

Statistical analysis of batter productivity from changed strike zone could spell trouble

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New statistical analysis examining changes in batter productivity as a result of the recently changed strike zone could raise concern for the Major League Baseball Players Union and individual baseball players. University of Florida Assistant Professor of Tourism, Recreation and Sport Management Brian Mills will present new findings on this subject August 1 at the Joint Statistical Meetings (JSM) in Baltimore, Md.

Recent work has shown that relatively precise tracking technology used to monitor MLB umpires has resulted in considerable improvement in ball-strike accuracy at the expense of total offense. Given that players' skillsets vary, these changes may affect players differently.

Though he thinks the new data will not likely translate into salary moving from hitters to pitchers, Mills notes money could be redistributed. "It's possible that batters who are not effective at hitting pitches low in the strike zone could be impacted [detrimentally relative to those better at hitting low pitches]. And that could lead to internal struggles among players," he said. Additionally, "union officials would have good reason to demand a role in negotiations on enforcement of policy largely external to players themselves."

To estimate pitch location-specific differences in run expectancies, Mills incorporated pitch-level data on umpire ball-strike calls (via PITCHf/x) from the 2008-2016 MLB seasons into what is known as a generalized additive model. Pitch-level error terms were then aggregated at the player level to identify deviation in performance from the league-level

expectation across pitch locations. Finally, the aggregations were applied in the context of the changes in the strike zone and shifts in [pitch](#) location choices in subsequent seasons to arrive at expected performance and salary impacts for individual players.

Provided by American Statistical Association

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