

Disentangling success in baseball with ball-tracking technologies

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Skill vs. luck: disentangling success in complex systems
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Example: Jonathan Sanchez

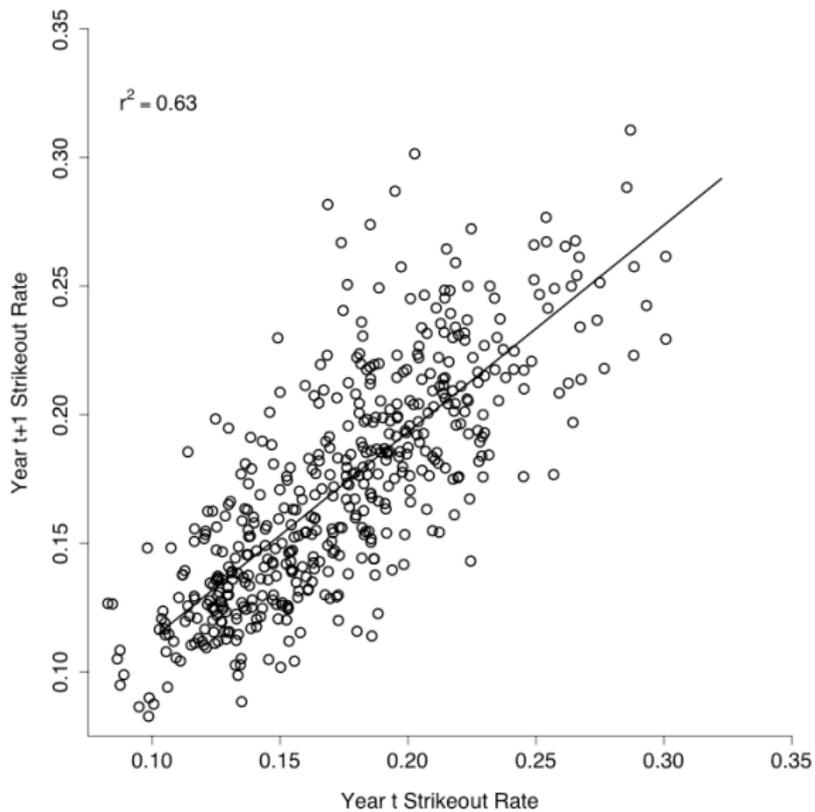
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2006-2009	413	4.81	0.234	0.117	0.401	0.305
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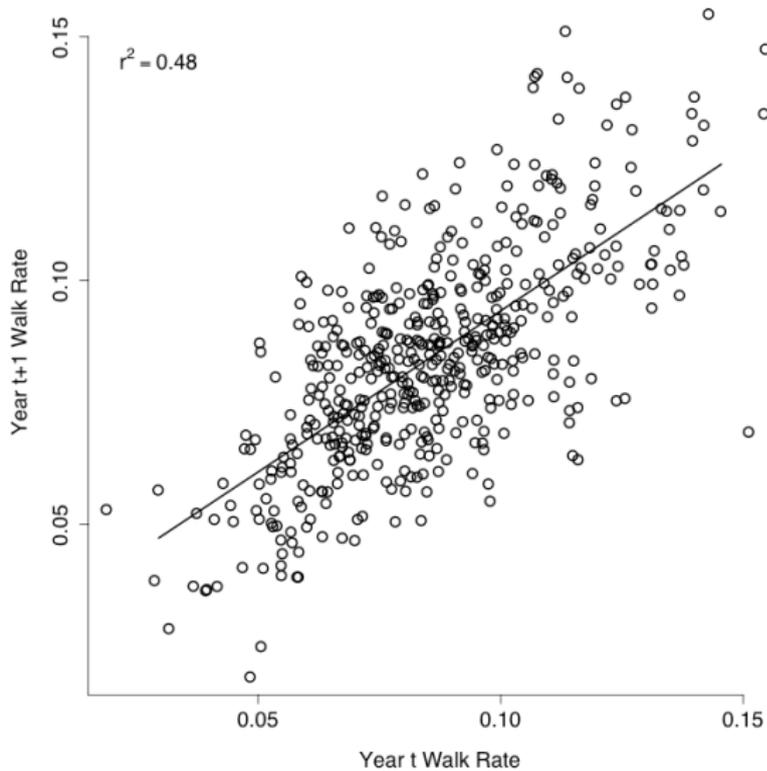
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Was Sanchez's low ERA in 2010 the result of improved skill or just good luck? What should we expect in 2011?

