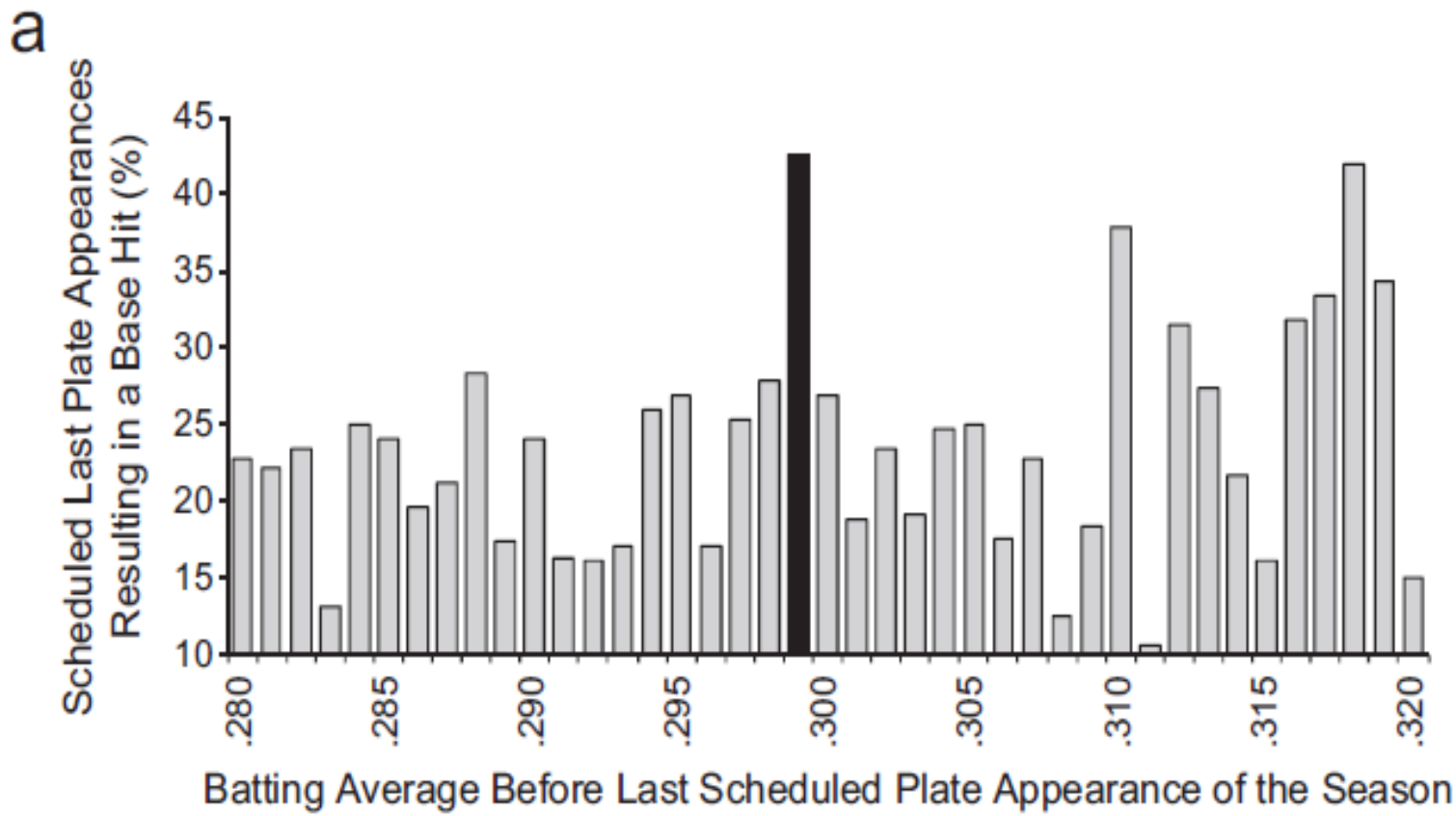
