The Objective Truth about Baseball: Pythagorean Expectation and Luck

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Abstract: The Major League Baseball Players Association (MLBPA) is reposnding to the recognized need to offer education opportunities to current players. In partnership with the *Science of Sport*, the MLBPA would like to offer current players the opportunity to attain an Executive Certificate in Baseball Analytics from the University of Arizona. The program will consist of six courses ranging from data visualization to statistical analysis. Sabermetrics is the field of study exploring and analyzing the statistics of baseball. In order to bolster the Sabermetrics course module within the program, analysis of Pythagorean Expectation will be explored. The purpose of this study is to both create a usable course module on Pythagorean Expectation to be included in the program's curriculum, and to expand the Sabermetrics body of knowledge. The knowledge expansion will be achieved in the assessment of a team's source of 'Luck'. As asserted by the principles of Pythagorean Expectation, if a team's actual winning percentage is higher than its expected winning percentage, then the team is positively influenced by 'Luck'. A 10-team case study will analyze this assertion and determine which of a myriad of factors most influence a team's luck or lack thereof.

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