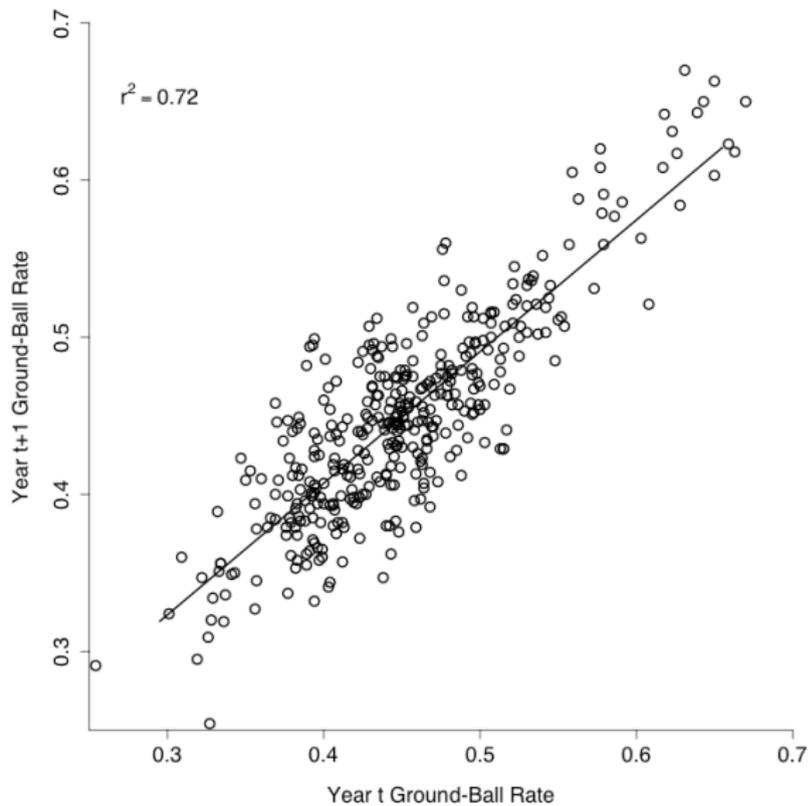
Strikeouts



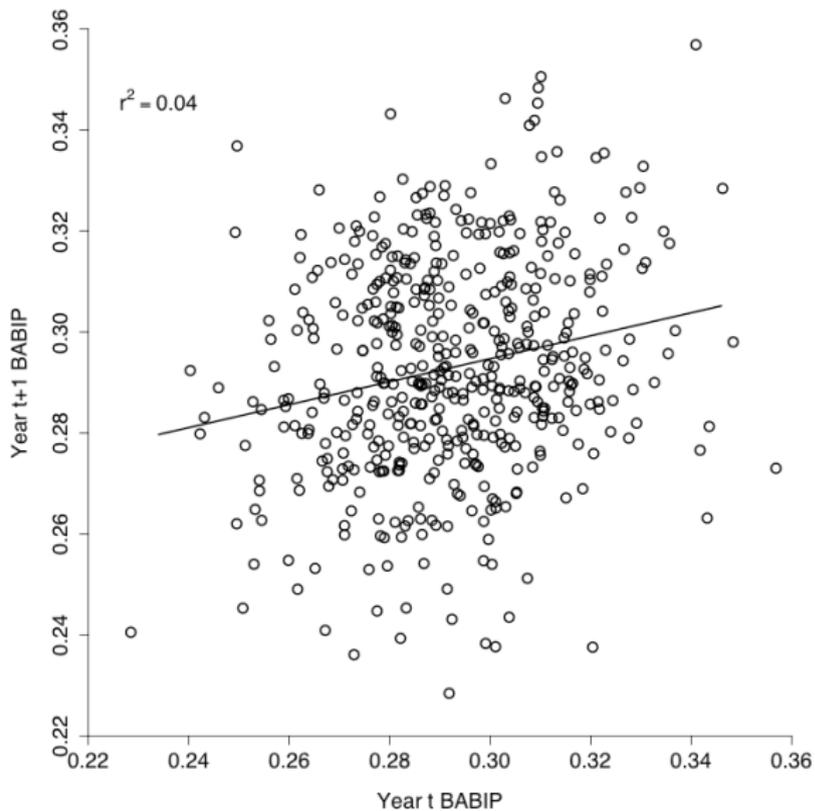
Walks



Ground Balls



Batting Average on Balls in Play



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- ▶ Led to new way to evaluate pitchers based solely on strikeouts, walks and ground balls (or home runs). Called fielding- or defense-independent pitching evaluation.
- ▶ New metrics created (FIP, xFIP, SEIRA, ...) that gave the expected ERA of a pitcher based on these three rates. Better measure of pitcher skill than ERA.

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- ▶ Are we throwing the baby out with the bathwater by saying BABIP is completely driven by defense and luck, and not by the pitcher at all?