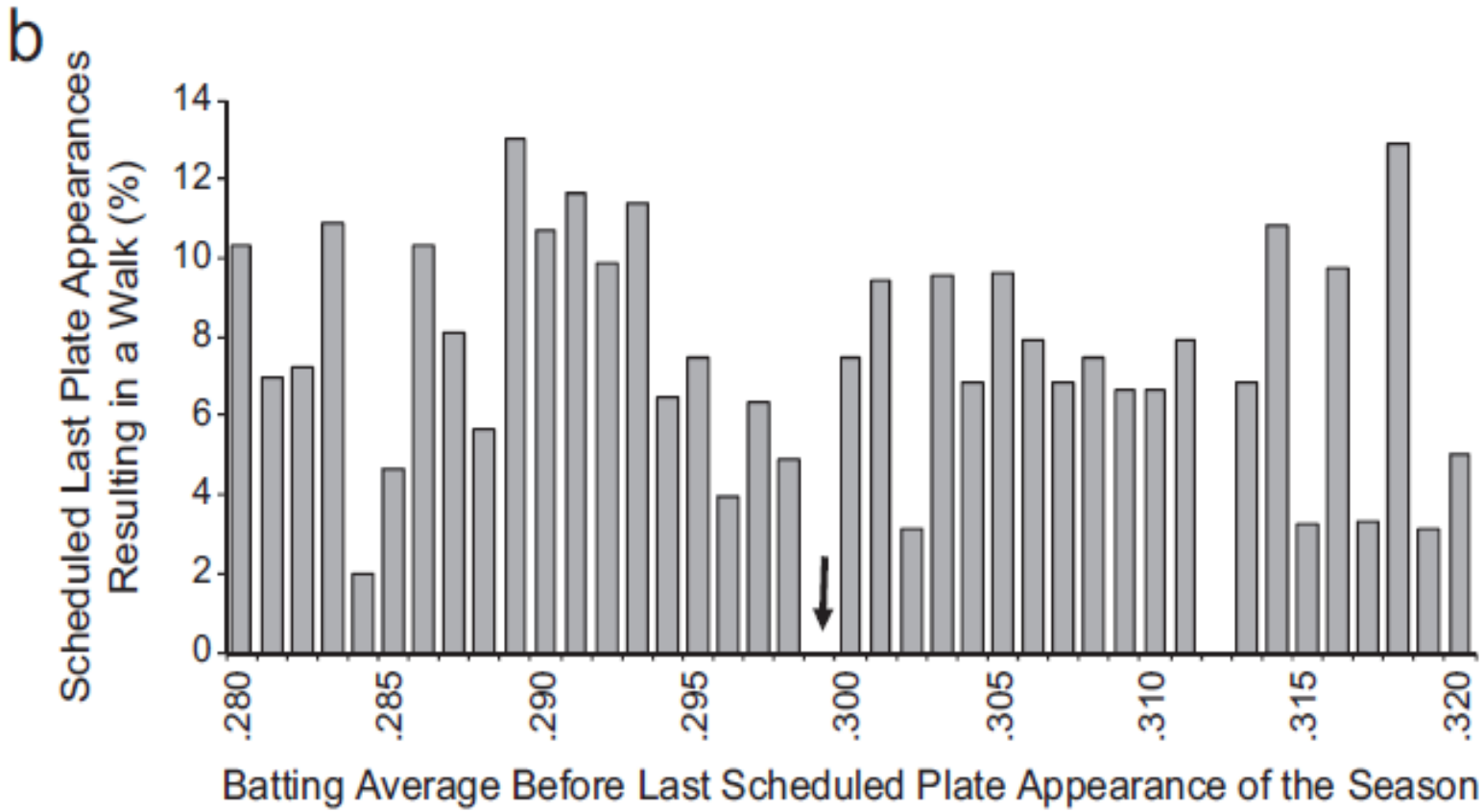


