Original Article

Great expectations: An analysis of major league baseball free agent performance

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Abstract

We explore whether free agents in Major League Baseball meet the expectations set forth by newly signed contracts. The value and duration of these contracts are negotiated between the player (and his agent) and the signing team and are based primarily on the player's performance to date, projected future performance, and potential marketing value to the team. We develop two classes of models to explore this problem using a variety of regression - and tree - based machine learning algorithms. The market model uses player and team data to predict the market value of a player's performance (i.e., average contract salary). The performance model uses the same data to predict wins above replacement as a surrogate for overall player performance. We translate this measure into dollars using position - based conversion factors. Analysis of these models

We translate this measure into dollars using position - based conversion factors. Analysis of these models demonstrates that the performance model more consistently predicts and assesses player value with respect to their free agent contracts. Together, these models can be used to target or avoid free agents (or other players) whose performance - based value differs significantly from their market value. © 2016 Wiley Periodicals, Inc. Statistical Analysis and Data Mining: The ASA Data Science Journal, 2016

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