- ▶ Can we identify pitchers who legitimately 'deserve' a low BABIP before they accumulation a thousand innings?

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- ▶ From the fit we know: pitch release point, spin rate and direction, amount of 'break', speed, location where it crossed the plate.
- ▶ Installed in 2007, the system has tracked almost 2.5 million pitches and the data are publicly available.

Pitchf/x and BABIP

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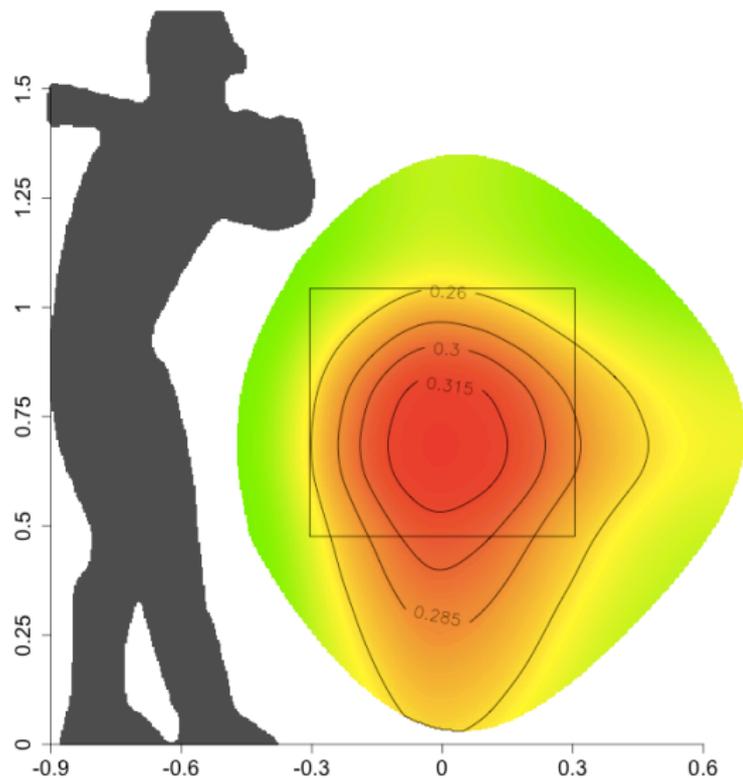
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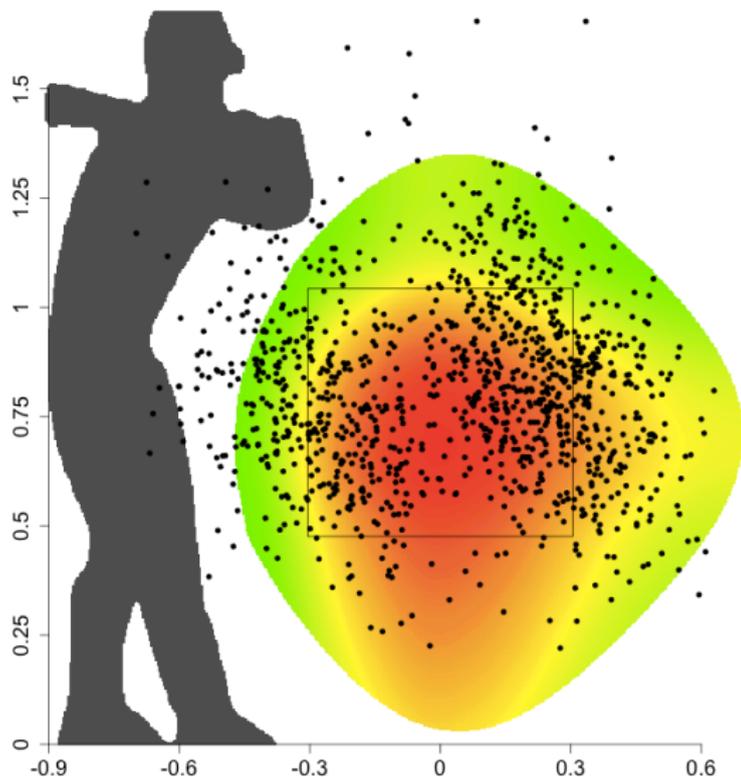
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- ▶ BABIP is location dependent.