Fig. 1. Relative frequency of batting averages among Major League Baseball players between 1975 and 2008. Batting averages at the end of the baseball season and with five plate appearances left in the season are shown. The graph includes only player-seasons with at least 200 at bats.

- Players with .298 or .299 (0.97 %) $<$ with .300 or .301 (2.30 %), $Z = 7.35$, $p < .001$.
- Control distribution : when 5 plate appearances left in the season.



- Players with AVG of .299 was likely to get a base hit(43%) than overall(22.8%) at their last PA.
  $Z = 3.62, p < .001$.



- .298 or .299 players tend to walk (四球) than .300 or .301 players.
  $Z = 2.14$, $p = .032$.

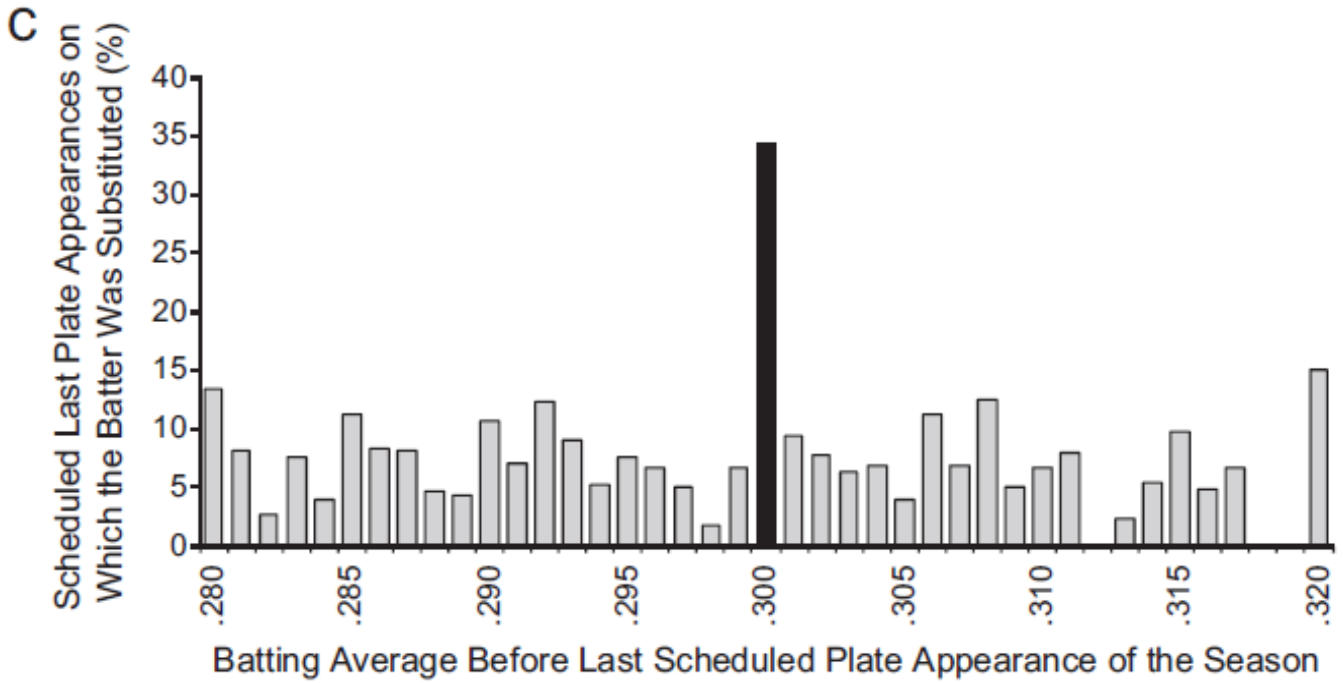


Fig. 2. Outcome of the last scheduled plate appearance of the season: percentage of plays resulting in (a) base hits, (b) walks (which cannot increase batting average), and (c) batter substitutions (pinch hitter brought in). Bars involved in tests of predictions are highlighted in black. The arrow in (b) emphasizes that not a single player with a batting average of .299 walked.

- If his AVG is just above .300, then he might end the season earlier by being substituted.
  $Z = 8.29$ and $p < .001$.

Pope & Simonsohn

- The behavior of baseball players proved the existence of the reference point of round numbers, such as batting average of .300.
- Limitations:
  There were only one relevant round number.
  Action to improve their performance took place on the last plate appearance.

Hakes & Sauer

- *"Moneyball Hypothesis"*
  : Michael Lewis's claim that the valuation of skills in MLB player's market was grossly inefficient.

Extension

- How about other batting indexes other than batting average?