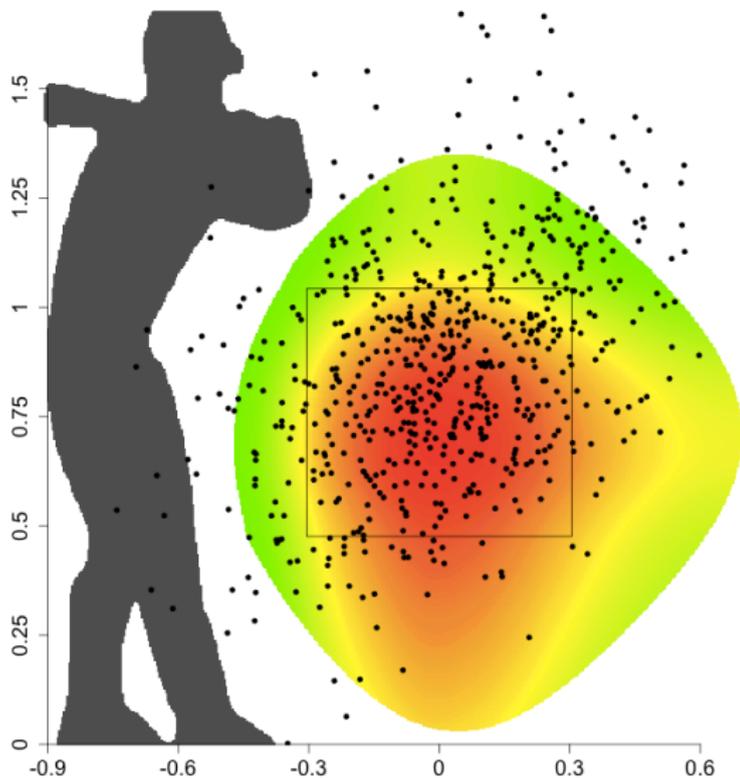
BABIP by pitch location



Mariano Rivera pitch locations



Jonathan Sanchez pitch locations



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- ▶ More importantly, better assess the skill of fielders. This assessment would be greatly improved with ball-in-play data.

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- ▶ Still there is some signal of pitcher skill in BABIP, and pitch-tracking data can help us find this otherwise hidden signal for individual pitchers.
- ▶ Ball in play data should make fielding evaluation much better.